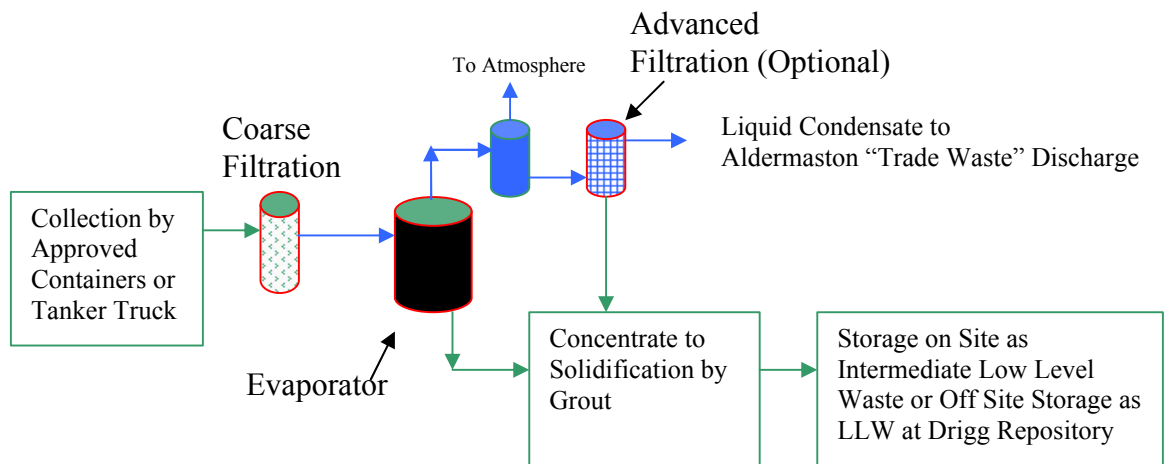


THERMODYNAMIC MODELING OF THE AWE RADIOACTIVE AQUEOUS WASTE TREATMENT PLANT EVAPORATOR

April 2003

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AWE-Aldermaston - Radioactive Aqueous Waste Treatment Plant –
Simplified Flowsheet

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Aiken, SC 29808



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EXECUTIVE SUMMARY

Operation of the proposed AWE Aldermaston¹ Radioactive Aqueous Waste Treatment Plant evaporation system was modeled using the Environmental Simulation Program (ESP) licensed by OLI Systems, Inc. The projected RAWTP waste influents as well as two simulants (High Foam and Low Foam) were modeled to predict the composition of the feed, concentrate and condensate for projected waste influents.

Over ninety simulations were conducted and the chemical and physical properties for twelve projected waste streams and two waste simulants were calculated. Mathematical models were generated that relate the following physical parameters:

- Volume reduction factor as function of insoluble solids formed in the evaporator bottoms.
- Insoluble solids formed as a function of solids concentration in the evaporator bottoms.
- Product density as a function solids concentration in the evaporator.

The model predicted that higher volume reduction factors are obtained at the defined solubility point (0.5 % insoluble solids in the evaporator bottoms) with acidic waste effluents (Feed Case pH=6.5) as compared to alkaline waste effluents (pH=8.5). The higher volume reduction factors are due to the higher solubility of the major analytes in acidic solutions as compared to alkaline solutions. Therefore, it is recommended that pretreatment of the RAWTP waste streams with a suitable acid (e.g. HNO₃) and subsequent treatment of the concentrate with NaOH prior to grouting should be investigated as an option to evaporation of alkaline wastes.

Ca₃(PO₄)₂ and CaSO₄·2H₂O are predicted to be the major insoluble species formed in the RAWTP evaporator. Generally, carbonate will evolve as CO₂ in acidic to slightly basic solutions. Carbonate and dissolved CO₂ (>99%) were predicted to evolve as carbon dioxide in the Future RAWTP waste streams. A greater percentage of the feed carbon was predicted to precipitate in the AWE High Foam Simulant as carbonate (≈ 5%), but this is due its lower initial feed concentration; the actual carbonate concentrations and precipitated solids of the concentrated High and Low Foam simulants are very similar. Chamosite 7A (Fe₂Al₂SiO₅(OH)₄), is predicted to form in the RAWTP evaporator. Based upon SRS experience with evaporation, the formation of complex Fe-Al-Si minerals in the AWE evaporator could present a scaling problem on the evaporator heat exchanger

¹ The main center for warhead research and manufacture is located about 12 miles from the town of Reading (West of London). AWE's main site at Aldermaston has been operating since 1952, originally as part of the UK Atomic Energy Authority, more recently as government-owned, contractor-operated facility. Aldermaston employs some 5000 people and the facility covers 880 acres. AWE-Aldermaston is currently operated by an equal partnership between Lockheed Martin, BNFL Ltd. and Serco plc. The AWE-Burgfield site also located in Berkshire is primarily involved with the assembly and maintenance of the British nuclear stockpile.

surfaces. SRTC recommends that AWE conduct evaporator cleaning studies with the concentrated simulants obtained from pilot testing to determine suitable chemical cleaning agents and procedures for the RAWTP. Uranium was predicted to be insoluble in the RAWTP wastes.

INTRODUCTION/OBJECTIVES

Introduction

The Atomic Weapons Establishment Aldermaston site currently discharges radioactive aqueous waste through the Pangbourne pipeline (PPL) that runs underground to the Thames River. Regulatory requirements imposed by the UK Environmental Agency (EA) as well as stakeholder interests have committed AWE to cease discharges to the PPL by April 1, 2005^{2, 3}.

AWE plans to build the Radioactive Aqueous Waste Treatment Plant (RAWTP) to treat the aqueous radioactive waste that is currently being discharged through the PPL. A general schematic of the RAWTP flowsheet is shown in Figure 1.

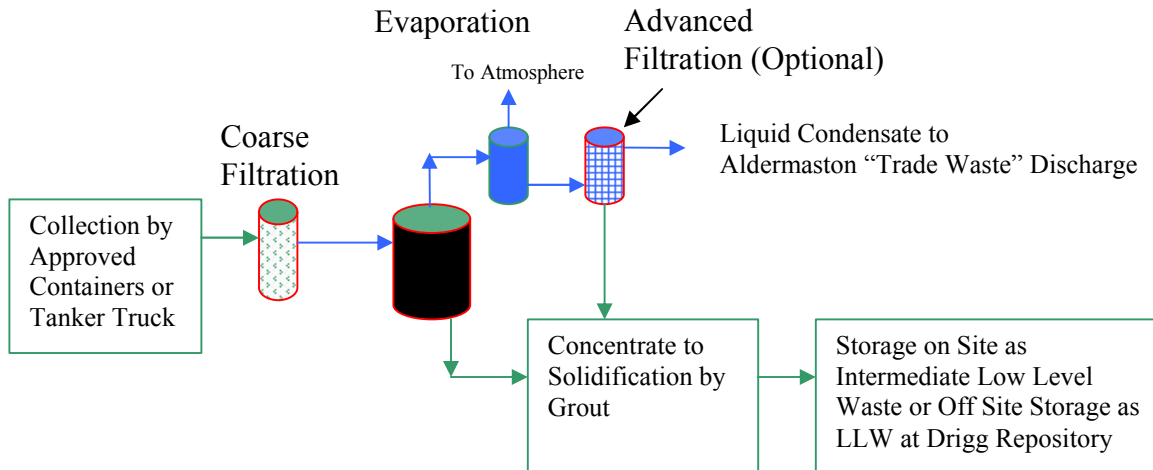


Figure 1 – Radioactive Aqueous Waste Treatment Plant – Simplified Flowsheet

² Environmental agreements signed by the UK at the Oslo and Paris Convention at Sintra Portugal in July 1998 have committed the UK to reduce radioactive and hazardous waste discharges to the marine environment. The agreement intent with respect to radioactive substances is to achieve “progressive and substantial reduction of discharges, emissions and losses” and “concentrations in the environment to near background values for naturally occurring radioactive substances and close to zero for artificial radioactive substances”⁴.

³ Crane, A., Alternative to the Pangbourne Pipeline – Options & Feasibility Study, AWE/DSE07/B/L/RP/EVAP/13.06.89.14/99-11, Issue 1 October 1999, Atomic Weapons Establishment, Aldermaston, Reading Berkshire RG74PR. Selected excerpts from the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic – Ministerial Meeting of the OSPAR Commission – Sintra 22-23 July – Sintra Statement Final – Annex 45, Draft Summary Record, OSPAR 1/14/98, Annex 45. A meeting of the Oslo and Paris Commissions at Ministerial level was held in Paris on 21-22 September 1992 (MMC 1992). This meeting was attended by European Ministers responsible for the marine environment. The most important outcome of this Ministerial meeting was the adoption of a new Convention for the Protection of the Marine Environment of the North-East Atlantic (the "OSPAR Convention"), together with a Final Declaration and an Action Plan to guide the future work of the Commissions.

Radioactive aqueous wastes containing low levels of uranium and plutonium from various waste generators on the Aldermaston site will be trucked or shipped by small containers to the RAWTP. The liquid waste would then be filtered and concentrated in an evaporator. The evaporator overheads are further treated by an advanced filtration (e.g. reverse osmosis) and then discharged to the Aldermaston "Trade Waste" plant. The existing "Trade Waste" plant handles mostly chemical hazardous wastes or those wastes containing only very low levels of natural or depleted uranium. The concentrated liquors from the evaporator would be immobilized in a containerized grout waste form. The immobilized waste would be stored on site as intermediate level waste or shipped to the national repository for low level waste at Drigg⁴.

Objectives

The main objective of this work is to model the RAWTP evaporator using OLI Systems, Inc. Environmental Simulation Program (ESP) to predict the composition of the feed, concentrate and condensate for various waste feed composition vectors provided by AWE. Specific model calculations and the results of interest were agreed upon prior to starting this task and are listed below:

- Composition of Evaporator Feed, Concentrate and Condensate waste streams within the composition envelope after concentration of the evaporator feed to 30wt% total solids.
- Composition of Evaporator Feed, Concentrate and Condensate for AWE High and Low Foam Simulant after concentration to 30wt% total solids.
- Concentration Factor at a predefined solubility point (% insoluble solids = 0.5wt% in evaporator concentrate),
- Determine the effect of concentration on the percent of insoluble solids formed reported as plots of the percent of insoluble solids as a function of total solids in the evaporator concentrate,
- Determine the function of concentration on evaporator concentrate density reported as a function of total solids in the evaporator concentrate,
- Comparison of the Feed stock pH to the target pH assumed in the AWE waste feed vector.

MODEL OVERVIEW

Described in this report is a thermodynamic equilibrium model of the RAWTP evaporation process. An evaporator model constructed for the Hanford River Protection Waste Treatment Plant was modified for this task⁵. The model was constructed using

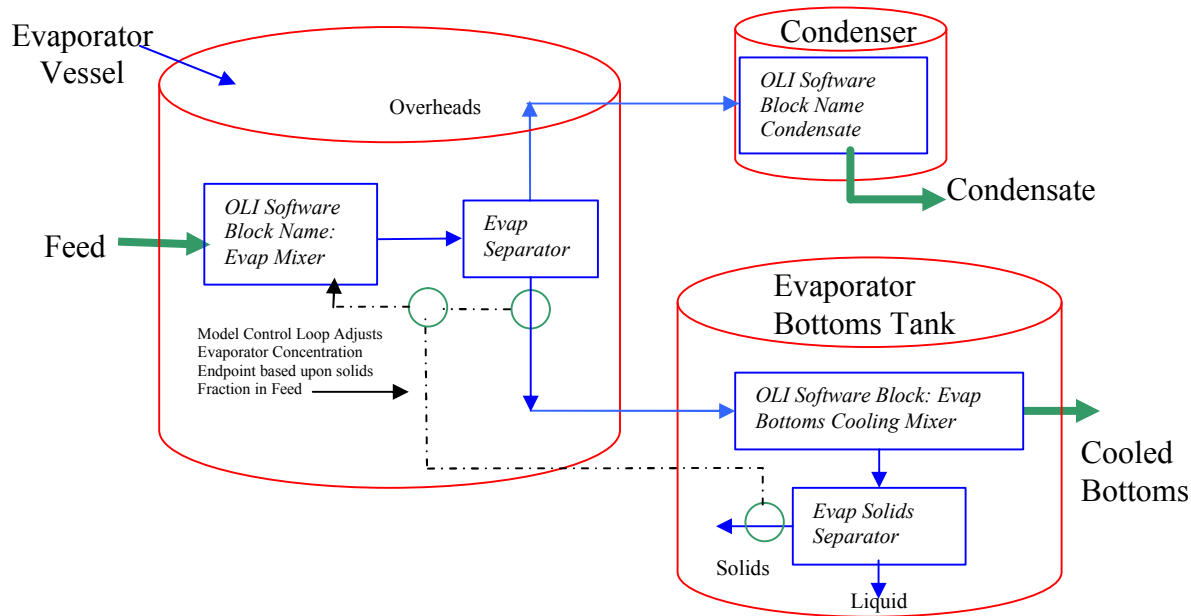
⁴ Drigg is located near Sellafield on the Cumbrian Coast in Northern England.

⁵ Barnes, C. B., Edwards, T. B. & Choi, A. S., August 2000, Preliminary Modeling Results of Evaporated Tc - Eluate Physical Properties, WSRC-TR-2002-00319 Rev. 0, Westinghouse Savannah River Company, Aiken SC.

OLI System, Inc Environmental Simulation Program (ESP, Version 6.6). OLI uses a thermodynamic and mathematical framework for predicting the equilibrium properties of a chemical system. The software is used by DOE facilities at Hanford and Savannah River Site to model the aqueous electrolyte chemistry of waste streams generated from the Cold War. The OLI mathematical framework is based upon:

- Revised Helgeson Equation of State for predicting standard-state thermodynamic properties of all species in water;
- the Bromley-Zemaitis framework for prediction of excess thermodynamic properties of ions;
- the Pitzer and Setschenow formulation for prediction of excess thermodynamic properties of molecular species in water;
- the Enhanced SRK Equation of State for prediction of vapor and non-aqueous, liquid phase thermodynamic properties. This equation applies mostly to organics that are sparingly soluble in water.

The predictive framework is partly described in reference^{6,7}. The OLI software contains an extensive databank of thermodynamic and physical properties containing over 3,000 inorganic and organic species. The databank supports the predictive framework⁷. ESP is used to simulate, design and optimize chemical processes, including complete process flow sheets. The evaporator model constructed for this effort is shown in Figure 2.



**Figure 2 – Schematic of AWE Evaporator Model – OLI ESP Software Blocks
Names shown in Italics**

⁶ Zemaitis, J. F. , Clark, D. M., Rafal, M. and Scrivner, N. C., *Handbook of Aqueous Electrolyte Thermodynamics*, AIChE, Inc., New York, ISBN 0-8169-0350-6. M. Rafal is one the founders and owners of OLI Systems, Inc.

⁷ OLI System, Inc., *A Guide to Using the OLI Engine*, 2002, Version 6.0 Revision 6.6, Morris Plains, NJ 07950.

Figure 2 shows the internal OLI/ESP software blocks that are used to simulate an evaporator, condenser and concentrated evaporator liquor bottoms tank. The model includes control loops that allow the user to concentrate the evaporator feed to a desired endpoint based upon the concentration of insoluble solids in the cooled evaporator bottoms. The model output includes the feed, condensate, cooled bottoms, evaporator contents, hot evaporator bottoms and overheads composition.

Model simulations were performed with target evaporator endpoints of 0.1, 0.5, 1, and 5wt% insoluble solids in the cooled evaporator bottoms. Additional model simulations were performed with target evaporator endpoints of 10, 20 and 30wt.% total solids in the cooled evaporator bottoms.

Model Assumptions and Bases

The following assumptions and conditions were used for each simulation:

- The evaporator pressure was set to a value slightly below atmospheric pressure (-5 inwc. gauge or 0.987 atm absolute).
- The evaporator bottoms and condensate were cooled to 25 °C, 1 atm.
- The OLI Public databank of chemical properties was used for all modeling runs.
- An evaporator feed rate of 1 kg/hr was used for all modeling runs.

Waste Feed Composition

The feed composition was provided by AWE in reference⁸ and summarized in Table 1 and Table 2.. The compositions are based upon an annual radioactive waste generation rate of 1500 cubic meters/yr, and presented in terms of the percentage of individual batches of waste effluent. The design basis case for the RAWTP evaporator is the 80% case shown in the tables. The compositions listed Table 1 and Table 2 differ only by the concentration of sodium and potassium which are used to charge balance⁹ the stream.

⁸ Crane, A., Email to Calloway, T. B., FW: Information for Bond Calloway following Conference Call, Atomic Weapons Establishment, Aldermaston, Reading Berkshire RG74PR, 5/16/02.

⁹ Reference [8] provided further explanation of the charge balance assumptions used by AWE. The net charge on the carbonate and phosphate anions was calculated from the dissociation constants:-

This difference in concentration is due to the shift in distribution of the carbonate and phosphate species (i.e. ratio of carbonate to bicarbonate) between a pH of 6.5 and 8.5.

Table 1 – Predicted Limit Compositions of Future RAWTP Waste Streams at pH 6.5

Case	50%	60%	70%	80% Design Basis	90%	95%
Concentration in mg/L						
Al	1.7	2.1	2.4	2.8	3.2	6.1
Ba	0.056	0.068	0.08	0.092	0.1	0.11
Ca	29	32	35	40	50	58
Cd	0.001	0.0019	0.004	0.0052	0.0066	0.0078
Cl	47	56	76	100	140	160
CO ₃	60	66	72	90	100	110
Cr	0.0028	0.0034	0.0041	0.0063	0.0096	0.13
Cu	0.2	0.25	0.33	0.43	0.6	0.74
Fe	3.1	4	4.8	5.7	7.3	8.2
<i>K</i>	<i>0.0316</i>	<i>0.0395</i>	<i>0.0521</i>	<i>0.0679</i>	<i>0.0947</i>	<i>0.1168</i>
Mg	6	6.9	8	9.2	13	14
<i>Na</i>	<i>9.9019</i>	<i>11.387</i>	<i>13.203</i>	<i>15.183</i>	<i>21.454</i>	<i>23.104</i>
Ni	0.055	0.064	0.076	0.088	0.12	0.15
NO ₃	21	25	29	45	79	110
Pb	0.44	0.533	0.62	0.71	1.3	2.1
PO ₄	14	17	20	25	80	110
SiO ₂	9.9	11	12	14	15	16
SO ₄	47	56	71	92	120	160
Sr	0.99	1.3	1.5	1.9	2.6	2.7
U	0.48	0.58	0.69	1	1.9	2.8
Zn	1.4	1.7	1.9	2.5	3.3	3.7

(Carbonic acid pK (25 °C) 6.35 and 10.33; Phosphoric acid pK (25 °C) 2.16, 7.21 and 12.32). These values were taken from the CRC Handbook, 75th Edition. A pH of 8.5 is about halfway between the pK for H₂CO₃ / HCO₃⁻ and the pK for HCO₃⁻ / CO₃²⁻, so it was assumed that the small amount of CO₃²⁻ present at pH 8.5 would be balanced by the amount of H₂CO₃ present. The charge on all the other species was assumed to remain constant as the pH varied. It was assumed that the metals such as aluminium would be present as Mⁿ⁺. The amounts of sodium and potassium in the various limit compositions were adjusted to maintain an ionic balance.

Table 2 – Predicted Limit Compositions of Future RAWTP Waste Streams at pH 8.5

Case	50%	60%	70%	80% Design Basis	90%	95%
Concentration in mg/L						
Al	1.7	2.1	2.4	2.8	3.2	6.1
Ba	0.056	0.068	0.08	0.092	0.1	0.11
Ca	29	32	35	40	50	58
Cd	0.001	0.0019	0.004	0.0052	0.0066	0.0078
Cl	47	56	76	100	140	160
CO ₃	60	66	72	90	100	110
Cr	0.0028	0.0034	0.0041	0.0063	0.0096	0.13
Cu	0.2	0.25	0.33	0.43	0.6	0.74
Fe	3.1	4	4.8	5.7	7.3	8.2
<i>K</i>	<i>8.051</i>	<i>9.7885</i>	<i>13.719</i>	<i>20.309</i>	<i>33.243</i>	<i>42.271</i>
Mg	6	6.9	8	9.2	13	14
<i>Na</i>	<i>32.205</i>	<i>39.155</i>	<i>54.878</i>	<i>81.237</i>	<i>132.98</i>	<i>169.09</i>
Ni	0.055	0.064	0.076	0.088	0.12	0.15
NO ₃	21	25	29	45	79	110
Pb	0.44	0.533	0.62	0.71	1.3	2.1
PO ₄	14	17	20	25	80	110
SiO ₂	9.9	11	12	14	15	16
SO ₄	47	56	71	92	120	160
Sr	0.99	1.3	1.5	1.9	2.6	2.7
U	0.48	0.58	0.69	1	1.9	2.8
Zn	1.4	1.7	1.9	2.5	3.3	3.7

The feed compositions presented in Table 1 and Table 2 were used for all the simulation cases. Two additional evaporator feed compositions (Standard-Low Foam Simulant and High Foam Simulant) were also modeled and are shown in Table 3. Commercial soaps and cutting oils¹⁰ present in the actual waste are added to each simulant recipe in order to observe their effect on foaming during evaporation. These simulants are made using ground water (“borehole water”) containing relatively high amounts of calcium. The composition of the standard and high foam simulant was adjusted slightly for this task to maintain charge balance. The foam causing agents were simulated by adding Lauric Acid (C₁₂H₂₄O₂, CAS No. 143-07-7, see Figure 3) in all model runs of the high and low foam

¹⁰ Recipe for 1 L of organic mixture is: Commercial soaps added to AWE simulant include Cleenol Luxury Liquid Soap (60g), Cleenol Hair and Body Gel (40g, Cleenol) and Sprint Cream Cleaner (2.5g, S C Johnson). The cutting oil is aqueous fraction from 5% w/w Solcut E cutting fluid (60 mls, Houghton Vaughan). 4.5 liters of organic mixture/1000 kg of standard simulant vs. 11 liters/1000 kg of the high foam simulant.

simulants. Lauric acid was chosen to represent the foaming agents because many common soap products contain sodium laurate. While OLI/ESP does not predict how a simulant might foam, it does capture the effects of the additional organics on the chemical equilibrium and stream compositions.



Figure 3 – Structure of Lauric Acid (Dodecanoic acid)

Table 3 – Cation and Anion Composition of Standard and High Foam Simulant

	Concentration in mg/L	
	Standard Simulant	High Foam Simulant
Al	3.6	2.4
Ca	53.0	42.0
Cl	122.0	65.0
CO ₃	118.0	82.0
Fe	7.4	4.3
K	37.0	12.0
Mg	12.0	9.0
Na	103.0	38.2
NO ₃	58.0	30.0
PO ₄	32.0	20.0
SiO ₂	18.0	14.0
SO ₄	118.0	65.0
Zn	3.2	2.0

MODEL RESULTS

Composition of Evaporator Feed, Concentrate and Condensate

The compositions of the evaporator feed, concentrate and condensate for each of the feed input vectors reported in Table 1, 2 and 3 (high/low foam stimulant) are shown in Appendix B. The evaporator model developed for this task was used to concentrate the feed vectors until the evaporator concentrate reached a concentration of 30wt% total solids. The tables presented in Appendix B are completed material and energy balance files and also provide chemical and physical property data (e.g. density) and engineering data (e.g. enthalpy) for each stream modeled. The predicted composition of the AWE evaporator process is reported in full ionic form.

Concentration Factor at a Predefined Solubility Endpoint of 5wt% Insoluble Solids

The volume reduction factor at the defined solubility point (Insoluble Solids = 0.5wt% in the Evaporator Concentrate) was calculated for each of the feed compositions (pH=6.5 & 8.5: 50 – 95% Cases) as shown in Table 1 and Table 2. The volume reduction factors at the defined solubility endpoint are shown in Table 4 and Figure 4. Two general trends are indicated by the data in Table 4: 1) The volume reduction factor decreases as the cation and anion concentration increases in the waste 2) Higher volume reduction factors was predicted when processing acidic wastes.

Table 4 – Volume Reduction Factor at the Defined Precipitation Endpoint (% insoluble Solids = 0.5wt%)

Feed Input Vector - % Waste Effluent	Volume Reduction Factor for Feed pH=6.5 at Precipitation Point (Insoluble Solids = 0.5% in Evaporator Concentrate)	Volume Reduction Factor for Feed pH=8.5 at Precipitation Point (Insoluble Solids = 0.5% in Evaporator Concentrate)
50%	75.4	71.8
60%	67.4	64.2
70%	60.7	57.8
80%	52.0	49.5
90%	40.4	30.6
95%	32.9	24.0

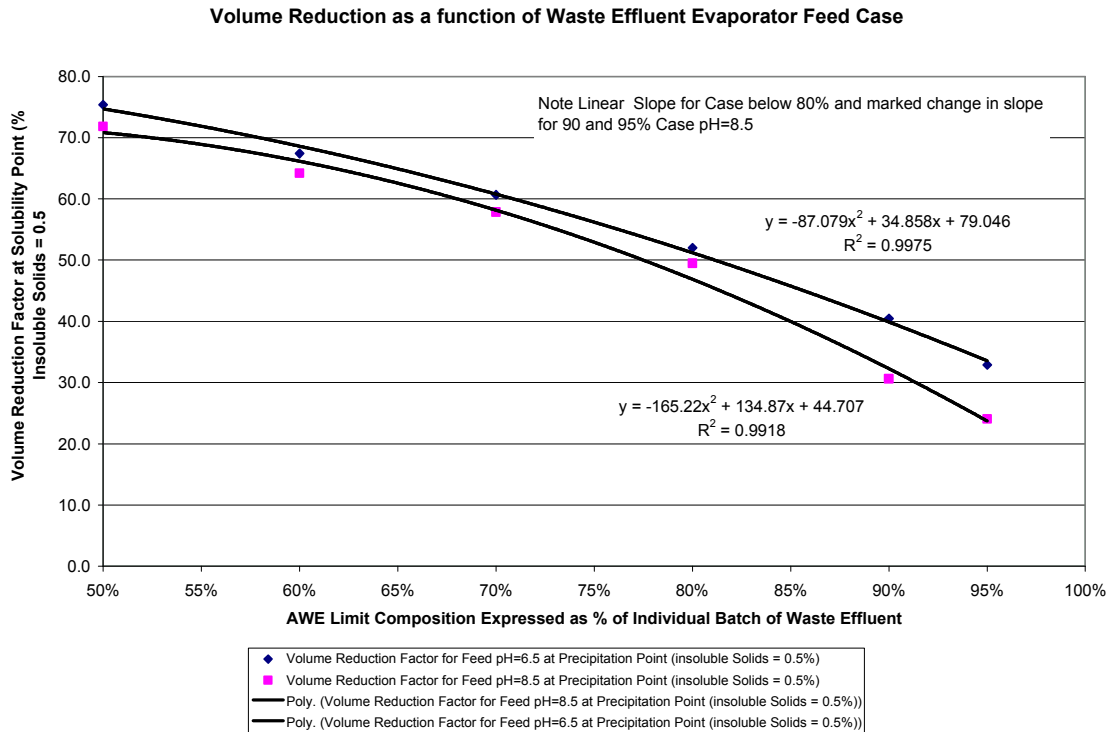


Figure 4 – Volume Reduction Factor at the Defined Solubility Point (wt% Insoluble Solids = 0.5) as a Function of AWE Limit Composition for Feed Case pH=6.5 & 8.5 50-95%

The higher volume reduction factors obtained with acid waste provide insight into a possible process improvement. Acid adjustment of the caustic AWE wastes might improve the overall throughput by increasing the volume reduction (i.e. increasing the solubility of the waste components (e.g. Ca)) for a given waste stream. Additionally, acidic wastes generally have fewer tendencies to scale and foam than caustic wastes. Once the waste is concentrated and discharged from the evaporator, sodium hydroxide could be added to pretreat the concentrated waste for cementation. SRTC recommends that AWE consider evaluating acidification of the waste effluents prior to evaporation and pretreatment of the evaporator concentrate with sodium hydroxide.

The model was also used to calculate the volume reduction factor until target insoluble solids loadings of 0.1, 0.5, 1 and 5wt% were obtained in the evaporator concentrate. Additionally, the volume reduction factor was also calculated by allowing the model to concentrate the feed until the evaporator concentrate reached 10, 20 and 30 wt% total solids. The volume reduction factor as a function of insoluble solids loading for the limit compositions reported in Table 1 and Table 2 (Feed pH=6.5 & 8.5: 50 – 95%) are shown Figure 5 and Figure 6. Correlation of the volume reduction factor as a function of insoluble solids loading is shown in each plot for the 80% limit composition case.

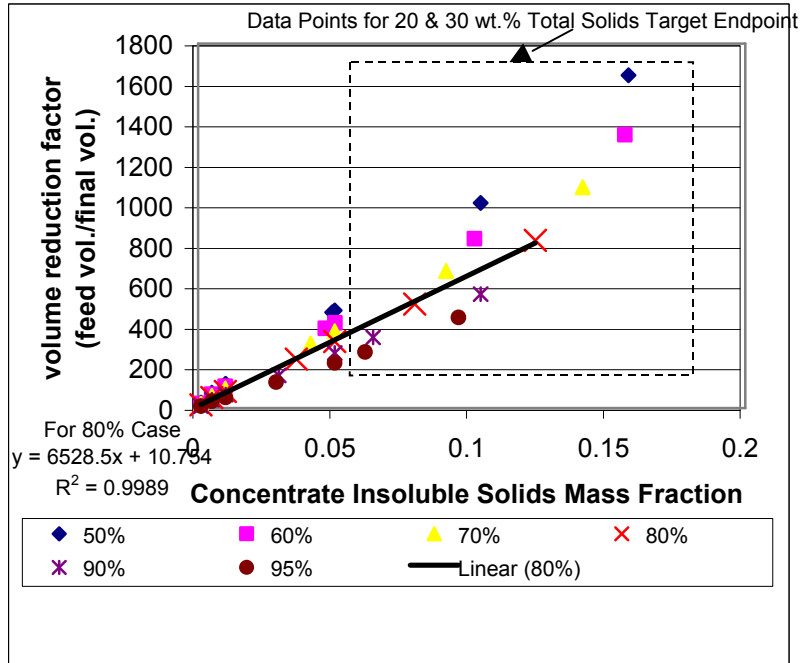


Figure 5 - Volume Reduction Factor as a Function of Insoluble Solids in the Evaporator Concentrate – Case RAWTP pH=6.5 for Evaporator Feed - Concentrate Target Endpoints of 0.1, 0.5, 1, 5wt% Insoluble Solids and 10, 20 and 30wt% Total Solids in Concentrate

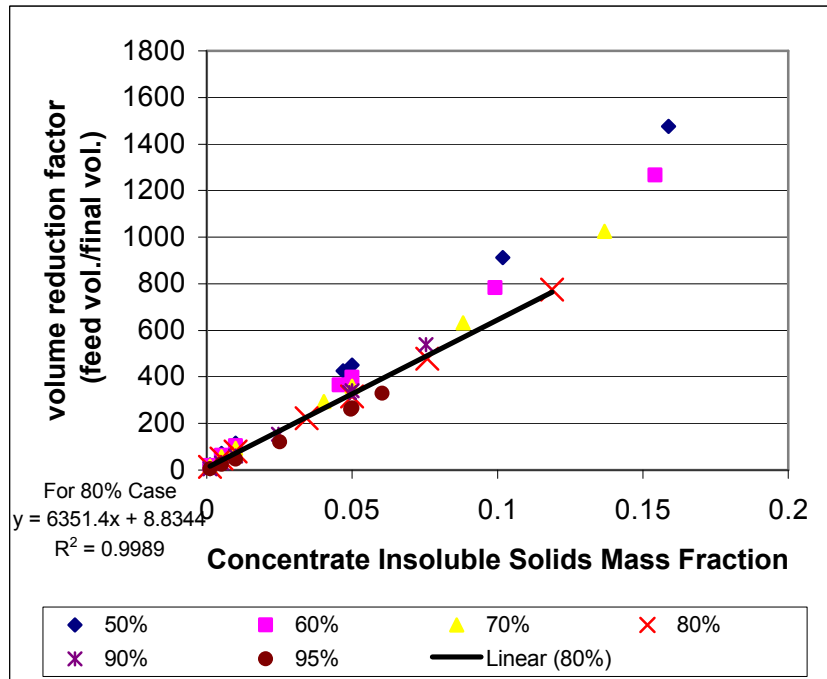
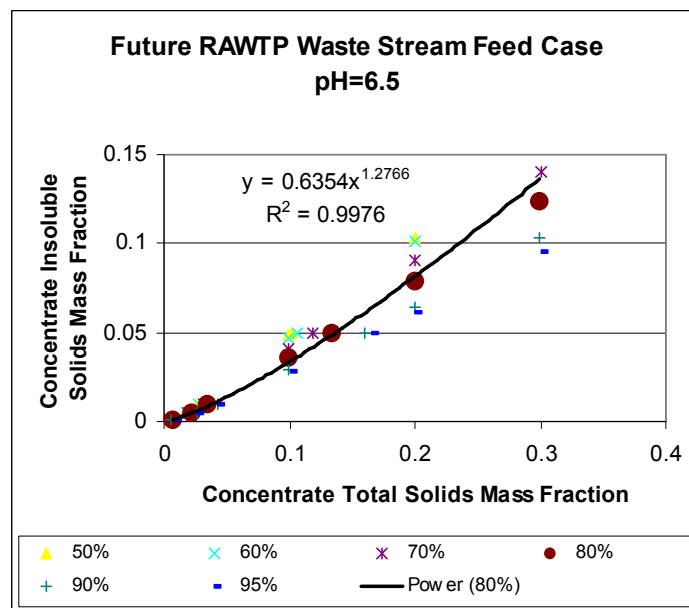


Figure 6 - Volume Reduction Factor as a Function of Insoluble Solids in the Evaporator Concentrate – Case RAWTP pH=8.5 for Evaporator Feed - Concentrate Target Endpoints of 0.1, 0.5, 1, 5wt% Insoluble Solids and 10, 20 and 30wt% Total Solids in Concentrate

Effect of Concentration on Mass Fraction of Insoluble Solids formed in the Evaporator Concentrate

One important factor in the evaporation of wastes is the concentration and type of insoluble solids that form when the solution is concentrated. The type of insoluble species formed is discussed later in this report. The model was used to estimate the concentration of insoluble solids in the evaporator concentrate as a function of the total solids in the concentrate. The insoluble solids concentration was plotted as a function of percent total solids in the concentrate for all limit compositions outlined in Table 1 and Table 2 (Feed Case pH=6.5 & 8.5: 50 – 95%). The data is presented in Figure 7 and Figure 8. Correlations of insoluble solids as a function of concentrate total mass fraction are shown in each plot for the 80% limit composition case.

While there is no data at present to suggest the concentrated RAWTP evaporator concentrate will be a non-newtonian fluid as the insoluble solids loading increases, previous US experience with radioactive waste concentration suggests that insoluble solids loading above 10% will most likely produce non-newtonian flow properties¹¹. Once a correlation between total solids and insoluble solids in the evaporator concentrate is known, measurements of the rheology (shear stress vs. shear rate, flow curves) should be developed to determine the flow properties as a function of insoluble solids and total solids loading. This type of information is very useful in the design of evaporators that are expected to handle viscous fluids. The modeling results indicate that the insoluble solids concentration will be greater than 10 wt.% when the total solids concentration in the evaporator reaches values in excess of 20-25wt.% (For example: For the 80% case pH=6.5, the insoluble solids concentration at 10, 20 and 30wt% is predicted to be 3.5, 8.0 and 12.3wt%).



¹¹ Non-Newtonian fluids are generally more difficult to process and present more challenges to the designer of a radioactive waste treatment system.

Figure 7 – Mass Fraction Insoluble Solids in the Evaporator Concentrate as a Function of Total Solids in the Evaporator Concentrate – Case RAWTP pH=6.5 for Evaporator Feed Concentrate Target Endpoint of 0.1, 0.5, 1, 5wt% Insoluble Solids and 10, 20 and 30wt% Total Solids in Concentrate

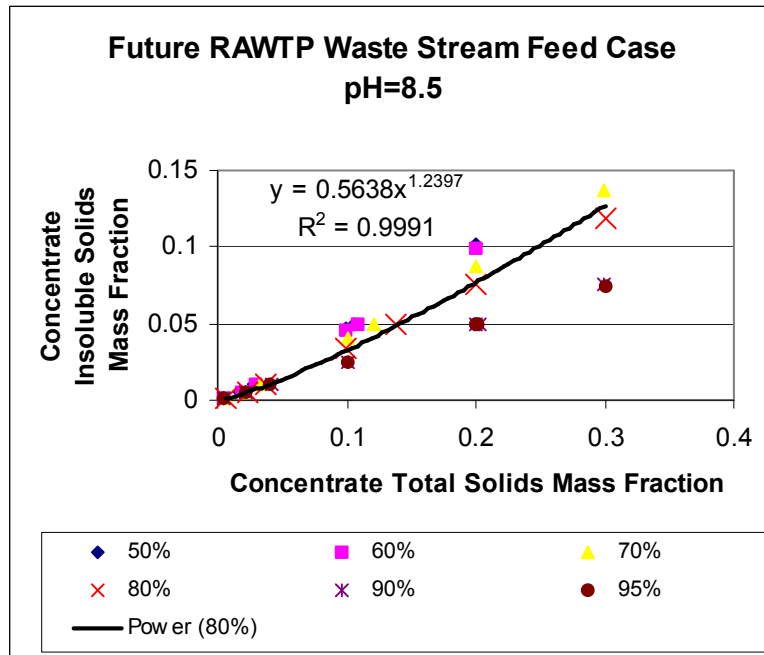


Figure 8 – Mass Fraction Insoluble Solids in the Evaporator Concentrate as a Function of Total Solids in the Evaporator Concentrate – Case RAWTP pH=8.5 for Evaporator Feed Concentrate Target Endpoint of 0.1, 0.5, 1, 5wt% Insoluble Solids and 10, 20 and 30wt% Total Solids in Concentrate

The mass fractions of insoluble solids in the evaporator concentrate were also calculated as a function of the total solids for the high and low foam simulant. The results for the simulant are plotted in Figure 9. The antifoam agent expected to be used by the RAWTP was not included in the model. Gentilucci and Nash anticipated that the antifoam agent would be a significant contributor to the insoluble solids loading in the evaporator concentrate during their review of the RAWTP¹². Work conducted in support of the DOE Office of River Protection has shown that most traditional silicone based antifoams are ineffective¹³ when the foam is caused by formation of insoluble particles and surfactants. Thus, large amounts of antifoam, well over the vendor recommended concentrations, are needed to control foaming caused by surfactants and insoluble particles. Additionally, silicone based antifoam agents can become insoluble as the electrolyte strength increases

¹² Gentilucci, J. A. and Nash, C. A., Independent Review of the Kvaerner "Final Concept Design Report for Radioactive Aqueous Waste Treatment Plant AWE Aldermaston, JAG Tech Services, Inc. and Westinghouse Savannah River Company, Aiken SC 29808, November 2001.

¹³ Josephs, J., Calloway, T. B. and Lambert, D. P., Foaming in the Hanford River Protection Waste Treatment Plant LAW Evaporation, WSRC-TR-2001-00561 Rev. 0, Westinghouse Savannah River Company, Aiken SC 29808, December 2001.

in the evaporator (See Figure 10 for example). Therefore, the plots shown in Figure 9 should be used with caution since the antifoam agent was not modeled.

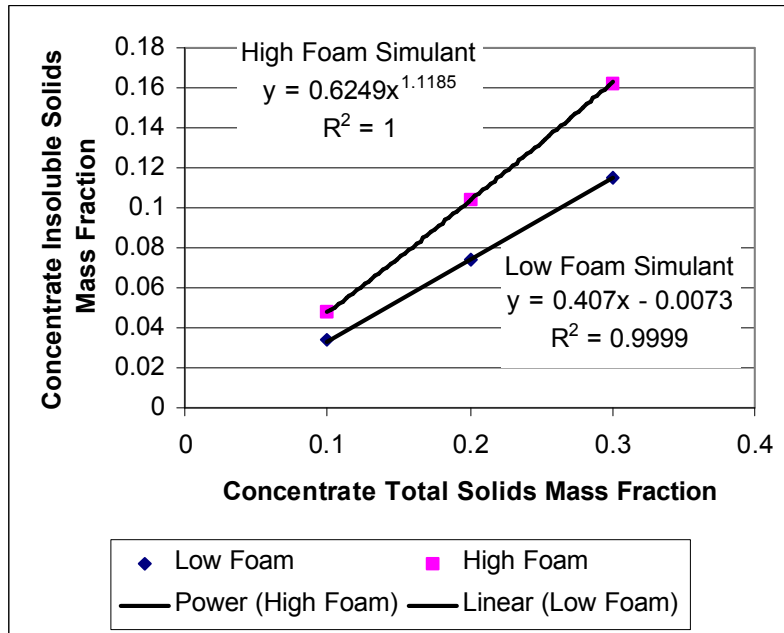


Figure 9 – Mass Fraction Insoluble Solids in the Evaporator Concentrate as a Function of Total Solids in the Evaporator Concentrate – Case High and Low Foam Simulant Concentrated to 10, 20 and 30wt% total solids

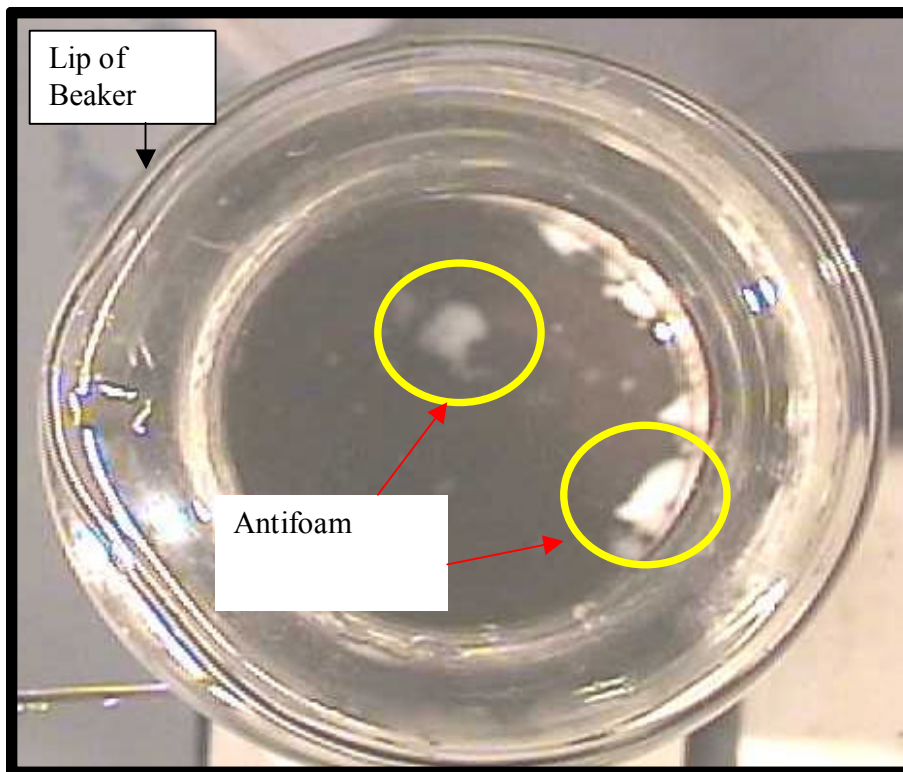


Figure 10 – DOW 1520-US Antifoam Floating on Simulated Hanford Envelope C Salt Waste

Correlation between Concentration and Density in the Evaporator Concentrate

The most frequently used evaporator process control parameter is the concentrate density. Relationships between concentration and density allow the operator to relate composition to the desired process control parameter (density). Additional relationships between temperature, density and concentration are also desirable. The percent total solids in the evaporator concentrate and the corresponding slurry density were calculated and plotted in Figure 11, Figure 12 and Figure 13 for all the feed vectors outlined in Table 1, Table 2 and Table 3 (Feed Case pH=6.5 & 8.5: 50 – 95%, High and Low Foam Simulant). Correlations of density as a function of concentration are shown in each plot for the 80% waste effluent case. The density was calculated at 25 °C.

Concentrate density in evaporators are typically measured using pneumatic “bubbler type” differential pressure meters. Generally, density bubblers can plug and become unreliable. Coriolis type mass flow meters have the capability to measure the liquid density of the product as it exists the evaporator thus providing an alternate means of controlling the evaporator density and concentration. Some coriolis mass flow meters also measure temperature. It is recommended that AWE investigate the use coriolis mass flow meters to control the evaporator product density.

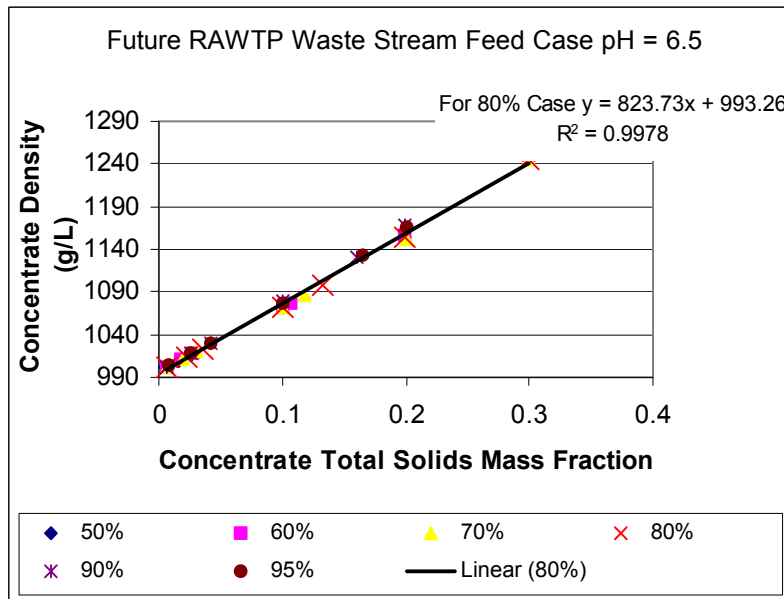


Figure 11 – Density of the Evaporator Concentrate as a Function of Total Solids in the Evaporator Concentrate – Case RAWTP pH=6.5 for Evaporator Feed Concentrate Target Endpoints of 0.1, 0.5, 1, 5wt% Insoluble Solids and 10, 20 and 30wt% Total Solids in Concentrate

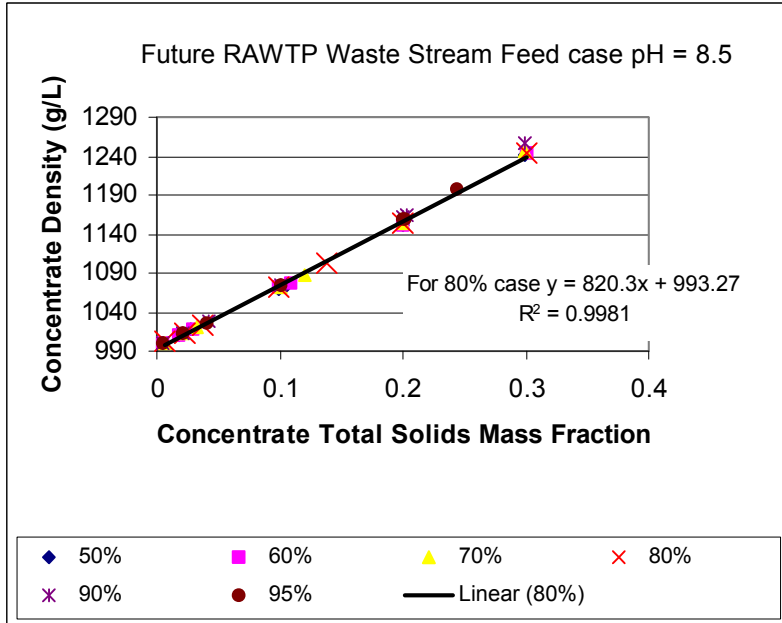


Figure 12 - Density of the Evaporator Concentrate as a Function of Total Solids in the Evaporator Concentrate – Case RAWTP pH=8.5 for Evaporator Feed Concentrate Target Endpoints of 0.1, 0.5, 1, 5wt% Insoluble Solids and 10, 20 and 30wt% Total Solids in Concentrate

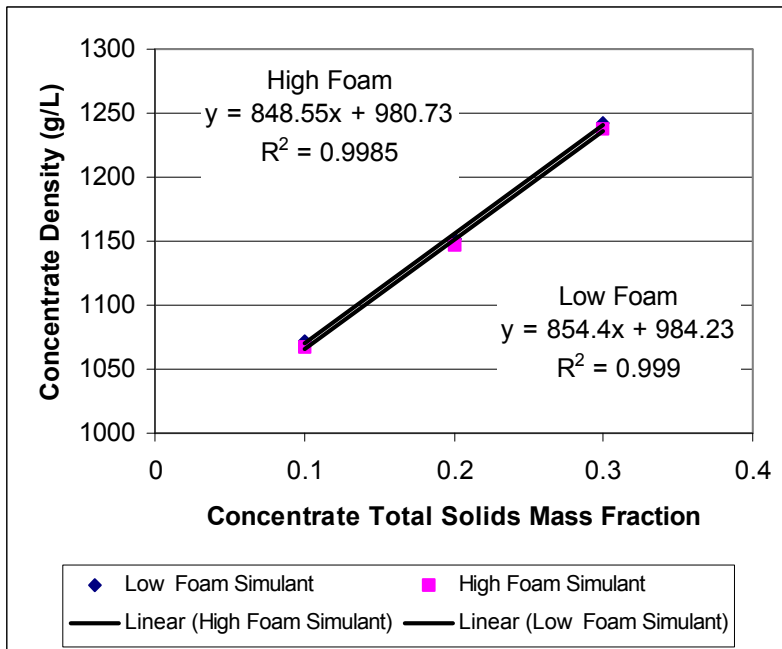


Figure 13 – Density of the Evaporator Concentrate as a Function of Total Solids in the Evaporator Concentrate – Case High and Low Foam Simulant Concentrated to 10, 20 and 30wt% total solids

Feed Stock pH Comparison to Model Output

A comparison of the OLI model calculated pH values for each waste feed vector and the targeted pH value for the waste stream (pH = 6.5 or 8.5) is shown in Table 5. The model output for the predicted RAWTP waste streams at pH 6.5 agrees fairly well with anticipated target pH. However, for the RAWTP waste streams charge balanced to target a pH of 8.5 the model predicted a pH less than that expected by as much as 22%. The predicted pH values for the 2 simulants are also close to the measured values (6.5-7.5)¹⁴.

On another modeling task conducted in support of the Office of River Protection, SRTC personnel compared the OLI model pH predictions to high strength sodium nuclear waste simulants and found the model predictions to vary by a similar order of magnitude. SRTC personnel contacted OLI personnel concerning the validity of the OLI ESP predictions. OLI personnel informed SRTC that no attempt by OLI has been made to validate the calculated model pH values since the pH measurement techniques and data in the literature for binary and ternary aqueous solutions varies quite widely. It is possible to adjust the OLI property databases if pH data from simulated or actual AWE wastes become available.

SRTC recommends that AWE formulate, evaporate and measure the physical and chemical properties of simulated waste and concentrated evaporation product based upon the RAWTP limit compositions. This data and the subsequent models generated from the data could be used to construct process control models for use by the operating and engineering staff of the RAWTP. A similar effort was conducted for the Savannah River and Hanford waste evaporators.

Table 5 – Predicted pH of AWE Waste Effluent and Simulants

Stream	Feed Input Vector - % Waste Effluent	Predicted pH for Feed Vector Case pH=6.5	Predicted pH for Feed Vector Case pH=8.5
Evaporator Feed	50%	6.06	7.02
Evaporator Feed	60%	5.90	6.97
Evaporator Feed	70%	5.99	6.95
Evaporator Feed	80%	6.00	6.92
Evaporator Feed	90%	5.98	6.76
Evaporator Feed	95%	5.64	6.60
Stream			Predicted pH for AWE Simulants

¹⁴ Taylor, G., RE:External: RE: Model Report Comments, email to T. B. Calloway, 2/7/2003, Atomic Weapons Establishment, Aldermaston, Reading Berkshire RG74PR.

Simulant - Low Foam			7.00
Simulant - High Foam			7.08

Predicted Composition of Insoluble Solids in Concentrated RAWTP Waste Streams

The compositions of the insoluble solids formed upon evaporation for the evaporator feed compositions shown in Table 1, Table 2 and Table 3 were calculated by the model and are shown in Appendix A. It should be noted that the model provides an estimate of the type of solids that could possibly form in the RAWTP evaporator. Experimental data and pilot tests are typically used to confirm and/or refine the model predictions.

A summary of the 80% waste effluent case (evaporator feed pH=6.5 and 8.5 is shown in Table 8. Several observations can be made from this table:

- $\text{Ca}_3(\text{PO}_4)_2$ and $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ are predicted to be the major insoluble species formed at both pH ranges.
- The formation of $\text{Mg}(\text{OH})_2$ in the evaporator bottoms occurs only in the alkaline evaporator feeds.
- A higher percentage of the Si is insoluble as SiO_2 vs. Chamosite 7A ($\text{Fe}_2\text{Al}_2\text{SiO}_5(\text{OH})_4$) in the acidic evaporator feed cases.
- A higher percentage of the Si is insoluble as Chamosite vs. SiO_2 in the alkaline evaporator feed cases.
- UO_2 was found to be insoluble in the RAWTP evaporator feed.
- Carbonate will evolve as carbon dioxide in the evaporator overheads.

These simulations show that carbonate will evolve as carbon dioxide in the evaporator overheads which explains why calcium carbonate is not predicted to precipitate in the evaporator bottoms for the pH=6.5 and 8.5 cases. Generally, carbonate will evolve as CO_2 in acidic to slightly basic solutions. The simulations for the Future RAWTP waste streams show 99+% of all the carbonate evolves as carbon dioxide in the evaporator overheads. A greater percentage of the feed carbon in the AWE High Foam Simulant was predicted to precipitate as carbonate ($\approx 5\%$), but this is due its lower initial feed concentration; the actual carbonate concentrations and precipitated solids of the concentrated High and Low Foam simulants are very similar. Table 6 shows the percentage of carbonate and dissolved carbon dioxide predicted to evolve as CO_2 in the evaporator overheads for the High Foam Simulant Case.

Transport may play a role in the evolution of carbon dioxide (or precipitation of calcium carbonate) in the AWE waste. It is suggested that actual waste studies be conducted to determine the concentration of calcium carbonate in the concentrated AWE waste and the amount of carbon dioxide evolved from the waste during the evaporation process. Evaporation of an acidic waste is likely to favor the evolution of the carbon dioxide to the evaporator overheads. Evaporation of slightly basic wastes will have reduced evolution of carbon dioxide. It is suggested that actual waste studies should be conducted to determine the concentration of calcium carbonate in the concentrated AWE waste and the amount of carbon dioxide evolved from the waste during the evaporation process. Therefore it is suggested that AWE consider acidifying the waste to improve the overall volume reduction factors.

Table 6 – Predicted Percentage of Carbonate and Dissolved Carbon Dioxide in the Feed Evolving as Carbon Dioxide for the High Foam Simulant Case

<i>run number</i>	<i>stream</i>	<i>vapor moles of CO₂</i>	<i>% Feed CO₃+CO₂ going to Overhead as CO₂</i>	<i>Evap contents pH</i>
HF 10% TS	overhead	0.00129249	94.6%	7.95E+00
HF 20% TS	overhead	0.00127691	93.4%	7.89E+00
HF 30% TS	overhead	0.00126611	92.7%	7.84E+00

Based upon SRS experience with waste evaporation, the formation of complex Fe-Al-Si minerals in the AWE evaporator are likely present a scaling problem on the evaporator heat exchanger surfaces. Given the low concentration of U in the AWE waste criticality is not likely to be a concern in the RAWTP evaporator. However, given the high concentration factors in the RAWTP evaporator, AWE should evaluate this data with respect to the current design and operation of the RAWTP to determine the potential for holdup of U that may co-precipitate with any other scale that forms in the evaporator. Pretreatment with nitric acid prior to evaporation may reduce the quantity of complex Fe-Al-Si minerals formed in the evaporator. SRTC recommends that AWE conduct evaporator cleaning studies with the concentrated simulants obtained from pilot testing to determine suitable chemical cleaning agents and procedures for the RAWTP.

Partial Validation of the OLI ESP Public Database for the CaCO₃-Water and CaSO₄-Water Systems

The solubility of CaCO₃ in water and CaSO₄ in water was calculated using OLI ESP and compared with the literature solubility values¹⁵. The OLI results compare favorably with the literature values. It is important to point out that simulating waste streams are much more complicated than a single component system. For example the predicted solubility of calcium carbonate in a CaCO₃-CaSO₄-H₂O system is 2.173E-04 g/100 g H₂O. Thus, while single component solubility values can be used to qualitatively examine trends in a

¹⁵Langes Handbook of Chemistry, Thirteenth Edition

waste system, multicomponent modeling and experimentation is often needed to fully design and operate a waste treatment plant.

Table 7 – Literature Solubility Values of CaCO₃ and CaSO₄ in water as compared to OLI ESP Publix Database.

<i>Compound in Water</i>	<i>Solubility in Water (g/100g H₂O)</i>		
	Cold	Hot	<i>OLI Results</i>
<i>CaCO₃</i>	0.0014/0.0015	0.0019	0.0012
<i>CaSO₄</i>	0.209	0.162	0.206

Table 8 – Composition of Insoluble Solids Formed in the Evaporator Concentrate for Evaporator Feed Case 80% Waste Effluent pH=6.5 and 8.5 as a function of Evaporator Concentration Endpoint (0.1, 0.5, 1, 5 wt% Insoluble Solids and 10, 20 and 30wt% total Solids)

Feed Case	Evaporator Endpoint Target Insoluble Mass Fraction or % Total Solids in Concentrate	ALOH3	BASO4	CA3PO42	CACO3	CASO4.2 H2O	CHAMOSI TE 7A (Fe2Al2Si O5(OH)4)	CU3PO42. 2H2O	FEI3PO4 2.8H2O	PB3PO42	SIO2	SRSO4	UIVO2	ZN3PO42. 2H2O	pH	sum				
																				80%
pH=6.5	0.001	0.087	0.003	0.608	0.000	0.000	0.096	0.015	0.000	0.015	0.097	0.028	0.018	0.033	6.76971	1.000				
pH=6.5	0.005	0.055	0.002	0.384	0.000	0.297	0.060	0.010	0.000	0.009	0.111	0.033	0.012	0.027	6.58818	1.000				
pH=6.5	0.01	0.043	0.001	0.297	0.000	0.440	0.048	0.008	0.000	0.007	0.093	0.028	0.009	0.026	6.50601	1.000				
pH=6.5	0.05	0.032	0.001	0.208	0.000	0.571	0.036	0.006	0.012	0.005	0.075	0.022	0.007	0.025	6.26243	1.000				
pH=6.5	10wt% TS	0.033	0.001	0.227	0.000	0.555	0.038	0.006	0.000	0.006	0.079	0.023	0.007	0.026	6.29361	1.000				
pH=6.5	20wt% TS	0.030	0.001	0.184	0.000	0.589	0.035	0.005	0.030	0.005	0.072	0.020	0.006	0.023	6.23507	1.000				
pH=6.5	30wt% TS	0.028	0.001	0.170	0.000	0.601	0.035	0.005	0.041	0.004	0.069	0.020	0.006	0.020	6.18305	1.000				
		yes	yes					yes		yes			yes							
Feed Case	Evaporator Endpoint Target Insoluble Mass Fraction or % Total Solids in Concentrate	ALOH3	BASO4	CA3PO42	CACO3	CASO4.2 H2O	CHAMOSI TE7A (Fe2Al2Si O5(OH)4)	CROH3	CUOH2	MGOH2	NIOH2	PB3PO42	SIO2	SRSO4	UIVO2	ZNOH2	pH	sum		
pH=8.5	0.001	0.0011	0.0020	0.5279	0.0009	0.0000	0.2273	0.0000	0.0080	0.1442	0.0018	0.0087	0.0000	0.0147	0.0148	0.0485	9.86	1.00		
pH=8.5	0.005	0.0011	0.0015	0.3939	0.0000	0.2265	0.1699	0.0001	0.0063	0.1114	0.0014	0.0084	0.0000	0.0317	0.0110	0.0368	9.65	1.00		
pH=8.5	0.01	0.0009	0.0012	0.3122	0.0000	0.3839	0.1347	0.0001	0.0050	0.0894	0.0011	0.0069	0.0000	0.0267	0.0088	0.0292	9.57	1.00		
pH=8.5	0.05	0.0007	0.0009	0.2317	0.0000	0.5043	0.1000	0.0001	0.0038	0.0804	0.0008	0.0053	0.0230	0.0210	0.0065	0.0217	9.31	1.00		
pH=8.5	10wt% TS	0.0007	0.0009	0.2444	0.0000	0.4951	0.1055	0.0001	0.0040	0.0784	0.0008	0.0056	0.0126	0.0222	0.0069	0.0229	9.37	1.00		
pH=8.5	20wt% TS	0.0007	0.0009	0.2210	0.0000	0.5108	0.0953	0.0001	0.0036	0.0820	0.0008	0.0050	0.0335	0.0195	0.0062	0.0207	9.21	1.00		
pH=8.5	30wt% TS	0.0006	0.0008	0.2117	0.0000	0.5141	0.0912	0.0001	0.0035	0.0850	0.0007	0.0043	0.0434	0.0188	0.0059	0.0198	9.05	1.00		
		yes	yes	yes								yes			yes					

CONCLUSIONS/RECOMMENDATIONS

A model of the AWE RAWTP waste effluent evaporator was created using OLI/ESP software. Over ninety simulations were performed using the predicted limit RAWTP waste compositions and two simulated waste stream compositions (High/Low Foam Simulant) were modeled. Physical and chemical properties for each of the waste streams were calculated. The following conclusions were drawn from the modeling of the RAWTP waste evaporation process:

- Higher volume reduction factors are predicted to be obtained with acidic waste effluents (pH=6.5) as compared to alkaline waste effluents (pH=8.5).
- $\text{Ca}_3(\text{PO}_4)_2$ and $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ are predicted to be the major insoluble species formed in the RAWTP evaporator.
- Over 99+% of the carbonate and dissolved carbon dioxide was predicted to evolve as carbon dioxide in the evaporator overheads for the Future RAWTP waste streams.
- Approximately 93 % of the carbonate and dissolved carbon dioxide (7 % predicted to precipitate in evaporator bottoms as calcium carbonate) in the high foam simulant was predicted to evolve as carbon dioxide in the evaporator overheads to due lower initial feed carbon concentration.
- It is recommended that pretreatment of the RAWTP waste streams with a suitable acid (e.g. HNO_3) and subsequent pretreatment of the concentrate with NaOH prior to grouting be investigated as an option to evaporation of alkaline wastes.
- Chamosite 7A ($\text{Fe}_2\text{Al}_2\text{SiO}_5(\text{OH})_4$) is predicted to form in the RAWTP evaporator. Based upon SRS experience with evaporation of alkaline wastes contain silica and aluminum it is likely that the formation of complex Fe-Al-Si species will present a scaling problem in the RAWTP evaporator.
- A higher percentage of the Si is insoluble as SiO_2 vs. Chamosite 7A ($\text{Fe}_2\text{Al}_2\text{SiO}_5(\text{OH})_4$) in the acidic evaporator feed cases.
- A higher percentage of the Si is insoluble as Chamosite vs. SiO_2 in the alkaline evaporator feed cases.
- SRTC recommends that AWE conduct evaporator cleaning studies with the concentrated simulants obtained from pilot testing to determine suitable chemical cleaning agents and procedures for the RAWTP.

- SRTC recommends that AWE formulate, evaporate and measure the physical and chemical properties of simulated waste and concentrated evaporation product based upon the RAWTP limit compositions. This data and the models generated validated by data could be used to construct process control models for use by the operating and engineering staff of the RAWTP. A similar effort was conducted for the Savannah River and Hanford waste evaporators.
- It is recommended that AWE investigate the use of coriolis mass flow meters to control the evaporator product density.

APPROVALS:

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David A. Crowley Date: 8-28-03
D. A. Crowley, Manager, Immobilization Technology Section /SRTC

Table 11 – Composition of Insolubles Solids Formed During Evaporation of the Low and High Foam Simulants

stream	Run#	ALOH3	CA3PO42	SIO2	CAC03	ZNOH2	CASO4.2H2O	CHAMOSITE7A (Fe2Al2SiO5(OH)4)	MGOH2	FEIICO3	ZN3PO42.2H2O	check	pH
formula weight		78.0037	310.1767	60.0848	100.087	99.3847	172.1723	341.7691	58.3197	115.856	422.1434		
	Low Foam												
COOLED BOTTOMS	10wt% TS	0.00	0.25		0.02	0.02	0.49	0.11	0.11			1.00E+00	9.53E+00
COOLED BOTTOMS	20wt% TS	0.00	0.23	0.02	0.02	0.02	0.50	0.10	0.11			1.00E+00	9.39E+00
COOLED BOTTOMS	30wt% TS	0.00	0.22	0.04	0.03	0.02	0.50	0.09	0.11			1.00E+00	9.27E+00
	High Foam												
COOLED BOTTOMS	10wt% TS	0.01	0.19	0.03	0.04	0.02	0.55	0.07	0.10			1.00E+00	9.48E+00
COOLED BOTTOMS	20wt% TS	0.00	0.17	0.04	0.05	0.02	0.55	0.07	0.10			1.00E+00	9.33E+00
COOLED BOTTOMS	30wt% TS	0.00	0.17	0.05	0.05	0.02	0.55	0.07	0.10			1.00E+00	9.18E+00

**APPENDIX B – Composition of Evaporator Feed, Concentrate and Condensate for AWE Waste
- Material and Energy Balance OLI Output Files**

AWE Low Foam Simulant – Concentrated to 30 wt. % Total Solids

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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

PROCESS: AWESIML3

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWESIML3.LIS

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Evap separator.....	11
Evap Bottoms Cooling mixer.....	13
Condensate mixer.....	14
Solids FB controller.....	15

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79081D+06
Total in	1.00000D+03	-3.79081D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	2.08960D+00	-6.91549D+03
CONDENSATE	9.97910D+02	-3.78388D+06
Total out	1.00000D+03	-3.79079D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.16760D+05
EVAP BOTTOMS COOLING MIXER	-1.26083D+02
CONDENSATE MIXER	-6.16621D+05
Total Duty	1.34336D+01

DIFFERENCE	1.36424D-12	0.00000D+00
REL DIFFERENCE	1.36424D-15	0.00000D+00

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10941D+02	1.10941D+02	1.42109D-14	1.28093D-16
K(+1)	9.46243D-04	9.46243D-04	9.75782D-19	1.03122D-15
NA(+1)	4.42632D-03	4.42632D-03	-8.67362D-19	-1.95955D-16
CA(+2)	1.30644D-03	1.30644D-03	0.00000D+00	0.00000D+00
ZN(+2)	4.89521D-05	4.89521D-05	0.00000D+00	0.00000D+00
FE(+2)	1.32505D-04	1.32505D-04	0.00000D+00	0.00000D+00
MG(+2)	4.93583D-04	4.93583D-04	0.00000D+00	0.00000D+00
AL(+3)	1.33425D-04	1.33425D-04	2.71051D-20	2.03149D-16
O(-2)	5.54852D+01	5.54852D+01	1.42109D-14	2.56120D-16
CL(-1)	3.44118D-03	3.44118D-03	1.73472D-18	5.04108D-16
C(+4)	1.96636D-03	1.96636D-03	1.96501D-15	9.99312D-13
P(+5)	3.36943D-04	3.36943D-04	0.00000D+00	0.00000D+00
S(+6)	1.22838D-03	1.22838D-03	0.00000D+00	0.00000D+00
N(+5)	9.35410D-04	9.35410D-04	3.25261D-19	3.47720D-16
SI(+4)	2.99577D-04	2.99577D-04	5.42101D-20	1.80956D-16
DODEC(-1)	5.57619D-05	5.57619D-05	8.36358D-15	1.49987D-10

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.99523			
Total mol/hr	55.48452	2.49041E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4695	0.0	0.0	0.0
CO2	3.14365E-04	0.0	0.0	0.0
H2SO4	2.80143E-26	0.0	0.0	0.0
HCL	1.84657E-16	0.0	0.0	0.0
HNO3	4.20161E-12	0.0	0.0	0.0
LAURICACID	4.09606E-07	0.0	0.0	0.0
SO3	3.62671E-30	0.0	0.0	0.0
CAH2SIO4	1.23392E-11	0.0	0.0	0.0
CASO4	1.86827E-05	0.0	0.0	0.0
FEIICL2	2.85883E-15	0.0	0.0	0.0
FEIICO3	5.11406E-06	3.45618E-05	0.0	0.0
FEIIHPO4	6.93039E-08	0.0	0.0	0.0
FEIIOH2	1.46602E-11	0.0	0.0	0.0
ALO2H2CL	3.57275E-29	0.0	0.0	0.0
H3PO4	1.04401E-09	0.0	0.0	0.0
H4P2O7	1.93808E-21	0.0	0.0	0.0
ALOH3	2.39891E-09	1.33416E-04	0.0	0.0
KCL	2.15415E-08	0.0	0.0	0.0
KHSO4	1.15447E-13	0.0	0.0	0.0
MGCO3	1.80231E-07	0.0	0.0	0.0
MGH2SIO4	5.16123E-11	0.0	0.0	0.0
MGHPO4	1.55444E-05	0.0	0.0	0.0
MGSO4	1.40910E-05	0.0	0.0	0.0
NAHCO3	2.32676E-06	0.0	0.0	0.0
NAHSIO3	2.02888E-07	0.0	0.0	0.0
NANO3	1.89091E-07	0.0	0.0	0.0
CACL2	5.90893E-27	0.0	0.0	0.0
SIO2	2.98889E-04	0.0	0.0	0.0
CACO3	9.23000E-07	0.0	0.0	0.0
ZNCL2	4.06365E-10	0.0	0.0	0.0
ZNHPO4	2.03785E-06	0.0	0.0	0.0
ZNNO32	1.11300E-11	0.0	0.0	0.0
ZNOH2	1.16994E-08	0.0	0.0	0.0
OHION	1.11871E-07	0.0	0.0	0.0
ALION	2.66159E-14	0.0	0.0	0.0
ALOH2ION	4.96451E-11	0.0	0.0	0.0
ALOH4ION	6.65392E-09	0.0	0.0	0.0
ALOHCLION	1.10936E-14	0.0	0.0	0.0
ALOHION	1.52070E-12	0.0	0.0	0.0
ALSO42ION	4.91880E-16	0.0	0.0	0.0
ALSO4ION	8.42680E-15	0.0	0.0	0.0
CACLION	5.43473E-11	0.0	0.0	0.0
CAH2PO4ION	2.00955E-06	0.0	0.0	0.0
CAHCO3ION	1.17254E-05	0.0	0.0	0.0

CAHSIO3ION	5.74946E-09	0.0	0.0	0.0
CAION	0.00103554	0.0	0.0	0.0
CANO3ION	1.63421E-06	0.0	0.0	0.0
CAOHION	1.26675E-09	0.0	0.0	0.0
CAPO4ION	6.01092E-07	0.0	0.0	0.0
CLION	0.00344102	0.0	0.0	0.0
CO3ION	1.02871E-06	0.0	0.0	0.0
DODECION	5.53523E-05	0.0	0.0	0.0
FEIICLION	2.81091E-10	0.0	0.0	0.0
FEIICO32ION	1.72343E-10	0.0	0.0	0.0
FEIIH2PO4ION	1.59009E-08	0.0	0.0	0.0
FEIIHCO3ION	1.37456E-08	0.0	0.0	0.0
FEIIION	9.25219E-05	0.0	0.0	0.0
FEIIOH3ION	6.41041E-15	0.0	0.0	0.0
FEIIOH4ION	9.12118E-23	0.0	0.0	0.0
FEIIOHION	2.07616E-07	0.0	0.0	0.0
H2P2O7ION	3.83135E-11	0.0	0.0	0.0
H2PO4ION	8.19966E-05	0.0	0.0	0.0
H2SIO4ION	5.19387E-13	0.0	0.0	0.0
H3P2O7ION	6.10776E-16	0.0	0.0	0.0
H3SIO4ION	4.74378E-07	0.0	0.0	0.0
HCO3ION	0.00157808	0.0	0.0	0.0
HION	1.12672E-07	0.0	0.0	0.0
HP2O7ION	1.65191E-10	0.0	0.0	0.0
HPO4ION	7.09697E-05	0.0	0.0	0.0
HSO4ION	7.95658E-09	0.0	0.0	0.0
KION	9.40933E-04	0.0	0.0	0.0
KSO4ION	5.28886E-06	0.0	0.0	0.0
MGH2PO4ION	1.11754E-06	0.0	0.0	0.0
MGHCO3ION	1.71975E-05	0.0	0.0	0.0
MGHSIO3ION	4.59688E-09	0.0	0.0	0.0
MGION	4.45070E-04	0.0	0.0	0.0
MGOHION	5.25563E-09	0.0	0.0	0.0
MGP2O7ION	2.71945E-09	0.0	0.0	0.0
MGPO4ION	3.70610E-07	0.0	0.0	0.0
NACO3ION	1.02040E-08	0.0	0.0	0.0
NAION	0.00439637	0.0	0.0	0.0
NASO4ION	2.72235E-05	0.0	0.0	0.0
NO3ION	9.33521E-04	0.0	0.0	0.0
P2O7ION	1.79354E-12	0.0	0.0	0.0
PO4ION	5.84268E-10	0.0	0.0	0.0
SO4ION	0.00116308	0.0	0.0	0.0
ZNCL3ION	4.76171E-13	0.0	0.0	0.0
ZNCLION	1.31662E-07	0.0	0.0	0.0
ZNH2PO4ION	7.61159E-08	0.0	0.0	0.0
ZNHCO3ION	8.31495E-07	0.0	0.0	0.0
ZNION	3.75962E-05	0.0	0.0	0.0
ZNNO3ION	6.50110E-08	0.0	0.0	0.0
ZNOH3ION	1.27644E-12	0.0	0.0	0.0
ZNOH4ION	2.28201E-18	0.0	0.0	0.0
ZNOHION	3.24651E-07	0.0	0.0	0.0
CA3PO42	0.0	7.84378E-05	0.0	0.0
ZN3PO42.2H2O	0.0	2.62567E-06	0.0	0.0
=====				
Total g/hr	999.96	0.0398492	0.0	0.0
Volume, m3/hr	0.00100261	1.29365E-08	0.0	0.0
Enthalpy, cal/hr	-3.79068E+06	-126.263	0.0	0.0
Density, g/m3	997357.	3.08037E+06		

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	0.400597			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	9.51583E-04			
E-Con, cm2/ohm-mol	158.607			
Abs Visc, cP	0.893063			
Rel Visc	1.00263			
Ionic Strength	0.0114481			

STREAM: Evap Contents
 TO : Evap separator
 FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.391	103.391	103.391	103.391
Pressure, atm	1.	1.	1.	1.
pH	8.33006			
Total mol/hr	0.09255412	0.00170212	55.3893	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0825794	0.0	55.38737	0.0
CO2	3.60363E-10	0.0	0.001903939	0.0
H2SO4	4.60418E-30	0.0	2.92791E-27	0.0
HCL	2.49630E-16	0.0	1.64905E-10	0.0
HNO3	2.24861E-13	0.0	3.66937E-11	0.0
LAURICACID	5.87663E-10	0.0	2.16350E-05	0.0
CAH2SIO4	1.59177E-09	0.0	0.0	0.0
CASO4	8.40710E-07	7.23234E-04	0.0	0.0
FEIICL2	1.66329E-16	0.0	0.0	0.0
FEIICO3	4.45916E-14	0.0	0.0	0.0
FEIIHPO4	3.39236E-19	0.0	0.0	0.0
FEIIOH2	7.67494E-13	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	7.71916E-19	0.0	0.0	0.0
ALOH3	4.82368E-11	0.0	0.0	0.0
KCL	1.45210E-05	0.0	0.0	0.0
KHSO4	6.24307E-13	0.0	0.0	0.0
MGCO3	1.93453E-10	0.0	0.0	0.0
MGH2SIO4	2.36447E-09	0.0	0.0	0.0
MGHPO4	6.53321E-12	0.0	0.0	0.0
MGSO4	9.29167E-08	0.0	0.0	0.0
NAHCO3	8.14703E-08	0.0	0.0	0.0
NAHSIO3	2.91170E-05	0.0	0.0	0.0
NANO3	2.52356E-04	0.0	0.0	0.0
CACL2	1.27521E-15	0.0	0.0	0.0
SIO2	6.90155E-06	1.88024E-04	0.0	0.0
CACO3	3.92672E-09	6.22578E-05	0.0	0.0
ZNCL2	2.35839E-06	0.0	0.0	0.0
ZNHPO4	3.66097E-13	0.0	0.0	0.0
ZNNO32	1.01882E-09	0.0	0.0	0.0
ZNOH2	2.74098E-06	0.0	0.0	0.0
OHION	2.79744E-07	0.0	0.0	0.0
ALION	2.28421E-24	0.0	0.0	0.0
ALOH2ION	3.16339E-15	0.0	0.0	0.0
ALOH4ION	1.03469E-07	0.0	0.0	0.0
ALOHCLION	6.29114E-19	0.0	0.0	0.0
ALOHION	1.73863E-19	0.0	0.0	0.0
ALSO42ION	1.55027E-23	0.0	0.0	0.0
ALSO4ION	1.91990E-23	0.0	0.0	0.0
CACLION	3.90363E-08	0.0	0.0	0.0
CAH2PO4ION	1.85313E-13	0.0	0.0	0.0
CAHCO3ION	9.70802E-10	0.0	0.0	0.0
CAHSIO3ION	8.28371E-08	0.0	0.0	0.0
CAION	1.08745E-05	0.0	0.0	0.0

CANO3ION	3.66989E-06	0.0	0.0	0.0
CAOHION	1.66066E-08	0.0	0.0	0.0
CAPO4ION	7.48061E-11	0.0	0.0	0.0
CLION	0.00340754	0.0	0.0	0.0
CO3ION	1.43269E-08	0.0	0.0	0.0
DODECION	3.41263E-05	0.0	0.0	0.0
FEIICLION	3.94791E-14	0.0	0.0	0.0
FEIICO32ION	7.38409E-17	0.0	0.0	0.0
FEIIH2PO4ION	3.61891E-21	0.0	0.0	0.0
FEIIHCO3ION	1.23141E-17	0.0	0.0	0.0
FEIIION	5.34533E-12	0.0	0.0	0.0
FEIIOH3ION	1.91383E-13	0.0	0.0	0.0
FEIIOH4ION	5.80012E-17	0.0	0.0	0.0
FEIIOHION	5.40732E-12	0.0	0.0	0.0
H2P2O7ION	7.28539E-22	0.0	0.0	0.0
H2PO4ION	1.97727E-12	0.0	0.0	0.0
H2SIO4ION	1.85673E-09	0.0	0.0	0.0
H3P2O7ION	6.91324E-29	0.0	0.0	0.0
H3SIO4ION	9.17684E-06	0.0	0.0	0.0
HCO3ION	5.82444E-08	0.0	0.0	0.0
HION	9.19279E-12	0.0	0.0	0.0
HP2O7ION	1.41298E-19	0.0	0.0	0.0
HPO4ION	2.34576E-10	0.0	0.0	0.0
HSO4ION	8.24148E-11	0.0	0.0	0.0
KION	8.27127E-04	0.0	0.0	0.0
KSO4ION	1.04595E-04	0.0	0.0	0.0
MGH2PO4ION	6.15698E-15	0.0	0.0	0.0
MGHCO3ION	2.00704E-10	0.0	0.0	0.0
MGHSIO3ION	1.61067E-08	0.0	0.0	0.0
MGION	3.92793E-07	0.0	0.0	0.0
MGOHION	1.36356E-08	0.0	0.0	0.0
MGP2O7ION	7.46318E-17	0.0	0.0	0.0
MGPO4ION	8.50099E-12	0.0	0.0	0.0
NACO3ION	2.26409E-09	0.0	0.0	0.0
NAION	0.00414476	0.0	0.0	0.0
NASO4ION	1.74217E-12	0.0	0.0	0.0
NO3ION	6.79343E-04	0.0	0.0	0.0
P2O7ION	3.37841E-19	0.0	0.0	0.0
PO4ION	3.89813E-13	0.0	0.0	0.0
SO4ION	3.99612E-04	0.0	0.0	0.0
ZNCL3ION	2.78785E-06	0.0	0.0	0.0
ZNCLION	5.99576E-06	0.0	0.0	0.0
ZNH2PO4ION	9.29610E-16	0.0	0.0	0.0
ZNHCO3ION	2.53787E-11	0.0	0.0	0.0
ZNION	3.87591E-07	0.0	0.0	0.0
ZNNO3ION	3.83502E-08	0.0	0.0	0.0
ZNOH3ION	1.20568E-06	0.0	0.0	0.0
ZNOH4ION	1.15294E-08	0.0	0.0	0.0
ZNOHION	3.34249E-05	0.0	0.0	0.0
ALOOH	0.0	8.16392E-07	0.0	0.0
CA3PO42	0.0	1.68472E-04	0.0	0.0
CHAMOSITE7A	0.0	6.62523E-05	0.0	0.0
MGOH2	0.0	4.93064E-04	0.0	0.0
=====				
Total g/hr	1.86991	0.219694	997.91	0.0
Volume, m3/hr	1.71908E-06	6.92584E-08	1.69746	0.0
Enthalpy, cal/hr	-6152.19	-637.218	-3.16726E+06	0.0
Density, g/m3	1.08773E+06	3.17210E+06	587.886	

Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	192.486			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.502653			
E-Con, cm2/ohm-mol	59.0235			
Abs Visc, cP	0.424148			
Rel Visc	1.56016			
Ionic Strength	3.66327			

STREAM: Overhead
 TO : Condensate mixer
 FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.391	103.391	103.391	103.391
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.3893	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.38737	0.0
CO2	0.0	0.0	0.001903939	0.0
H2SO4	0.0	0.0	2.92791E-27	0.0
HCL	0.0	0.0	1.64905E-10	0.0
HNO3	0.0	0.0	3.66937E-11	0.0
LAURICACID	0.0	0.0	2.16350E-05	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	997.91	0.0
Volume, m3/hr	0.0	0.0	1.69746	0.0
Enthalpy, cal/hr	0.0	0.0	-3.16726E+06	0.0
Density, g/m3			587.886	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

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PROCESS:AWESIML3

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STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.391	103.391	103.391	103.391
Pressure, atm	1.	1.	1.	1.
pH	8.33006			
Total mol/hr	0.09255412	0.00170212	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0825794	0.0	0.0	0.0
CO2	3.60363E-10	0.0	0.0	0.0
H2SO4	4.60418E-30	0.0	0.0	0.0
HCL	2.49630E-16	0.0	0.0	0.0
HNO3	2.24861E-13	0.0	0.0	0.0
LAURICACID	5.87663E-10	0.0	0.0	0.0
CAH2SIO4	1.59177E-09	0.0	0.0	0.0
CASO4	8.40710E-07	7.23234E-04	0.0	0.0
FEIICL2	1.66329E-16	0.0	0.0	0.0
FEIICO3	4.45916E-14	0.0	0.0	0.0
FEIIHPO4	3.39236E-19	0.0	0.0	0.0
FEIIOH2	7.67494E-13	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	7.71916E-19	0.0	0.0	0.0
ALOH3	4.82368E-11	0.0	0.0	0.0
KCL	1.45210E-05	0.0	0.0	0.0
KHSO4	6.24307E-13	0.0	0.0	0.0
MGCO3	1.93453E-10	0.0	0.0	0.0
MGH2SIO4	2.36447E-09	0.0	0.0	0.0
MGHPO4	6.53321E-12	0.0	0.0	0.0
MGSO4	9.29167E-08	0.0	0.0	0.0
NAHCO3	8.14703E-08	0.0	0.0	0.0
NAHSIO3	2.91170E-05	0.0	0.0	0.0
NANO3	2.52356E-04	0.0	0.0	0.0
CACL2	1.27521E-15	0.0	0.0	0.0
SIO2	6.90155E-06	1.88024E-04	0.0	0.0
CACO3	3.92672E-09	6.22578E-05	0.0	0.0
ZNCL2	2.35839E-06	0.0	0.0	0.0
ZNHPO4	3.66097E-13	0.0	0.0	0.0
ZNNO32	1.01882E-09	0.0	0.0	0.0
ZNOH2	2.74098E-06	0.0	0.0	0.0
OHION	2.79744E-07	0.0	0.0	0.0
ALION	2.28421E-24	0.0	0.0	0.0
ALOH2ION	3.16339E-15	0.0	0.0	0.0
ALOH4ION	1.03469E-07	0.0	0.0	0.0
ALOHCLION	6.29114E-19	0.0	0.0	0.0
ALOHION	1.73863E-19	0.0	0.0	0.0
ALSO42ION	1.55027E-23	0.0	0.0	0.0
ALSO4ION	1.91990E-23	0.0	0.0	0.0
CACLION	3.90363E-08	0.0	0.0	0.0
CAH2PO4ION	1.85313E-13	0.0	0.0	0.0
CAHCO3ION	9.70802E-10	0.0	0.0	0.0
CAHSIO3ION	8.28371E-08	0.0	0.0	0.0
CAION	1.08745E-05	0.0	0.0	0.0

CANO3ION	3.66989E-06	0.0	0.0	0.0
CAOHION	1.66066E-08	0.0	0.0	0.0
CAPO4ION	7.48061E-11	0.0	0.0	0.0
CLION	0.00340754	0.0	0.0	0.0
CO3ION	1.43269E-08	0.0	0.0	0.0
DODECION	3.41263E-05	0.0	0.0	0.0
FEIICLION	3.94791E-14	0.0	0.0	0.0
FEIICO32ION	7.38409E-17	0.0	0.0	0.0
FEIIH2PO4ION	3.61891E-21	0.0	0.0	0.0
FEIIHCO3ION	1.23141E-17	0.0	0.0	0.0
FEIIION	5.34533E-12	0.0	0.0	0.0
FEIIOH3ION	1.91383E-13	0.0	0.0	0.0
FEIIOH4ION	5.80012E-17	0.0	0.0	0.0
FEIIOHION	5.40732E-12	0.0	0.0	0.0
H2P2O7ION	7.28539E-22	0.0	0.0	0.0
H2PO4ION	1.97727E-12	0.0	0.0	0.0
H2SIO4ION	1.85673E-09	0.0	0.0	0.0
H3P2O7ION	6.91324E-29	0.0	0.0	0.0
H3SIO4ION	9.17684E-06	0.0	0.0	0.0
HCO3ION	5.82444E-08	0.0	0.0	0.0
HION	9.19279E-12	0.0	0.0	0.0
HP2O7ION	1.41298E-19	0.0	0.0	0.0
HPO4ION	2.34576E-10	0.0	0.0	0.0
HSO4ION	8.24148E-11	0.0	0.0	0.0
KION	8.27127E-04	0.0	0.0	0.0
KSO4ION	1.04595E-04	0.0	0.0	0.0
MGH2PO4ION	6.15698E-15	0.0	0.0	0.0
MGHCO3ION	2.00704E-10	0.0	0.0	0.0
MGHSIO3ION	1.61067E-08	0.0	0.0	0.0
MGION	3.92793E-07	0.0	0.0	0.0
MGOHION	1.36356E-08	0.0	0.0	0.0
MGP2O7ION	7.46318E-17	0.0	0.0	0.0
MGPO4ION	8.50099E-12	0.0	0.0	0.0
NACO3ION	2.26409E-09	0.0	0.0	0.0
NAION	0.00414476	0.0	0.0	0.0
NASO4ION	1.74217E-12	0.0	0.0	0.0
NO3ION	6.79343E-04	0.0	0.0	0.0
P2O7ION	3.37841E-19	0.0	0.0	0.0
PO4ION	3.89813E-13	0.0	0.0	0.0
SO4ION	3.99612E-04	0.0	0.0	0.0
ZNCL3ION	2.78785E-06	0.0	0.0	0.0
ZNCLION	5.99576E-06	0.0	0.0	0.0
ZNH2PO4ION	9.29610E-16	0.0	0.0	0.0
ZNHCO3ION	2.53787E-11	0.0	0.0	0.0
ZNION	3.87591E-07	0.0	0.0	0.0
ZNNO3ION	3.83502E-08	0.0	0.0	0.0
ZNOH3ION	1.20568E-06	0.0	0.0	0.0
ZNOH4ION	1.15294E-08	0.0	0.0	0.0
ZNOHION	3.34249E-05	0.0	0.0	0.0
ALOOH	0.0	8.16392E-07	0.0	0.0
CA3PO42	0.0	1.68472E-04	0.0	0.0
CHAMOSITE7A	0.0	6.62523E-05	0.0	0.0
MGOH2	0.0	4.93064E-04	0.0	0.0
=====				
Total g/hr	1.86991	0.219694	0.0	0.0
Volume, m3/hr	1.71908E-06	6.92584E-08	0.0	0.0
Enthalpy, cal/hr	-6152.19	-637.218	0.0	0.0
Density, g/m3	1.08773E+06	3.17210E+06		

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	192.486			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.502653			
E-Con, cm2/ohm-mol	59.0235			
Abs Visc, cP	0.424148			
Rel Visc	1.56016			
Ionic Strength	3.66327			

ESP V-6.6

PROCESS:AWESIML3

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	9.26794			
Total mol/hr	0.09130332	0.00162818	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0811931	0.0	0.0	0.0
CO2	8.86530E-12	0.0	0.0	0.0
HCL	4.79276E-19	0.0	0.0	0.0
HNO3	5.52415E-15	0.0	0.0	0.0
LAURICACID	3.94150E-10	0.0	0.0	0.0
CAH2SIO4	1.15391E-08	0.0	0.0	0.0
CASO4	1.30237E-06	0.0	0.0	0.0
FEIICL2	5.48636E-17	0.0	0.0	0.0
FEIICO3	3.00457E-13	0.0	0.0	0.0
FEIIHPO4	1.25195E-18	0.0	0.0	0.0
FEIIOH2	2.23522E-14	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	7.95885E-21	0.0	0.0	0.0
ALOH3	1.99543E-12	9.17524E-07	0.0	0.0
KCL	3.44583E-06	0.0	0.0	0.0
KHSO4	2.17216E-15	0.0	0.0	0.0
MGCO3	8.81790E-09	0.0	0.0	0.0
MGH2SIO4	4.17115E-07	0.0	0.0	0.0
MGHPO4	2.33841E-10	0.0	0.0	0.0
MGSO4	8.48894E-06	0.0	0.0	0.0
NAHCO3	5.23057E-09	0.0	0.0	0.0
NAHSIO3	8.56608E-05	0.0	0.0	0.0
NANO3	7.95903E-05	0.0	0.0	0.0
CACL2	1.09272E-23	0.0	0.0	0.0
SIO2	1.85568E-06	1.43693E-04	0.0	0.0
CACO3	5.22541E-09	6.23338E-05	0.0	0.0
ZNCL2	2.95480E-09	0.0	0.0	0.0
ZNHPO4	1.39481E-14	0.0	0.0	0.0
ZNNO32	3.46359E-11	0.0	0.0	0.0
ZNOH2	6.75870E-09	4.89117E-05	0.0	0.0
OHION	2.26275E-08	0.0	0.0	0.0
ALION	2.12423E-23	0.0	0.0	0.0
ALOH2ION	5.58180E-16	0.0	0.0	0.0
ALOH4ION	2.39629E-09	0.0	0.0	0.0
ALOHCLION	6.79313E-19	0.0	0.0	0.0
ALOHION	1.24818E-19	0.0	0.0	0.0
ALSO42ION	4.75667E-23	0.0	0.0	0.0
ALSO4ION	6.86040E-23	0.0	0.0	0.0
CACLION	5.46394E-11	0.0	0.0	0.0
CAH2PO4ION	6.38430E-14	0.0	0.0	0.0
CAHCO3ION	1.14333E-09	0.0	0.0	0.0
CAHSIO3ION	1.11556E-07	0.0	0.0	0.0
CAION	2.96471E-05	0.0	0.0	0.0
CANO3ION	1.06368E-05	0.0	0.0	0.0

CAOHION	2.53167E-09	0.0	0.0	0.0
CAPO4ION	6.62076E-10	0.0	0.0	0.0
CLION	0.00343771	0.0	0.0	0.0
CO3ION	1.85475E-08	0.0	0.0	0.0
DODECION	3.41265E-05	0.0	0.0	0.0
FEIICLION	2.24719E-14	0.0	0.0	0.0
FEIICO32ION	2.64096E-16	0.0	0.0	0.0
FEIIH2PO4ION	5.24244E-21	0.0	0.0	0.0
FEIIHCO3ION	1.04972E-17	0.0	0.0	0.0
FEIIION	1.96732E-11	0.0	0.0	0.0
FEIIOH3ION	5.33068E-15	0.0	0.0	0.0
FEIIOH4ION	9.47801E-20	0.0	0.0	0.0
FEIIOHION	4.30388E-12	0.0	0.0	0.0
H2P2O7ION	2.64443E-24	0.0	0.0	0.0
H2PO4ION	5.56334E-13	0.0	0.0	0.0
H2SIO4ION	1.82145E-09	0.0	0.0	0.0
H3P2O7ION	0.0	0.0	0.0	0.0
H3SIO4ION	8.01991E-07	0.0	0.0	0.0
HCO3ION	2.62848E-08	0.0	0.0	0.0
HION	7.43792E-13	0.0	0.0	0.0
HP2O7ION	6.11402E-21	0.0	0.0	0.0
HPO4ION	6.63027E-10	0.0	0.0	0.0
HSO4ION	9.18255E-13	0.0	0.0	0.0
KION	8.84368E-04	0.0	0.0	0.0
KSO4ION	5.84296E-05	0.0	0.0	0.0
MGH2PO4ION	3.06826E-13	0.0	0.0	0.0
MGHCO3ION	1.09418E-08	0.0	0.0	0.0
MGHSIO3ION	7.70808E-07	0.0	0.0	0.0
MGION	4.31649E-05	0.0	0.0	0.0
MGOHION	9.07211E-08	0.0	0.0	0.0
MGP2O7ION	3.75513E-16	0.0	0.0	0.0
MGPO4ION	3.50013E-09	0.0	0.0	0.0
NACO3ION	9.78626E-09	0.0	0.0	0.0
NAION	0.00412107	0.0	0.0	0.0
NASO4ION	1.39982E-04	0.0	0.0	0.0
NO3ION	8.45181E-04	0.0	0.0	0.0
P2O7ION	7.52825E-19	0.0	0.0	0.0
PO4ION	5.24084E-12	0.0	0.0	0.0
SO4ION	3.23197E-04	0.0	0.0	0.0
ZNCL3ION	4.60945E-09	0.0	0.0	0.0
ZNCLION	3.98814E-09	0.0	0.0	0.0
ZNH2PO4ION	9.50828E-18	0.0	0.0	0.0
ZNHCO3ION	3.37790E-13	0.0	0.0	0.0
ZNION	1.64274E-08	0.0	0.0	0.0
ZNNO3ION	1.66399E-09	0.0	0.0	0.0
ZNOH3ION	2.53580E-10	0.0	0.0	0.0
ZNOH4ION	8.90912E-13	0.0	0.0	0.0
ZNOHION	3.58049E-09	0.0	0.0	0.0
CA3PO42	0.0	1.68469E-04	0.0	0.0
CASO4.2H2O	0.0	6.96977E-04	0.0	0.0
CHAMOSITE7A	0.0	6.62523E-05	0.0	0.0
MGOH2	0.0	4.40626E-04	0.0	0.0
=====				
Total g/hr	1.8492	0.240402	0.0	0.0
Volume, m3/hr	1.60244E-06	7.98975E-08	0.0	0.0
Enthalpy, cal/hr	-6200.08	-715.411	0.0	0.0
Density, g/m3	1.15399E+06	3.00888E+06		
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	179.399			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.198042			
E-Con, cm2/ohm-mol	30.1681			
Abs Visc, cP	1.31427			
Rel Visc	1.47552			
Ionic Strength	3.80033			

ESP V-6.6

PROCESS:AWESIML3

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.49035			
Total mol/hr	55.38926	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.3873	0.0	0.0	0.0
CO2	0.00187741	0.0	0.0	0.0
HCL	3.13735E-21	0.0	0.0	0.0
HNO3	5.87387E-17	0.0	0.0	0.0
LAURICACID	1.56882E-05	0.0	0.0	0.0
OHION	3.15100E-10	0.0	0.0	0.0
CLION	1.64905E-10	0.0	0.0	0.0
CO3ION	3.93175E-11	0.0	0.0	0.0
DODECION	5.94674E-06	0.0	0.0	0.0
HCO3ION	2.65308E-05	0.0	0.0	0.0
HION	3.24781E-05	0.0	0.0	0.0
NO3ION	3.66936E-11	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	997.91	0.0	0.0	0.0
Volume, m3/hr	0.00100104	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78388E+06	0.0	0.0	0.0
Density, g/m3	996872.			
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	0.0478673			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.28562E-05			
E-Con, cm2/ohm-mol	6.68348			
Abs Visc, cP	0.890744			
Rel Visc	1.00003			
Ionic Strength	3.25493E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.16760D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-1.26083D+02
MIX	CONDENSATE MIXER	-6.16621D+05

ESP V-6.6

PROCESS:AWESIML3

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===== BLOCK REPORT =====
 BLOCK NAME: Evap mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type P,V/F
 V/F (molar) 0.998381

Standard Block Information

 Duty, cal/hr 616760.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	-4.54747E-16
Total Energy cal/hr	-3.79081E+06	-3.17405E+06	0.0

Mix Output

 Outlet Temperature, C 103.391
 Outlet Pressure, atm 1.
 Aqueous pH 8.33006
 V/F (molar) 0.998382

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0880718	1.86991	0.00171908	-6152.19
Solid	0.00170212	0.219694	6.92584E-05	-637.218
Vapor	55.3893	997.91	1697.46	-3.16726E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4791	1000.	1697.46	-3.17405E+06

===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

=====

Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification, atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type	Adiabatic
Duty, cal/hr	0.0

Standard Block Information

Duty, cal/hr	0.0			
		In	Out	Rel. Diff.
Total Mass g/hr		1000.	1000.	0.0
Total Energy cal/hr		-3.17405E+06	-3.17405E+06	0.0

Separate Output

Outlet Temperature, C	103.391
Outlet Pressure, atm	1.
Aqueous pH	8.33006
Suspended Solids, g solid/g liq solution	0.11749
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0880718	1.86991	0.00171908	-6152.19
Solid	0.00170212	0.219694	6.92584E-05	-637.218
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0

Total	0.0897739	2.0896	0.00178834	-6789.4
-------	-----------	--------	------------	---------

Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.3893	997.91	1697.46	-3.16726E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.3893	997.91	1697.46	-3.16726E+06

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PROCESS:AWESIML3

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T,P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -126.083

	In	Out	Rel. Diff.
Total Mass g/hr	2.0896	2.0896	0.0
Total Energy cal/hr	-6789.4	-6915.49	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 9.26794
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0867508	1.8492	0.00160244	-6200.08
Solid	0.00162818	0.240402	7.98975E-05	-715.411
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.088379	2.0896	0.00168234	-6915.49

ESP V-6.6

PROCESS:AWESIML3

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T,P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.16621E+05

	In	Out	Rel. Diff.
Total Mass g/hr	997.91	997.91	1.82280E-15
Total Energy cal/hr	-3.16726E+06	-3.78388E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.49035
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.3893	997.91	1.00104	-3.78388E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.3893	997.91	1.00104	-3.78388E+06

AWE High Foam Simulant – Concentrated to 30 wt.% Total Solids

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      O   O   O           L           I I I I
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  O           O       L           I
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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 September 1, 2002

PROCESS: AWESIMH3

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWESIMH3.LIS

DATE: 11/21/2002

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79128D+06
Total in	1.00000D+03	-3.79128D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	1.22001D+00	-4.09277D+03
CONDENSATE	9.98780D+02	-3.78717D+06
Total out	1.00000D+03	-3.79126D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.16895D+05
EVAP BOTTOMS COOLING MIXER	-7.34699D+01
CONDENSATE MIXER	-6.16811D+05
Total Duty	1.11145D+01

DIFFERENCE	1.81899D-12	-1.16415D-10
REL DIFFERENCE	1.81899D-15	3.07061D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10971D+02	1.10971D+02	-4.26326D-14	-3.84178D-16
K(+1)	3.06890D-04	3.06890D-04	-5.42101D-20	-1.76644D-16
NA(+1)	1.84497D-03	1.84497D-03	3.90313D-18	2.11555D-15
CA(+2)	1.16967D-03	1.16967D-03	0.00000D+00	0.00000D+00
ZN(+2)	3.05951D-05	3.05951D-05	-1.35525D-20	-4.42964D-16
FE(+2)	7.69961D-05	7.69961D-05	0.00000D+00	0.00000D+00
MG(+2)	3.70188D-04	3.70188D-04	-1.84314D-18	-4.97895D-15
AL(+3)	8.89498D-05	8.89498D-05	0.00000D+00	0.00000D+00
O(-2)	5.54943D+01	5.54943D+01	-4.26326D-14	-7.68233D-16
CL(-1)	1.83341D-03	1.83341D-03	-2.60209D-18	-1.41926D-15
C(+4)	1.36645D-03	1.36645D-03	5.65954D-17	4.14177D-14
P(+5)	2.10590D-04	2.10590D-04	2.71051D-20	1.28710D-16
S(+6)	6.76649D-04	6.76649D-04	-1.08420D-19	-1.60231D-16
N(+5)	4.83833D-04	4.83833D-04	5.42101D-20	1.12043D-16
SI(+4)	2.33004D-04	2.33004D-04	5.42101D-20	2.32657D-16
DODEC(-1)	1.34809D-04	1.34809D-04	1.29842D-14	9.63152D-11

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PROCESS BLOCKS
=====

BLOCK NAME =====	BLOCK TYPE =====	INLET STREAM(s) =====	OUTLET STREAM(s) =====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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PROCESS:AWESIMH3

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STREAM: feed
 TO : Evap mixer
 FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	7.07503			
Total mol/hr	55.49313	1.36195E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4847	0.0	0.0	0.0
CO2	1.94071E-04	0.0	0.0	0.0
H2SO4	1.17850E-26	0.0	0.0	0.0
HCL	8.35697E-17	0.0	0.0	0.0
HNO3	1.84805E-12	0.0	0.0	0.0
LAURICACID	8.43490E-07	0.0	0.0	0.0
SO3	1.52548E-30	0.0	0.0	0.0
CAH2SIO4	1.45735E-11	0.0	0.0	0.0
CASO4	1.19286E-05	0.0	0.0	0.0
FEIICL2	7.21009E-16	0.0	0.0	0.0
FEIICO3	3.89143E-06	0.0	0.0	0.0
FEIIHPO4	4.57178E-08	0.0	0.0	0.0
FEIIOH2	1.80877E-11	0.0	0.0	0.0
ALO2H2CL	1.61670E-29	0.0	0.0	0.0
H3PO4	5.58819E-10	0.0	0.0	0.0
H4P2O7	5.54727E-22	0.0	0.0	0.0
ALOH3	2.40096E-09	8.89397E-05	0.0	0.0
KCL	3.88853E-09	0.0	0.0	0.0
KHSO4	1.93713E-14	0.0	0.0	0.0
MGCO3	1.33617E-07	0.0	0.0	0.0
MGH2SIO4	4.82255E-11	0.0	0.0	0.0
MGHPO4	9.99055E-06	0.0	0.0	0.0
MGSO4	7.11769E-06	0.0	0.0	0.0
NAHCO3	7.36136E-07	0.0	0.0	0.0
NAHSIO3	8.08906E-08	0.0	0.0	0.0
NANO3	4.25663E-08	0.0	0.0	0.0
CACL2	1.83529E-27	0.0	0.0	0.0
SIO2	2.32480E-04	0.0	0.0	0.0
CACO3	8.64942E-07	0.0	0.0	0.0
ZNCL2	9.84459E-11	0.0	0.0	0.0
ZNHPO4	1.29130E-06	0.0	0.0	0.0
ZNNO32	2.54574E-12	0.0	0.0	0.0
ZNOH2	1.38656E-08	0.0	0.0	0.0
OHION	1.31848E-07	0.0	0.0	0.0
ALION	1.27816E-14	0.0	0.0	0.0
ALOH2ION	4.04741E-11	0.0	0.0	0.0
ALOH4ION	7.83392E-09	0.0	0.0	0.0
ALOHCLION	4.08495E-15	0.0	0.0	0.0
ALOHION	9.71030E-13	0.0	0.0	0.0
ALSO42ION	1.02202E-16	0.0	0.0	0.0
ALSO4ION	2.88471E-15	0.0	0.0	0.0
CACLION	3.06677E-11	0.0	0.0	0.0
CAH2PO4ION	1.32869E-06	0.0	0.0	0.0
CAHCO3ION	8.95107E-06	0.0	0.0	0.0

CAHSIO3ION	5.52576E-09	0.0	0.0	0.0
CAION	0.00100336	0.0	0.0	0.0
CANO3ION	8.88059E-07	0.0	0.0	0.0
CAOHION	1.56813E-09	0.0	0.0	0.0
CAPO4ION	5.73957E-07	0.0	0.0	0.0
CLION	0.00183335	0.0	0.0	0.0
CO3ION	8.42564E-07	0.0	0.0	0.0
DODECION	1.33966E-04	0.0	0.0	0.0
FEIICLION	1.27670E-10	0.0	0.0	0.0
FEIICO32ION	1.07219E-10	0.0	0.0	0.0
FEIIH2PO4ION	8.53695E-09	0.0	0.0	0.0
FEIIHCO3ION	8.51737E-09	0.0	0.0	0.0
FEIIION	7.28330E-05	0.0	0.0	0.0
FEIIOH3ION	9.29955E-15	0.0	0.0	0.0
FEIIOH4ION	1.48991E-22	0.0	0.0	0.0
FEIIOHION	2.08662E-07	0.0	0.0	0.0
H2P2O7ION	1.45431E-11	0.0	0.0	0.0
H2PO4ION	5.15895E-05	0.0	0.0	0.0
H2SIO4ION	5.35804E-13	0.0	0.0	0.0
H3P2O7ION	2.05771E-16	0.0	0.0	0.0
H3SIO4ION	4.34374E-07	0.0	0.0	0.0
HCO3ION	0.00114607	0.0	0.0	0.0
HION	9.19613E-08	0.0	0.0	0.0
HP2O7ION	6.80972E-11	0.0	0.0	0.0
HPO4ION	5.03433E-05	0.0	0.0	0.0
HSO4ION	3.93971E-09	0.0	0.0	0.0
KION	3.05843E-04	0.0	0.0	0.0
KSO4ION	1.04324E-06	0.0	0.0	0.0
MGH2PO4ION	5.84563E-07	0.0	0.0	0.0
MGHCO3ION	1.03867E-05	0.0	0.0	0.0
MGHSIO3ION	3.49522E-09	0.0	0.0	0.0
MGION	3.41685E-04	0.0	0.0	0.0
MGOHION	5.14630E-09	0.0	0.0	0.0
MGP2O7ION	1.23700E-09	0.0	0.0	0.0
MGPO4ION	2.80006E-07	0.0	0.0	0.0
NACO3ION	3.79776E-09	0.0	0.0	0.0
NAION	0.0018372	0.0	0.0	0.0
NASO4ION	6.90422E-06	0.0	0.0	0.0
NO3ION	4.82874E-04	0.0	0.0	0.0
P2O7ION	7.66115E-13	0.0	0.0	0.0
PO4ION	4.49517E-10	0.0	0.0	0.0
SO4ION	6.49651E-04	0.0	0.0	0.0
ZNCL3ION	6.13639E-14	0.0	0.0	0.0
ZNCLION	5.74422E-08	0.0	0.0	0.0
ZNH2PO4ION	3.92541E-08	0.0	0.0	0.0
ZNHCO3ION	4.94624E-07	0.0	0.0	0.0
ZNION	2.83578E-05	0.0	0.0	0.0
ZNNO3ION	2.75482E-08	0.0	0.0	0.0
ZNOH3ION	1.78029E-12	0.0	0.0	0.0
ZNOH4ION	3.58639E-18	0.0	0.0	0.0
ZNOHION	3.13154E-07	0.0	0.0	0.0
CA3PO42	0.0	4.72553E-05	0.0	0.0
=====				
Total g/hr	999.978	0.0215951	0.0	0.0
Volume, m3/hr	0.00100283	7.45557E-09	0.0	0.0
Enthalpy, cal/hr	-3.79120E+06	-73.6434	0.0	0.0
Density, g/m3	997154.	2.89651E+06		
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	0.225002			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	5.58520E-04			
E-Con, cm2/ohm-mol	167.57			
Abs Visc, cP	0.892475			
Rel Visc	1.00197			
Ionic Strength	0.0072091			

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PROCESS:AWESIMH3

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.615	102.615	102.615	102.615
Pressure, atm	1.	1.	1.	1.
pH	7.84231			
Total mol/hr	0.05318433	0.00146768	55.4376	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0486848	0.0	55.43623	0.0
CO2	1.58576E-10	0.0	0.001266108	0.0
H2SO4	2.08661E-30	0.0	1.83855E-27	0.0
HCL	4.43531E-16	0.0	4.29532E-10	0.0
HNO3	4.59373E-13	0.0	9.74298E-11	0.0
LAURICACID	2.00048E-09	0.0	1.04097E-04	0.0
CAH2SIO4	1.63132E-09	0.0	0.0	0.0
CASO4	5.66687E-07	6.60526E-04	0.0	0.0
FEIICL2	8.18953E-16	0.0	0.0	0.0
FEIICO3	2.06522E-14	0.0	0.0	0.0
FEIIHPO4	1.31782E-19	0.0	0.0	0.0
FEIIOH2	5.06195E-13	0.0	0.0	0.0
ALO2H2CL	1.62257E-30	0.0	0.0	0.0
H3PO4	2.97327E-19	0.0	0.0	0.0
ALOH3	3.25760E-11	0.0	0.0	0.0
KCL	5.43322E-06	0.0	0.0	0.0
KHSO4	5.77610E-14	0.0	0.0	0.0
MGCO3	8.99952E-11	0.0	0.0	0.0
MGH2SIO4	1.66431E-09	0.0	0.0	0.0
MGHPO4	2.54374E-12	0.0	0.0	0.0
MGSO4	4.41757E-08	0.0	0.0	0.0
NAHCO3	9.19160E-09	0.0	0.0	0.0
NAHSIO3	4.90087E-06	0.0	0.0	0.0
NANO3	8.91166E-05	0.0	0.0	0.0
CACL2	8.17862E-15	0.0	0.0	0.0
SIO2	4.14509E-06	1.83443E-04	0.0	0.0
CACO3	2.64574E-09	1.00320E-04	0.0	0.0
ZNCL2	3.17377E-06	0.0	0.0	0.0
ZNHPO4	3.94495E-14	0.0	0.0	0.0
ZNNO32	1.48406E-09	0.0	0.0	0.0
ZNOH2	5.10928E-07	0.0	0.0	0.0
OHION	5.65616E-08	0.0	0.0	0.0
ALION	4.63061E-23	0.0	0.0	0.0
ALOH2ION	5.84578E-15	0.0	0.0	0.0
ALOH4ION	1.87906E-08	0.0	0.0	0.0
ALOHCLION	2.98196E-18	0.0	0.0	0.0
ALOHION	1.10026E-18	0.0	0.0	0.0
ALSO42ION	1.40083E-24	0.0	0.0	0.0
ALSO4ION	2.40667E-23	0.0	0.0	0.0
CACLION	1.93525E-07	0.0	0.0	0.0
CAH2PO4ION	2.70017E-13	0.0	0.0	0.0
CAHCO3ION	1.94442E-09	0.0	0.0	0.0
CAHSIO3ION	2.10276E-07	0.0	0.0	0.0
CAION	6.49387E-05	0.0	0.0	0.0

CANO3ION	2.69767E-05	0.0	0.0	0.0
CAOHION	4.39377E-08	0.0	0.0	0.0
CAPO4ION	1.09466E-11	0.0	0.0	0.0
CLION	0.00180449	0.0	0.0	0.0
CO3ION	5.22192E-10	0.0	0.0	0.0
DODECION	3.07099E-05	0.0	0.0	0.0
FEIICLION	1.87364E-13	0.0	0.0	0.0
FEIICO32ION	1.83172E-18	0.0	0.0	0.0
FEIIH2PO4ION	3.62430E-21	0.0	0.0	0.0
FEIIHCO3ION	1.48575E-17	0.0	0.0	0.0
FEIIION	2.63133E-11	0.0	0.0	0.0
FEIIOH3ION	3.27522E-14	0.0	0.0	0.0
FEIIOH4ION	2.91927E-18	0.0	0.0	0.0
FEIIOHION	9.85113E-12	0.0	0.0	0.0
H2P2O7ION	1.13932E-23	0.0	0.0	0.0
H2PO4ION	1.86551E-13	0.0	0.0	0.0
H2SIO4ION	9.19757E-11	0.0	0.0	0.0
H3P2O7ION	4.31072E-30	0.0	0.0	0.0
H3SIO4ION	1.77496E-06	0.0	0.0	0.0
HCO3ION	7.54561E-09	0.0	0.0	0.0
HION	1.67080E-11	0.0	0.0	0.0
HP2O7ION	8.51041E-22	0.0	0.0	0.0
HPO4ION	6.24660E-12	0.0	0.0	0.0
HSO4ION	1.08177E-11	0.0	0.0	0.0
KION	2.98675E-04	0.0	0.0	0.0
KSO4ION	2.78183E-06	0.0	0.0	0.0
MGH2PO4ION	6.25152E-15	0.0	0.0	0.0
MGHCO3ION	2.56294E-10	0.0	0.0	0.0
MGHSIO3ION	2.81759E-08	0.0	0.0	0.0
MGION	2.42611E-06	0.0	0.0	0.0
MGOHION	2.48942E-08	0.0	0.0	0.0
MGP2O7ION	1.21781E-18	0.0	0.0	0.0
MGPO4ION	9.06268E-13	0.0	0.0	0.0
NACO3ION	7.81861E-11	0.0	0.0	0.0
NAION	0.00175094	0.0	0.0	0.0
NASO4ION	4.81571E-13	0.0	0.0	0.0
NO3ION	3.67685E-04	0.0	0.0	0.0
P2O7ION	4.84547E-22	0.0	0.0	0.0
PO4ION	3.51779E-15	0.0	0.0	0.0
SO4ION	1.27309E-05	0.0	0.0	0.0
ZNCL3ION	3.07882E-06	0.0	0.0	0.0
ZNCLION	7.70974E-06	0.0	0.0	0.0
ZNH2PO4ION	2.57467E-16	0.0	0.0	0.0
ZNHCO3ION	8.36158E-12	0.0	0.0	0.0
ZNION	5.52832E-07	0.0	0.0	0.0
ZNNO3ION	5.15105E-08	0.0	0.0	0.0
ZNOH3ION	6.90395E-08	0.0	0.0	0.0
ZNOH4ION	1.71078E-10	0.0	0.0	0.0
ZNOHION	1.54468E-05	0.0	0.0	0.0
ALOOH	0.0	1.19350E-05	0.0	0.0
CA3PO42	0.0	1.05295E-04	0.0	0.0
CHAMOSITE7A	0.0	3.84980E-05	0.0	0.0
MGOH2	0.0	3.67662E-04	0.0	0.0
=====				
Total g/hr	1.04105	0.178963	998.78	0.0
Volume, m3/hr	9.87859E-07	5.86193E-08	1.69536	0.0
Enthalpy, cal/hr	-3504.77	-514.533	-3.17036E+06	0.0
Density, g/m3	1.05384E+06	3.05297E+06	589.126	

Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	147.51			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.437663			
E-Con, cm2/ohm-mol	52.3871			
Abs Visc, cP	0.37083			
Rel Visc	1.35324			
Ionic Strength	2.64152			

ESP V-6.6

PROCESS:AWESIMH3

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.615	102.615	102.615	102.615
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4376	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.43623	0.0
CO2	0.0	0.0	0.001266108	0.0
H2SO4	0.0	0.0	1.83855E-27	0.0
HCL	0.0	0.0	4.29532E-10	0.0
HNO3	0.0	0.0	9.74298E-11	0.0
LAURICACID	0.0	0.0	1.04097E-04	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	998.78	0.0
Volume, m3/hr	0.0	0.0	1.69536	0.0
Enthalpy, cal/hr	0.0	0.0	-3.17036E+06	0.0
Density, g/m3			589.126	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWESIMH3

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STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.615	102.615	102.615	102.615
Pressure, atm	1.	1.	1.	1.
pH	7.84231			
Total mol/hr	0.05318433	0.00146768	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0486848	0.0	0.0	0.0
CO2	1.58576E-10	0.0	0.0	0.0
H2SO4	2.08661E-30	0.0	0.0	0.0
HCL	4.43531E-16	0.0	0.0	0.0
HNO3	4.59373E-13	0.0	0.0	0.0
LAURICACID	2.00048E-09	0.0	0.0	0.0
CAH2SIO4	1.63132E-09	0.0	0.0	0.0
CASO4	5.66687E-07	6.60526E-04	0.0	0.0
FEIICL2	8.18953E-16	0.0	0.0	0.0
FEIICO3	2.06522E-14	0.0	0.0	0.0
FEIIHPO4	1.31782E-19	0.0	0.0	0.0
FEIIOH2	5.06195E-13	0.0	0.0	0.0
ALO2H2CL	1.62257E-30	0.0	0.0	0.0
H3PO4	2.97327E-19	0.0	0.0	0.0
ALOH3	3.25760E-11	0.0	0.0	0.0
KCL	5.43322E-06	0.0	0.0	0.0
KHSO4	5.77610E-14	0.0	0.0	0.0
MGCO3	8.99952E-11	0.0	0.0	0.0
MGH2SIO4	1.66431E-09	0.0	0.0	0.0
MGHPO4	2.54374E-12	0.0	0.0	0.0
MGSO4	4.41757E-08	0.0	0.0	0.0
NAHCO3	9.19160E-09	0.0	0.0	0.0
NAHSIO3	4.90087E-06	0.0	0.0	0.0
NANO3	8.91166E-05	0.0	0.0	0.0
CACL2	8.17862E-15	0.0	0.0	0.0
SIO2	4.14509E-06	1.83443E-04	0.0	0.0
CACO3	2.64574E-09	1.00320E-04	0.0	0.0
ZNCL2	3.17377E-06	0.0	0.0	0.0
ZNHPO4	3.94495E-14	0.0	0.0	0.0
ZNNO32	1.48406E-09	0.0	0.0	0.0
ZNOH2	5.10928E-07	0.0	0.0	0.0
OHION	5.65616E-08	0.0	0.0	0.0
ALION	4.63061E-23	0.0	0.0	0.0
ALOH2ION	5.84578E-15	0.0	0.0	0.0
ALOH4ION	1.87906E-08	0.0	0.0	0.0
ALOHCLION	2.98196E-18	0.0	0.0	0.0
ALOHION	1.10026E-18	0.0	0.0	0.0
ALSO42ION	1.40083E-24	0.0	0.0	0.0
ALSO4ION	2.40667E-23	0.0	0.0	0.0
CACLION	1.93525E-07	0.0	0.0	0.0
CAH2PO4ION	2.70017E-13	0.0	0.0	0.0
CAHCO3ION	1.94442E-09	0.0	0.0	0.0
CAHSIO3ION	2.10276E-07	0.0	0.0	0.0
CAION	6.49387E-05	0.0	0.0	0.0

CANO3ION	2.69767E-05	0.0	0.0	0.0
CAOHION	4.39377E-08	0.0	0.0	0.0
CAPO4ION	1.09466E-11	0.0	0.0	0.0
CLION	0.00180449	0.0	0.0	0.0
CO3ION	5.22192E-10	0.0	0.0	0.0
DODECION	3.07099E-05	0.0	0.0	0.0
FEIICLION	1.87364E-13	0.0	0.0	0.0
FEIICO32ION	1.83172E-18	0.0	0.0	0.0
FEIIH2PO4ION	3.62430E-21	0.0	0.0	0.0
FEIIHCO3ION	1.48575E-17	0.0	0.0	0.0
FEIIION	2.63133E-11	0.0	0.0	0.0
FEIIOH3ION	3.27522E-14	0.0	0.0	0.0
FEIIOH4ION	2.91927E-18	0.0	0.0	0.0
FEIIOHION	9.85113E-12	0.0	0.0	0.0
H2P2O7ION	1.13932E-23	0.0	0.0	0.0
H2PO4ION	1.86551E-13	0.0	0.0	0.0
H2SIO4ION	9.19757E-11	0.0	0.0	0.0
H3P2O7ION	4.31072E-30	0.0	0.0	0.0
H3SIO4ION	1.77496E-06	0.0	0.0	0.0
HCO3ION	7.54561E-09	0.0	0.0	0.0
HION	1.67080E-11	0.0	0.0	0.0
HP2O7ION	8.51041E-22	0.0	0.0	0.0
HPO4ION	6.24660E-12	0.0	0.0	0.0
HSO4ION	1.08177E-11	0.0	0.0	0.0
KION	2.98675E-04	0.0	0.0	0.0
KSO4ION	2.78183E-06	0.0	0.0	0.0
MGH2PO4ION	6.25152E-15	0.0	0.0	0.0
MGHCO3ION	2.56294E-10	0.0	0.0	0.0
MGHSIO3ION	2.81759E-08	0.0	0.0	0.0
MGION	2.42611E-06	0.0	0.0	0.0
MGOHION	2.48942E-08	0.0	0.0	0.0
MGP2O7ION	1.21781E-18	0.0	0.0	0.0
MGPO4ION	9.06268E-13	0.0	0.0	0.0
NACO3ION	7.81861E-11	0.0	0.0	0.0
NAION	0.00175094	0.0	0.0	0.0
NASO4ION	4.81571E-13	0.0	0.0	0.0
NO3ION	3.67685E-04	0.0	0.0	0.0
P2O7ION	4.84547E-22	0.0	0.0	0.0
PO4ION	3.51779E-15	0.0	0.0	0.0
SO4ION	1.27309E-05	0.0	0.0	0.0
ZNCL3ION	3.07882E-06	0.0	0.0	0.0
ZNCLION	7.70974E-06	0.0	0.0	0.0
ZNH2PO4ION	2.57467E-16	0.0	0.0	0.0
ZNHCO3ION	8.36158E-12	0.0	0.0	0.0
ZNION	5.52832E-07	0.0	0.0	0.0
ZNNO3ION	5.15105E-08	0.0	0.0	0.0
ZNOH3ION	6.90395E-08	0.0	0.0	0.0
ZNOH4ION	1.71078E-10	0.0	0.0	0.0
ZNOHION	1.54468E-05	0.0	0.0	0.0
ALOOH	0.0	1.19350E-05	0.0	0.0
CA3PO42	0.0	1.05295E-04	0.0	0.0
CHAMOSITE7A	0.0	3.84980E-05	0.0	0.0
MGOH2	0.0	3.67662E-04	0.0	0.0
=====				
Total g/hr	1.04105	0.178963	0.0	0.0
Volume, m3/hr	9.87859E-07	5.86193E-08	0.0	0.0
Enthalpy, cal/hr	-3504.77	-514.533	0.0	0.0
Density, g/m3	1.05384E+06	3.05297E+06		

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	147.51			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.437663			
E-Con, cm2/ohm-mol	52.3871			
Abs Visc, cP	0.37083			
Rel Visc	1.35324			
Ionic Strength	2.64152			

STREAM: Cooled Bottoms
 TO :
 FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	9.17807			
Total mol/hr	0.05202917	0.0014092	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0474044	0.0	0.0	0.0
CO2	1.48981E-12	0.0	0.0	0.0
HCL	3.37411E-19	0.0	0.0	0.0
HNO3	4.19363E-15	0.0	0.0	0.0
LAURICACID	5.03359E-10	0.0	0.0	0.0
CAH2SIO4	2.99366E-08	0.0	0.0	0.0
CASO4	7.97867E-07	0.0	0.0	0.0
FEIICL2	4.11805E-17	0.0	0.0	0.0
FEIICO3	5.12557E-14	0.0	0.0	0.0
FEIIHPO4	1.10196E-19	0.0	0.0	0.0
FEIIOH2	1.52082E-14	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	7.11108E-22	0.0	0.0	0.0
ALOH3	1.29798E-12	1.19525E-05	0.0	0.0
KCL	1.22359E-06	0.0	0.0	0.0
KHSO4	1.78687E-16	0.0	0.0	0.0
MGCO3	1.43813E-09	0.0	0.0	0.0
MGH2SIO4	2.71323E-07	0.0	0.0	0.0
MGHPO4	1.96776E-11	0.0	0.0	0.0
MGSO4	1.30392E-06	0.0	0.0	0.0
NAHCO3	5.48975E-10	0.0	0.0	0.0
NAHSIO3	3.47990E-05	0.0	0.0	0.0
NANO3	2.68542E-05	0.0	0.0	0.0
CACL2	3.12743E-23	0.0	0.0	0.0
SIO2	1.14051E-06	1.57047E-04	0.0	0.0
CACO3	3.39901E-09	1.00329E-04	0.0	0.0
ZNCL2	2.12036E-09	0.0	0.0	0.0
ZNHPO4	1.17373E-15	0.0	0.0	0.0
ZNNO32	2.57764E-11	0.0	0.0	0.0
ZNOH2	4.39637E-09	3.05672E-05	0.0	0.0
OHION	1.32885E-08	0.0	0.0	0.0
ALION	2.02872E-23	0.0	0.0	0.0
ALOH2ION	3.88687E-16	0.0	0.0	0.0
ALOH4ION	1.22770E-09	0.0	0.0	0.0
ALOHCLION	4.80093E-19	0.0	0.0	0.0
ALOHION	1.09532E-19	0.0	0.0	0.0
ALSO42ION	1.29704E-24	0.0	0.0	0.0
ALSO4ION	1.09591E-23	0.0	0.0	0.0
CACLION	1.41179E-10	0.0	0.0	0.0
CAH2PO4ION	2.28391E-14	0.0	0.0	0.0
CAHCO3ION	7.19731E-10	0.0	0.0	0.0
CAHSIO3ION	2.99382E-07	0.0	0.0	0.0
CAION	8.65820E-05	0.0	0.0	0.0
CANO3ION	3.08186E-05	0.0	0.0	0.0

CAOHION	6.99502E-09	0.0	0.0	0.0
CAPO4ION	1.46967E-10	0.0	0.0	0.0
CLION	0.00183217	0.0	0.0	0.0
CO3ION	1.66401E-09	0.0	0.0	0.0
DODECION	3.07114E-05	0.0	0.0	0.0
FEIICLION	1.69444E-14	0.0	0.0	0.0
FEIICO32ION	6.00560E-18	0.0	0.0	0.0
FEIIH2PO4ION	4.91843E-22	0.0	0.0	0.0
FEIIHCO3ION	1.94694E-18	0.0	0.0	0.0
FEIIION	1.48815E-11	0.0	0.0	0.0
FEIIOH3ION	2.44124E-15	0.0	0.0	0.0
FEIIOH4ION	3.53179E-20	0.0	0.0	0.0
FEIIOHION	3.11863E-12	0.0	0.0	0.0
H2P2O7ION	1.46014E-26	0.0	0.0	0.0
H2PO4ION	2.91780E-14	0.0	0.0	0.0
H2SIO4ION	5.89477E-10	0.0	0.0	0.0
H3SIO4ION	3.99114E-07	0.0	0.0	0.0
HCO3ION	3.05731E-09	0.0	0.0	0.0
HION	5.12616E-13	0.0	0.0	0.0
HP2O7ION	3.57486E-23	0.0	0.0	0.0
HPO4ION	2.55377E-11	0.0	0.0	0.0
HSO4ION	1.11243E-13	0.0	0.0	0.0
KION	3.02159E-04	0.0	0.0	0.0
KSO4ION	3.50673E-06	0.0	0.0	0.0
MGH2PO4ION	2.75207E-14	0.0	0.0	0.0
MGHCO3ION	1.94057E-09	0.0	0.0	0.0
MGHSIO3ION	5.18658E-07	0.0	0.0	0.0
MGION	3.74267E-05	0.0	0.0	0.0
MGOHION	6.28479E-08	0.0	0.0	0.0
MGP2O7ION	2.17269E-18	0.0	0.0	0.0
MGPO4ION	2.04982E-10	0.0	0.0	0.0
NACO3ION	7.98444E-10	0.0	0.0	0.0
NAION	0.00177135	0.0	0.0	0.0
NASO4ION	1.19658E-05	0.0	0.0	0.0
NO3ION	4.26158E-04	0.0	0.0	0.0
P2O7ION	2.58003E-21	0.0	0.0	0.0
PO4ION	1.90273E-13	0.0	0.0	0.0
SO4ION	2.41607E-05	0.0	0.0	0.0
ZNCL3ION	2.78289E-09	0.0	0.0	0.0
ZNCLION	2.87495E-09	0.0	0.0	0.0
ZNH2PO4ION	8.52843E-19	0.0	0.0	0.0
ZNHCO3ION	5.87212E-14	0.0	0.0	0.0
ZNION	1.18092E-08	0.0	0.0	0.0
ZNNO3ION	1.20858E-09	0.0	0.0	0.0
ZNOH3ION	1.36793E-10	0.0	0.0	0.0
ZNOH4ION	3.06673E-13	0.0	0.0	0.0
ZNOHION	2.43128E-09	0.0	0.0	0.0
CA3PO42	0.0	1.05295E-04	0.0	0.0
CASO4.2H2O	0.0	6.34912E-04	0.0	0.0
CHAMOSITE7A	0.0	3.84979E-05	0.0	0.0
MGOH2	0.0	3.30600E-04	0.0	0.0
=====				
Total g/hr	1.02215	0.197861	0.0	0.0
Volume, m3/hr	9.17119E-07	6.90132E-08	0.0	0.0
Enthalpy, cal/hr	-3503.97	-588.798	0.0	0.0
Density, g/m3	1.11452E+06	2.86701E+06		
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	137.02			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.175104			
E-Con, cm2/ohm-mol	30.5404			
Abs Visc, cP	1.16041			
Rel Visc	1.30278			
Ionic Strength	2.92909			

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PROCESS:AWESIMH3

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.4069			
Total mol/hr	55.43771	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4363	0.0	0.0	0.0
CO2	0.00125151	0.0	0.0	0.0
HCL	9.89659E-21	0.0	0.0	0.0
HNO3	1.88881E-16	0.0	0.0	0.0
LAURICACID	7.92818E-05	0.0	0.0	0.0
OHION	2.60422E-10	0.0	0.0	0.0
CLION	4.29533E-10	0.0	0.0	0.0
CO3ION	1.78947E-11	0.0	0.0	0.0
DODECION	2.48153E-05	0.0	0.0	0.0
HCO3ION	1.46038E-05	0.0	0.0	0.0
HION	3.94199E-05	0.0	0.0	0.0
NO3ION	9.74297E-11	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	998.78	0.0	0.0	0.0
Volume, m3/hr	0.00100191	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78717E+06	0.0	0.0	0.0
Density, g/m3	996875.			
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	0.0344276			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.58607E-05			
E-Con, cm2/ohm-mol	11.5975			
Abs Visc, cP	0.890741			
Rel Visc	1.00002			
Ionic Strength	3.94714E-05			

=====
Block Heat Duties
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Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.16895D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-7.34699D+01
MIX	CONDENSATE MIXER	-6.16811D+05

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PROCESS:AWESIMH3

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

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Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P,V/F
 V/F (molar) 0.999054

Standard Block Information

Duty, cal/hr 616895.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	-3.41061E-16
Total Energy cal/hr	-3.79128E+06	-3.17438E+06	0.0

Mix Output

Outlet Temperature, C 102.615
 Outlet Pressure, atm 1.
 Aqueous pH 7.84231
 V/F (molar) 0.999055

	Outlet Flow		Outlet Enthalpy	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0509756	1.04105	9.87859E-04	-3504.77
Solid	0.00146768	0.178963	5.86193E-05	-514.533
Vapor	55.4376	998.78	1695.36	-3.17036E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4901	1000.	1695.36	-3.17438E+06

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PROCESS:AWESIMH3

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

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Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification, atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type Adiabatic

Duty, cal/hr 0.0

Standard Block Information

Duty, cal/hr	0.0			
		In	Out	Rel. Diff.
Total Mass	g/hr	1000.	1000.	0.0
Total Energy	cal/hr	-3.17438E+06	-3.17438E+06	0.0

Separate Output

Outlet Temperature, C	102.615
Outlet Pressure, atm	1.
Aqueous pH	7.84231
Suspended Solids, g solid/g liq solution	0.171907
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0509756	1.04105	9.87859E-04	-3504.77
Solid	0.00146768	0.178963	5.86193E-05	-514.533
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0524433	1.22001	0.00104648	-4019.3

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PROCESS:AWESIMH3

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4376	998.78	1695.36	-3.17036E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4376	998.78	1695.36	-3.17036E+06

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PROCESS:AWESIMH3

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T,P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -73.4699

	In	Out	Rel. Diff.
Total Mass g/hr	1.22001	1.22001	-9.10010E-16
Total Energy cal/hr	-4019.3	-4092.77	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 9.17807
 V/F (molar) 0.0

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0497523	1.02215	9.17119E-04	-3503.97
Solid	0.0014092	0.197861	6.90132E-05	-588.798
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0511615	1.22001	9.86132E-04	-4092.77

ESP V-6.6

PROCESS:AWESIMH3

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T,P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.16811E+05

	In	Out	Rel. Diff.
Total Mass g/hr	998.78	998.78	2.16269E-15
Total Energy cal/hr	-3.17036E+06	-3.78717E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.4069
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4376	998.78	1.00191	-3.78717E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4376	998.78	1.00191	-3.78717E+06

Influent Limit Composition 50% Target pH=6.5

AWE 6.5-50

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      O   O   O           L           I I I I
    O         O         L           I
  O   O         O         L           I
O   O   O         O         L           I
O   O   O         O         L           I
  O   O         O         L           I
    O         O         L           I
      O   O   O         L L L L L L L L   I I I I
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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 September 1, 2002

PROCESS: AWE65_2

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE65_2.LIS

DATE: 12/05/2002

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PROCESS:AWE65_2

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79151D+06
Total in	1.00000D+03	-3.79151D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	7.62962D-01	-2.54735D+03
CONDENSATE	9.99237D+02	-3.78896D+06
Total out	1.00000D+03	-3.79151D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.17262D+05
EVAP BOTTOMS COOLING MIXER	-4.50883D+01
CONDENSATE MIXER	-6.17215D+05
Total Duty	2.17588D+00

DIFFERENCE	0.00000D+00	-1.16415D-10
REL DIFFERENCE	0.00000D+00	3.07042D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10987D+02	1.10987D+02	1.42109D-14	1.28040D-16
K(+1)	1.37404D-04	1.37404D-04	-2.71051D-20	-1.97266D-16
NA(+1)	9.34361D-04	9.34361D-04	-1.19262D-18	-1.27640D-15
BA(+2)	4.08759D-07	4.08759D-07	1.05879D-22	2.59026D-16
CA(+2)	7.23192D-04	7.23192D-04	-2.16840D-19	-2.99838D-16
ZN(+2)	2.14067D-05	2.14067D-05	3.38813D-21	1.58274D-16
CU(+2)	3.14961D-06	3.14961D-06	0.00000D+00	0.00000D+00
FE(+2)	5.55556D-05	5.55556D-05	0.00000D+00	0.00000D+00
MG(+2)	2.46914D-04	2.46914D-04	0.00000D+00	0.00000D+00
PB(+2)	2.12560D-06	2.12560D-06	-8.47033D-22	-3.98490D-16
AL(+3)	6.29630D-05	6.29630D-05	0.00000D+00	0.00000D+00
NI(+2)	9.36968D-07	9.36968D-07	-1.05879D-22	-1.13002D-16
O(-2)	5.54997D+01	5.54997D+01	-1.42109D-14	-2.56053D-16
CL(-1)	1.32394D-03	1.32394D-03	-8.67362D-19	-6.55135D-16
C(+4)	1.00000D-03	1.00000D-03	8.67362D-19	8.67362D-16
P(+5)	1.47368D-04	1.47368D-04	8.13152D-20	5.51781D-16
S(+6)	4.89583D-04	4.89583D-04	-1.19262D-18	-2.43599D-15
N(+5)	3.38710D-04	3.38710D-04	0.00000D+00	0.00000D+00
SI(+4)	1.65000D-04	1.65000D-04	-2.71051D-20	-1.64273D-16
SR(+2)	1.13014D-05	1.13014D-05	-1.69407D-21	-1.49899D-16

CD (+2)	8.92857D-09	8.92857D-09	1.71888D-21	1.92515D-13
CR (+3)	5.38462D-08	5.38462D-08	4.89691D-21	9.09426D-14
U (+4)	2.01681D-06	2.01681D-06	-4.23516D-22	-2.09994D-16

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DODEC (-1)

3.37022D-05 3.37022D-05 1.96512D-19 5.83082D-15

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PROCESS:AWE65_2

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

ESP V-6.6

PROCESS:AWE65_2

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.05821			
Total mol/hr	55.4989	6.66618E-05	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4933	0.0	0.0	0.0
CO2	6.38321E-04	0.0	0.0	0.0
H2SO4	9.94237E-25	0.0	0.0	0.0
HCL	6.37324E-16	0.0	0.0	0.0
HNO3	1.36789E-11	0.0	0.0	0.0
LAURICACID	2.10382E-06	0.0	0.0	0.0
SO3	1.28689E-28	0.0	0.0	0.0
CAH2SIO4	7.23579E-14	0.0	0.0	0.0
CASO4	7.04016E-06	0.0	0.0	0.0
CDCL2	1.63334E-11	0.0	0.0	0.0
CDOH2	4.89720E-17	0.0	0.0	0.0
CDSO4	7.20742E-10	0.0	0.0	0.0
CROH3	2.93720E-14	0.0	0.0	0.0
CUCL2	3.60989E-13	0.0	0.0	0.0
CUCO3	9.57902E-09	0.0	0.0	0.0
CUNO32	4.99710E-15	0.0	0.0	0.0
CUOH2	1.08210E-09	0.0	0.0	0.0
FEIICL2	3.14603E-16	0.0	0.0	0.0
FEIICO3	9.60779E-08	0.0	0.0	0.0
FEIIHPO4	8.92000E-09	0.0	0.0	0.0
FEIIOH2	1.35847E-13	0.0	0.0	0.0
ALO2H2CL	1.23287E-28	0.0	0.0	0.0
H3PO4	1.45258E-08	0.0	0.0	0.0
H4P2O7	3.74615E-19	0.0	0.0	0.0
ALOH3	2.40212E-09	6.29593E-05	0.0	0.0
BACO3	2.32109E-12	0.0	0.0	0.0
KCL	1.29940E-09	0.0	0.0	0.0
KHSO4	7.16085E-14	0.0	0.0	0.0
BASO4	1.98734E-10	0.0	0.0	0.0
MGCO3	3.01432E-09	0.0	0.0	0.0
MGH2SIO4	2.34742E-13	0.0	0.0	0.0
MGHPO4	1.78108E-06	0.0	0.0	0.0
MGSO4	4.11835E-06	0.0	0.0	0.0
NAHCO3	1.20002E-07	0.0	0.0	0.0
NAHSIO3	2.84504E-09	0.0	0.0	0.0
NANO3	1.56078E-08	0.0	0.0	0.0
NIOH2	8.84006E-14	0.0	0.0	0.0
NISO4	4.79754E-08	0.0	0.0	0.0
PBCL2	7.32618E-12	0.0	0.0	0.0
PBHPO4	6.71763E-10	0.0	0.0	0.0
PBNO32	9.25760E-14	0.0	0.0	0.0
PBO	6.45606E-13	0.0	0.0	0.0
CACL2	7.46358E-28	0.0	0.0	0.0
SIO2	1.64968E-04	0.0	0.0	0.0

CACO3	1.99032E-08	0.0	0.0	0.0
SRHPO4	1.22376E-09	0.0	0.0	0.0
SRNO32	6.54426E-12	0.0	0.0	0.0
SRSO4	5.56676E-07	0.0	0.0	0.0
UIVOH4	3.02313E-10	0.0	0.0	0.0
UIVSO42	1.74297E-26	0.0	0.0	0.0
ZNCL2	4.16299E-11	0.0	0.0	0.0
ZNHPO4	2.44170E-07	0.0	0.0	0.0
ZNNO32	1.01393E-12	0.0	0.0	0.0
ZNOH2	1.00923E-10	0.0	0.0	0.0
OHION	1.24856E-08	0.0	0.0	0.0
ALION	1.23915E-11	0.0	0.0	0.0
ALOH2ION	4.13909E-10	0.0	0.0	0.0
ALOH4ION	7.41426E-10	0.0	0.0	0.0
ALOHCLION	3.18309E-13	0.0	0.0	0.0
ALOHION	9.82874E-11	0.0	0.0	0.0
ALSO42ION	6.87500E-14	0.0	0.0	0.0
ALSO4ION	2.48673E-12	0.0	0.0	0.0
BAHCO3ION	1.09988E-09	0.0	0.0	0.0
BAION	4.07458E-07	0.0	0.0	0.0
BAOHION	2.11751E-15	0.0	0.0	0.0
CACLION	1.67750E-11	0.0	0.0	0.0
CAH2PO4ION	2.46899E-06	0.0	0.0	0.0
CAHCO3ION	2.10680E-06	0.0	0.0	0.0
CAHSIO3ION	2.80342E-10	0.0	0.0	0.0
CAION	7.11076E-04	0.0	0.0	0.0
CANO3ION	4.69935E-07	0.0	0.0	0.0
CAOHION	1.12231E-10	0.0	0.0	0.0
CAPO4ION	9.87603E-09	0.0	0.0	0.0
CDCL3ION	1.03523E-15	0.0	0.0	0.0
CDCL4ION	8.68388E-19	0.0	0.0	0.0
CDCLION	6.70517E-10	0.0	0.0	0.0
CDION	7.51535E-09	0.0	0.0	0.0
CDNO3ION	5.05302E-12	0.0	0.0	0.0
CDOH3ION	8.41161E-24	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	5.71672E-13	0.0	0.0	0.0
CLION	0.00132391	0.0	0.0	0.0
CO3ION	2.40074E-08	0.0	0.0	0.0
CRIIIICL2ION	2.46848E-20	0.0	0.0	0.0
CRIIIICLION	1.33346E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.31460E-13	0.0	0.0	0.0
CRIIIHPO4ION	5.38154E-08	0.0	0.0	0.0
CRIIIIION	3.97186E-14	0.0	0.0	0.0
CRIIINO3ION	2.09589E-15	0.0	0.0	0.0
CROH2ION	8.14353E-15	0.0	0.0	0.0
CROH4ION	4.17138E-19	0.0	0.0	0.0
CROHION	3.30848E-12	0.0	0.0	0.0
CRSO4ION	2.71875E-11	0.0	0.0	0.0
CUCL3ION	9.91482E-19	0.0	0.0	0.0
CUCLION	6.93209E-10	0.0	0.0	0.0
CUCO32ION	3.43912E-13	0.0	0.0	0.0
CUION	1.30066E-07	0.0	0.0	0.0
CUNO3ION	1.18917E-10	0.0	0.0	0.0
CUOH3ION	7.18827E-16	0.0	0.0	0.0
CUOH4ION	7.64398E-23	0.0	0.0	0.0
CUOHION	5.59515E-09	0.0	0.0	0.0
DODECION	3.15984E-05	0.0	0.0	0.0

FEIICLION	7.46945E-11	0.0	0.0	0.0
FEIICO32ION	7.53291E-14	0.0	0.0	0.0
FEIIH2PO4ION	1.70207E-08	0.0	0.0	0.0
FEIIHCO3ION	2.14931E-09	0.0	0.0	0.0
FEIIION	5.54153E-05	0.0	0.0	0.0
FEIIOH3ION	6.61095E-18	0.0	0.0	0.0
FEIIOH4ION	9.68178E-27	0.0	0.0	0.0
FEIIOHION	1.60186E-08	0.0	0.0	0.0
H2P2O7ION	8.50915E-11	0.0	0.0	0.0
H2PO4ION	1.26915E-04	0.0	0.0	0.0
H2SIO4ION	3.29439E-15	0.0	0.0	0.0
H3P2O7ION	1.31573E-14	0.0	0.0	0.0
H3SIO4ION	2.91873E-08	0.0	0.0	0.0
HCO3ION	3.56780E-04	0.0	0.0	0.0
HION	9.41171E-07	0.0	0.0	0.0
HP2O7ION	3.53308E-11	0.0	0.0	0.0
HPBO2ION	8.90607E-18	0.0	0.0	0.0
HPO4ION	1.13353E-05	0.0	0.0	0.0
HSO4ION	3.14706E-08	0.0	0.0	0.0
KION	1.37038E-04	0.0	0.0	0.0
KSO4ION	3.64713E-07	0.0	0.0	0.0
MGH2PO4ION	1.06493E-06	0.0	0.0	0.0
MGHCO3ION	2.39581E-06	0.0	0.0	0.0
MGHSIO3ION	1.73845E-10	0.0	0.0	0.0
MGION	2.37545E-04	0.0	0.0	0.0
MGOHION	3.60987E-10	0.0	0.0	0.0
MGP2O7ION	4.95632E-11	0.0	0.0	0.0
MGPO4ION	4.72168E-09	0.0	0.0	0.0
NACO3ION	5.85661E-11	0.0	0.0	0.0
NAION	9.31492E-04	0.0	0.0	0.0
NASO4ION	2.73077E-06	0.0	0.0	0.0
NICLION	8.73738E-11	0.0	0.0	0.0
NIION	8.88146E-07	0.0	0.0	0.0
NINO3ION	6.44871E-10	0.0	0.0	0.0
NIOH3ION	1.11424E-18	0.0	0.0	0.0
NIOHION	1.13528E-10	0.0	0.0	0.0
NO3ION	3.38193E-04	0.0	0.0	0.0
P2O7ION	3.40669E-14	0.0	0.0	0.0
PBCL3ION	4.73877E-15	0.0	0.0	0.0
PBCL4ION	4.56102E-18	0.0	0.0	0.0
PBCLION	1.76927E-09	0.0	0.0	0.0
PBH2PO4ION	2.55453E-10	0.0	0.0	0.0
PBION	6.54236E-08	0.0	0.0	0.0
PBNO33ION	5.34798E-18	0.0	0.0	0.0
PBNO3ION	3.26442E-10	0.0	0.0	0.0
PBOHION	1.53261E-09	0.0	0.0	0.0
PO4ION	8.97040E-12	0.0	0.0	0.0
SO4ION	4.74692E-04	0.0	0.0	0.0
SRION	1.07283E-05	0.0	0.0	0.0
SRNO3ION	1.51741E-08	0.0	0.0	0.0
SROHION	6.32636E-13	0.0	0.0	0.0
SRPO4ION	2.06402E-12	0.0	0.0	0.0
UIVCLION	0.0	0.0	0.0	0.0
UIVION	2.52379E-29	0.0	0.0	0.0
UIVOH2ION	3.76496E-20	0.0	0.0	0.0
UIVOH3ION	3.20227E-15	0.0	0.0	0.0
UIVOH5ION	1.94071E-14	0.0	0.0	0.0
UIVOHION	7.11645E-24	0.0	0.0	0.0

UIVSO4ION	9.08925E-27	0.0	0.0	0.0
ZNCL3ION	1.87119E-14	0.0	0.0	0.0
ZNCLION	3.25699E-08	0.0	0.0	0.0
ZNH2PO4ION	7.58481E-08	0.0	0.0	0.0
ZNHCO3ION	1.20941E-07	0.0	0.0	0.0
ZNION	2.08946E-05	0.0	0.0	0.0
ZNNO3ION	1.51570E-08	0.0	0.0	0.0
ZNOH3ION	1.22600E-15	0.0	0.0	0.0
ZNOH4ION	2.25980E-22	0.0	0.0	0.0
ZNOHION	2.32919E-08	0.0	0.0	0.0
CU3PO42.2H2O	0.0	1.00082E-06	0.0	0.0
PB3PO42	0.0	6.85206E-07	0.0	0.0
UIVO2	0.0	2.01650E-06	0.0	0.0
=====				
Total g/hr	999.994	0.00642859	0.0	0.0
Volume, L/hr	1.00296	2.14018E-06	0.0	0.0
Enthalpy, cal/hr	-3.79149E+06	-20.2378	0.0	0.0
Density, g/L	997.047	3003.76		
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	0.149686			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	3.62656E-04			
E-Con, cm2/ohm-mol	129.216			
Abs Visc, cP	0.891883			
Rel Visc	1.00131			
Ionic Strength	0.00467719			

STREAM: Evap Contents
 TO : Evap separator
 FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.855	102.855	102.855	102.855
Pressure, atm	1.	1.	1.	1.
pH	6.46129			
Total mol/hr	0.0334535	7.28932E-04	55.4641	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0305354	0.0	55.46307	0.0
CO2	7.13162E-11	0.0	9.99998E-04	0.0
H2SO4	5.25780E-28	0.0	8.45792E-25	0.0
HCL	8.48336E-15	0.0	1.47398E-08	0.0
HNO3	8.59976E-12	0.0	3.18431E-09	0.0
LAURICACID	3.54134E-10	0.0	3.34377E-05	0.0
SO3	0.0	0.0	2.18377E-30	0.0
CAH2SIO4	2.01550E-12	0.0	0.0	0.0
CASO4	3.17261E-07	4.70785E-04	0.0	0.0
CDCL2	3.66189E-09	0.0	0.0	0.0
CDOH2	1.41990E-16	0.0	0.0	0.0
CDSO4	6.04593E-14	0.0	0.0	0.0
CROH3	2.94395E-12	0.0	0.0	0.0
CUCL2	5.09339E-09	0.0	0.0	0.0
CUCO3	4.94898E-14	0.0	0.0	0.0
CUNO32	3.43763E-11	0.0	0.0	0.0
CUOH2	4.97893E-09	2.07129E-06	0.0	0.0
FEIICL2	5.26909E-13	0.0	0.0	0.0
FEIICO3	9.03329E-15	0.0	0.0	0.0
FEIIHPO4	6.94855E-16	0.0	0.0	0.0
FEIIOH2	2.85313E-13	0.0	0.0	0.0
ALO2H2CL	3.07237E-29	0.0	0.0	0.0
H3PO4	1.57186E-15	0.0	0.0	0.0
H4P2O7	1.11359E-28	0.0	0.0	0.0
ALOH3	1.82272E-11	0.0	0.0	0.0
BACO3	4.35445E-17	0.0	0.0	0.0
KCL	2.95917E-06	0.0	0.0	0.0
KHSO4	4.18451E-13	0.0	0.0	0.0
BASO4	5.67989E-13	4.02952E-07	0.0	0.0
MGCO3	8.36690E-12	0.0	0.0	0.0
MGH2SIO4	1.95683E-10	0.0	0.0	0.0
MGHPO4	2.85277E-09	0.0	0.0	0.0
MGSO4	2.33440E-06	0.0	0.0	0.0
NAHCO3	1.36469E-10	0.0	0.0	0.0
NAHSIO3	9.24226E-08	0.0	0.0	0.0
NANO3	4.70319E-05	0.0	0.0	0.0
NIOH2	1.31233E-12	8.63165E-07	0.0	0.0
NISO4	1.51039E-09	0.0	0.0	0.0
PBCL2	7.14185E-08	0.0	0.0	0.0
PBHPO4	2.29135E-15	0.0	0.0	0.0
PBNO32	2.04981E-09	0.0	0.0	0.0
PBO	8.23044E-12	0.0	0.0	0.0
CACL2	1.21818E-14	0.0	0.0	0.0
SIO2	2.36896E-06	1.34627E-04	0.0	0.0

CACO3	2.58890E-12	0.0	0.0	0.0
SRHPO4	5.04192E-14	0.0	0.0	0.0
SRNO32	3.02682E-07	0.0	0.0	0.0
SRSO4	5.41479E-09	9.31920E-06	0.0	0.0
UIVOH4	6.88835E-13	0.0	0.0	0.0
UIVSO42	0.0	0.0	0.0	0.0
ZNCL2	4.38791E-06	0.0	0.0	0.0
ZNHPO4	4.44943E-13	0.0	0.0	0.0
ZNNO32	1.83786E-09	0.0	0.0	0.0
ZNOH2	6.12448E-10	0.0	0.0	0.0
OHION	1.61265E-09	0.0	0.0	0.0
ALION	4.92762E-19	0.0	0.0	0.0
ALOH2ION	8.82986E-14	0.0	0.0	0.0
ALOH4ION	5.10748E-10	0.0	0.0	0.0
ALOHCLION	1.57007E-15	0.0	0.0	0.0
ALOHION	4.11036E-16	0.0	0.0	0.0
ALSO42ION	7.63745E-21	0.0	0.0	0.0
ALSO4ION	1.67556E-19	0.0	0.0	0.0
BAHCO3ION	2.65005E-14	0.0	0.0	0.0
BAION	5.80637E-09	0.0	0.0	0.0
BAOHION	7.33356E-15	0.0	0.0	0.0
CACLION	1.88046E-07	0.0	0.0	0.0
CAH2PO4ION	8.86110E-11	0.0	0.0	0.0
CAHCO3ION	5.41842E-11	0.0	0.0	0.0
CAHSIO3ION	7.32133E-09	0.0	0.0	0.0
CAION	5.81133E-05	0.0	0.0	0.0
CANO3ION	3.00473E-05	0.0	0.0	0.0
CAOHION	1.48798E-09	0.0	0.0	0.0
CAPO4ION	6.07125E-12	0.0	0.0	0.0
CDCL3ION	3.87718E-09	0.0	0.0	0.0
CDCL4ION	1.20275E-09	0.0	0.0	0.0
CDCLION	1.82419E-10	0.0	0.0	0.0
CDION	3.30342E-12	0.0	0.0	0.0
CDNO3ION	9.64066E-13	0.0	0.0	0.0
CDOH3ION	3.51818E-21	0.0	0.0	0.0
CDOH4ION	5.01417E-26	0.0	0.0	0.0
CDOHION	1.09676E-14	0.0	0.0	0.0
CLION	0.00127313	0.0	0.0	0.0
CO3ION	4.61301E-13	0.0	0.0	0.0
CRIIIICL2ION	2.86337E-14	0.0	0.0	0.0
CRIIIICLION	5.18398E-14	0.0	0.0	0.0
CRIIIH2PO4ION	8.76281E-19	0.0	0.0	0.0
CRIIIHPO4ION	5.28457E-08	0.0	0.0	0.0
CRIIIIION	1.96192E-17	0.0	0.0	0.0
CRIIINO3ION	9.60792E-12	0.0	0.0	0.0
CROH2ION	3.49841E-13	0.0	0.0	0.0
CROH4ION	1.13772E-15	0.0	0.0	0.0
CROHION	9.62733E-10	0.0	0.0	0.0
CRSO4ION	2.47639E-11	0.0	0.0	0.0
CUCL3ION	9.28575E-11	0.0	0.0	0.0
CUCLION	2.78203E-08	0.0	0.0	0.0
CUCO32ION	2.51794E-19	0.0	0.0	0.0
CUION	7.29312E-09	0.0	0.0	0.0
CUNO3ION	1.34793E-09	0.0	0.0	0.0
CUOH3ION	7.85487E-13	0.0	0.0	0.0
CUOH4ION	2.66153E-16	0.0	0.0	0.0
CUOHION	2.75749E-09	0.0	0.0	0.0
DODECION	2.64156E-07	0.0	0.0	0.0

FEIICLION	9.65108E-11	0.0	0.0	0.0
FEIICO32ION	1.55296E-21	0.0	0.0	0.0
FEIIH2PO4ION	5.31671E-16	0.0	0.0	0.0
FEIIHCO3ION	1.76372E-16	0.0	0.0	0.0
FEIIION	1.04916E-08	0.0	0.0	0.0
FEIIOH3ION	6.60290E-16	0.0	0.0	0.0
FEIIOH4ION	3.65562E-21	0.0	0.0	0.0
FEIIOHION	1.48976E-10	0.0	0.0	0.0
H2P2O7ION	9.80311E-19	0.0	0.0	0.0
H2PO4ION	3.44354E-11	0.0	0.0	0.0
H2SIO4ION	8.56758E-14	0.0	0.0	0.0
H3P2O7ION	8.47621E-24	0.0	0.0	0.0
H3SIO4ION	3.79517E-08	0.0	0.0	0.0
HCO3ION	1.27082E-10	0.0	0.0	0.0
HION	2.60573E-10	0.0	0.0	0.0
HP2O7ION	5.36617E-18	0.0	0.0	0.0
HPBO2ION	1.44667E-14	0.0	0.0	0.0
HPO4ION	5.32651E-11	0.0	0.0	0.0
HSO4ION	1.05802E-10	0.0	0.0	0.0
KION	1.33467E-04	0.0	0.0	0.0
KSO4ION	9.77163E-07	0.0	0.0	0.0
MGH2PO4ION	1.94363E-10	0.0	0.0	0.0
MGHCO3ION	6.43762E-10	0.0	0.0	0.0
MGHSIO3ION	9.32615E-08	0.0	0.0	0.0
MGION	1.88194E-04	0.0	0.0	0.0
MGOHION	8.01132E-08	0.0	0.0	0.0
MGP2O7ION	2.90071E-14	0.0	0.0	0.0
MGPO4ION	3.71871E-11	0.0	0.0	0.0
NACO3ION	5.93776E-14	0.0	0.0	0.0
NAION	8.87237E-04	0.0	0.0	0.0
NASO4ION	2.30997E-14	0.0	0.0	0.0
NICLION	5.05030E-09	0.0	0.0	0.0
NIION	5.84272E-08	0.0	0.0	0.0
NINO3ION	8.59476E-09	0.0	0.0	0.0
NIOH3ION	5.10339E-16	0.0	0.0	0.0
NIOHION	2.19070E-10	0.0	0.0	0.0
NO3ION	2.59991E-04	0.0	0.0	0.0
P2O7ION	1.30450E-19	0.0	0.0	0.0
PBCL3ION	2.07902E-07	0.0	0.0	0.0
PBCL4ION	1.81979E-06	0.0	0.0	0.0
PBCLION	1.75255E-08	0.0	0.0	0.0
PBH2PO4ION	8.55126E-16	0.0	0.0	0.0
PBION	4.86188E-10	0.0	0.0	0.0
PBNO33ION	8.74393E-11	0.0	0.0	0.0
PBNO3ION	4.97798E-09	0.0	0.0	0.0
PBOHION	1.35727E-09	0.0	0.0	0.0
PO4ION	1.95501E-15	0.0	0.0	0.0
SO4ION	5.44012E-06	0.0	0.0	0.0
SRION	7.21243E-07	0.0	0.0	0.0
SRNO3ION	9.52826E-07	0.0	0.0	0.0
SROHION	1.09448E-11	0.0	0.0	0.0
SRPO4ION	1.48207E-15	0.0	0.0	0.0
UIVOH2ION	1.93213E-24	0.0	0.0	0.0
UIVOH3ION	7.56476E-20	0.0	0.0	0.0
UIVOH5ION	1.01271E-15	0.0	0.0	0.0
UIVOHION	2.89906E-28	0.0	0.0	0.0
UIVSO4ION	0.0	0.0	0.0	0.0
ZNCL3ION	7.39732E-06	0.0	0.0	0.0

ZNCLION	8.55201E-06	0.0	0.0	0.0
ZNH2PO4ION	8.08708E-14	0.0	0.0	0.0
ZNHCO3ION	2.18007E-13	0.0	0.0	0.0
ZNION	4.93531E-07	0.0	0.0	0.0
ZNNO3ION	5.49456E-08	0.0	0.0	0.0
ZNOH3ION	4.34521E-12	0.0	0.0	0.0
ZNOH4ION	5.20667E-16	0.0	0.0	0.0
ZNOHION	5.18556E-07	0.0	0.0	0.0
ALOOH	0.0	7.41762E-06	0.0	0.0
CA3PO42	0.0	5.45773E-05	0.0	0.0
CHAMOSITE7A	0.0	2.77724E-05	0.0	0.0
CU3PO42.2H2O	0.0	3.42964E-07	0.0	0.0
MG3PO42	0.0	1.87359E-05	0.0	0.0
UIVO2	0.0	2.01681E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.656214	0.106748	999.237	0.0
Volume, L/hr	6.14120E-04	3.13528E-05	1697.27	0.0
Enthalpy, cal/hr	-2211.27	-290.985	-3.17175E+06	0.0
Density, g/L	1068.54	3404.73	0.588731	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	163.301			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.432076			
E-Con, cm2/ohm-mol	49.466			
Abs Visc, cP	0.400031			
Rel Visc	1.4634			
Ionic Strength	3.29286			

ESP V-6.6

PROCESS:AWE65_2

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STREAM: Overhead
 TO : Condensate mixer
 FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.855	102.855	102.855	102.855
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4641	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.46307	0.0
CO2	0.0	0.0	9.99998E-04	0.0
H2SO4	0.0	0.0	8.45792E-25	0.0
HCL	0.0	0.0	1.47398E-08	0.0
HNO3	0.0	0.0	3.18431E-09	0.0
LAURICACID	0.0	0.0	3.34377E-05	0.0
SO3	0.0	0.0	2.18377E-30	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	999.237	0.0
Volume, L/hr	0.0	0.0	1697.27	0.0
Enthalpy, cal/hr	0.0	0.0	-3.17175E+06	0.0
Density, g/L			0.588731	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.855	102.855	102.855	102.855
Pressure, atm	1.	1.	1.	1.
pH	6.46129			
Total mol/hr	0.0334535	7.28932E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0305354	0.0	0.0	0.0
CO2	7.13162E-11	0.0	0.0	0.0
H2SO4	5.25780E-28	0.0	0.0	0.0
HCL	8.48336E-15	0.0	0.0	0.0
HNO3	8.59976E-12	0.0	0.0	0.0
LAURICACID	3.54134E-10	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	2.01550E-12	0.0	0.0	0.0
CASO4	3.17261E-07	4.70785E-04	0.0	0.0
CDCL2	3.66189E-09	0.0	0.0	0.0
CDOH2	1.41990E-16	0.0	0.0	0.0
CDSO4	6.04593E-14	0.0	0.0	0.0
CROH3	2.94395E-12	0.0	0.0	0.0
CUCL2	5.09339E-09	0.0	0.0	0.0
CUCO3	4.94898E-14	0.0	0.0	0.0
CUNO32	3.43763E-11	0.0	0.0	0.0
CUOH2	4.97893E-09	2.07129E-06	0.0	0.0
FEIICL2	5.26909E-13	0.0	0.0	0.0
FEIICO3	9.03329E-15	0.0	0.0	0.0
FEIIHPO4	6.94855E-16	0.0	0.0	0.0
FEIIOH2	2.85313E-13	0.0	0.0	0.0
ALO2H2CL	3.07237E-29	0.0	0.0	0.0
H3PO4	1.57186E-15	0.0	0.0	0.0
H4P2O7	1.11359E-28	0.0	0.0	0.0
ALOH3	1.82272E-11	0.0	0.0	0.0
BACO3	4.35445E-17	0.0	0.0	0.0
KCL	2.95917E-06	0.0	0.0	0.0
KHSO4	4.18451E-13	0.0	0.0	0.0
BASO4	5.67989E-13	4.02952E-07	0.0	0.0
MGCO3	8.36690E-12	0.0	0.0	0.0
MGH2SIO4	1.95683E-10	0.0	0.0	0.0
MGHPO4	2.85277E-09	0.0	0.0	0.0
MGSO4	2.33440E-06	0.0	0.0	0.0
NAHCO3	1.36469E-10	0.0	0.0	0.0
NAHSIO3	9.24226E-08	0.0	0.0	0.0
NANO3	4.70319E-05	0.0	0.0	0.0
NIOH2	1.31233E-12	8.63165E-07	0.0	0.0
NISO4	1.51039E-09	0.0	0.0	0.0
PBCL2	7.14185E-08	0.0	0.0	0.0
PBHPO4	2.29135E-15	0.0	0.0	0.0
PBNO32	2.04981E-09	0.0	0.0	0.0
PBO	8.23044E-12	0.0	0.0	0.0
CACL2	1.21818E-14	0.0	0.0	0.0
SIO2	2.36896E-06	1.34627E-04	0.0	0.0

CACO3	2.58890E-12	0.0	0.0	0.0
SRHPO4	5.04192E-14	0.0	0.0	0.0
SRNO32	3.02682E-07	0.0	0.0	0.0
SRSO4	5.41479E-09	9.31920E-06	0.0	0.0
UIVOH4	6.88835E-13	0.0	0.0	0.0
UIVSO42	0.0	0.0	0.0	0.0
ZNCL2	4.38791E-06	0.0	0.0	0.0
ZNHPO4	4.44943E-13	0.0	0.0	0.0
ZNNO32	1.83786E-09	0.0	0.0	0.0
ZNOH2	6.12448E-10	0.0	0.0	0.0
OHION	1.61265E-09	0.0	0.0	0.0
ALION	4.92762E-19	0.0	0.0	0.0
ALOH2ION	8.82986E-14	0.0	0.0	0.0
ALOH4ION	5.10748E-10	0.0	0.0	0.0
ALOHCLION	1.57007E-15	0.0	0.0	0.0
ALOHION	4.11036E-16	0.0	0.0	0.0
ALSO42ION	7.63745E-21	0.0	0.0	0.0
ALSO4ION	1.67556E-19	0.0	0.0	0.0
BAHCO3ION	2.65005E-14	0.0	0.0	0.0
BAION	5.80637E-09	0.0	0.0	0.0
BAOHION	7.33356E-15	0.0	0.0	0.0
CACLION	1.88046E-07	0.0	0.0	0.0
CAH2PO4ION	8.86110E-11	0.0	0.0	0.0
CAHCO3ION	5.41842E-11	0.0	0.0	0.0
CAHSIO3ION	7.32133E-09	0.0	0.0	0.0
CAION	5.81133E-05	0.0	0.0	0.0
CANO3ION	3.00473E-05	0.0	0.0	0.0
CAOHION	1.48798E-09	0.0	0.0	0.0
CAPO4ION	6.07125E-12	0.0	0.0	0.0
CDCL3ION	3.87718E-09	0.0	0.0	0.0
CDCL4ION	1.20275E-09	0.0	0.0	0.0
CDCLION	1.82419E-10	0.0	0.0	0.0
CDION	3.30342E-12	0.0	0.0	0.0
CDNO3ION	9.64066E-13	0.0	0.0	0.0
CDOH3ION	3.51818E-21	0.0	0.0	0.0
CDOH4ION	5.01417E-26	0.0	0.0	0.0
CDOHION	1.09676E-14	0.0	0.0	0.0
CLION	0.00127313	0.0	0.0	0.0
CO3ION	4.61301E-13	0.0	0.0	0.0
CRIIIICL2ION	2.86337E-14	0.0	0.0	0.0
CRIIIICLION	5.18398E-14	0.0	0.0	0.0
CRIIIH2PO4ION	8.76281E-19	0.0	0.0	0.0
CRIIIHPO4ION	5.28457E-08	0.0	0.0	0.0
CRIIIIION	1.96192E-17	0.0	0.0	0.0
CRIIINO3ION	9.60792E-12	0.0	0.0	0.0
CROH2ION	3.49841E-13	0.0	0.0	0.0
CROH4ION	1.13772E-15	0.0	0.0	0.0
CROHION	9.62733E-10	0.0	0.0	0.0
CRSO4ION	2.47639E-11	0.0	0.0	0.0
CUCL3ION	9.28575E-11	0.0	0.0	0.0
CUCLION	2.78203E-08	0.0	0.0	0.0
CUCO32ION	2.51794E-19	0.0	0.0	0.0
CUION	7.29312E-09	0.0	0.0	0.0
CUNO3ION	1.34793E-09	0.0	0.0	0.0
CUOH3ION	7.85487E-13	0.0	0.0	0.0
CUOH4ION	2.66153E-16	0.0	0.0	0.0
CUOHION	2.75749E-09	0.0	0.0	0.0
DODECION	2.64156E-07	0.0	0.0	0.0

FEIICLION	9.65108E-11	0.0	0.0	0.0
FEIICO32ION	1.55296E-21	0.0	0.0	0.0
FEIIH2PO4ION	5.31671E-16	0.0	0.0	0.0
FEIIHCO3ION	1.76372E-16	0.0	0.0	0.0
FEIIION	1.04916E-08	0.0	0.0	0.0
FEIIOH3ION	6.60290E-16	0.0	0.0	0.0
FEIIOH4ION	3.65562E-21	0.0	0.0	0.0
FEIIOHION	1.48976E-10	0.0	0.0	0.0
H2P2O7ION	9.80311E-19	0.0	0.0	0.0
H2PO4ION	3.44354E-11	0.0	0.0	0.0
H2SIO4ION	8.56758E-14	0.0	0.0	0.0
H3P2O7ION	8.47621E-24	0.0	0.0	0.0
H3SIO4ION	3.79517E-08	0.0	0.0	0.0
HCO3ION	1.27082E-10	0.0	0.0	0.0
HION	2.60573E-10	0.0	0.0	0.0
HP2O7ION	5.36617E-18	0.0	0.0	0.0
HPBO2ION	1.44667E-14	0.0	0.0	0.0
HPO4ION	5.32651E-11	0.0	0.0	0.0
HSO4ION	1.05802E-10	0.0	0.0	0.0
KION	1.33467E-04	0.0	0.0	0.0
KSO4ION	9.77163E-07	0.0	0.0	0.0
MGH2PO4ION	1.94363E-10	0.0	0.0	0.0
MGHCO3ION	6.43762E-10	0.0	0.0	0.0
MGHSIO3ION	9.32615E-08	0.0	0.0	0.0
MGION	1.88194E-04	0.0	0.0	0.0
MGOHION	8.01132E-08	0.0	0.0	0.0
MGP2O7ION	2.90071E-14	0.0	0.0	0.0
MGPO4ION	3.71871E-11	0.0	0.0	0.0
NACO3ION	5.93776E-14	0.0	0.0	0.0
NAION	8.87237E-04	0.0	0.0	0.0
NASO4ION	2.30997E-14	0.0	0.0	0.0
NICLION	5.05030E-09	0.0	0.0	0.0
NIION	5.84272E-08	0.0	0.0	0.0
NINO3ION	8.59476E-09	0.0	0.0	0.0
NIOH3ION	5.10339E-16	0.0	0.0	0.0
NIOHION	2.19070E-10	0.0	0.0	0.0
NO3ION	2.59991E-04	0.0	0.0	0.0
P2O7ION	1.30450E-19	0.0	0.0	0.0
PBCL3ION	2.07902E-07	0.0	0.0	0.0
PBCL4ION	1.81979E-06	0.0	0.0	0.0
PBCLION	1.75255E-08	0.0	0.0	0.0
PBH2PO4ION	8.55126E-16	0.0	0.0	0.0
PBION	4.86188E-10	0.0	0.0	0.0
PBNO33ION	8.74393E-11	0.0	0.0	0.0
PBNO3ION	4.97798E-09	0.0	0.0	0.0
PBOHION	1.35727E-09	0.0	0.0	0.0
PO4ION	1.95501E-15	0.0	0.0	0.0
SO4ION	5.44012E-06	0.0	0.0	0.0
SRION	7.21243E-07	0.0	0.0	0.0
SRNO3ION	9.52826E-07	0.0	0.0	0.0
SROHION	1.09448E-11	0.0	0.0	0.0
SRPO4ION	1.48207E-15	0.0	0.0	0.0
UIVOH2ION	1.93213E-24	0.0	0.0	0.0
UIVOH3ION	7.56476E-20	0.0	0.0	0.0
UIVOH5ION	1.01271E-15	0.0	0.0	0.0
UIVOHION	2.89906E-28	0.0	0.0	0.0
UIVSO4ION	0.0	0.0	0.0	0.0
ZNCL3ION	7.39732E-06	0.0	0.0	0.0

ZNCLION	8.55201E-06	0.0	0.0	0.0
ZNH2PO4ION	8.08708E-14	0.0	0.0	0.0
ZNHCO3ION	2.18007E-13	0.0	0.0	0.0
ZNION	4.93531E-07	0.0	0.0	0.0
ZNNO3ION	5.49456E-08	0.0	0.0	0.0
ZNOH3ION	4.34521E-12	0.0	0.0	0.0
ZNOH4ION	5.20667E-16	0.0	0.0	0.0
ZNOHION	5.18556E-07	0.0	0.0	0.0
ALOOH	0.0	7.41762E-06	0.0	0.0
CA3PO42	0.0	5.45773E-05	0.0	0.0
CHAMOSITE7A	0.0	2.77724E-05	0.0	0.0
CU3PO42.2H2O	0.0	3.42964E-07	0.0	0.0
MG3PO42	0.0	1.87359E-05	0.0	0.0
UIVO2	0.0	2.01681E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.656214	0.106748	0.0	0.0
Volume, L/hr	6.14120E-04	3.13528E-05	0.0	0.0
Enthalpy, cal/hr	-2211.27	-290.985	0.0	0.0
Density, g/L	1068.54	3404.73		
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	163.301			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.432076			
E-Con, cm2/ohm-mol	49.466			
Abs Visc, cP	0.400031			
Rel Visc	1.4634			
Ionic Strength	3.29286			

STREAM: Cooled Bottoms
 TO :
 FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	7.7108			
Total mol/hr	0.03267175	7.00490E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0296457	0.0	0.0	0.0
CO2	1.62620E-12	0.0	0.0	0.0
H2SO4	0.0	0.0	0.0	0.0
HCL	7.78591E-18	0.0	0.0	0.0
HNO3	9.34470E-14	0.0	0.0	0.0
LAURICACID	1.08056E-10	0.0	0.0	0.0
CAH2SIO4	1.50518E-11	0.0	0.0	0.0
CASO4	4.46758E-07	0.0	0.0	0.0
CDCL2	1.30066E-09	0.0	0.0	0.0
CDOH2	1.84479E-18	0.0	0.0	0.0
CDSO4	9.56194E-14	0.0	0.0	0.0
CROH3	3.04408E-10	4.59317E-08	0.0	0.0
CUCL2	9.07427E-10	0.0	0.0	0.0
CUCO3	1.09172E-13	0.0	0.0	0.0
CUNO32	5.68980E-12	0.0	0.0	0.0
CUOH2	1.28676E-09	0.0	0.0	0.0
FEIICL2	4.01949E-14	0.0	0.0	0.0
FEIICO3	5.56549E-14	0.0	0.0	0.0
FEIIHPO4	2.12070E-15	0.0	0.0	0.0
FEIIOH2	8.21054E-15	0.0	0.0	0.0
ALO2H2CL	1.67965E-30	0.0	0.0	0.0
H3PO4	1.36140E-17	0.0	0.0	0.0
ALOH3	7.11791E-13	7.41580E-06	0.0	0.0
BACO3	1.93895E-18	0.0	0.0	0.0
KCL	6.61977E-07	0.0	0.0	0.0
KHSO4	2.50573E-15	0.0	0.0	0.0
BASO4	6.10035E-14	4.08179E-07	0.0	0.0
MGCO3	1.91136E-11	0.0	0.0	0.0
MGH2SIO4	1.79293E-09	0.0	0.0	0.0
MGHPO4	4.63521E-09	0.0	0.0	0.0
MGSO4	9.59585E-06	0.0	0.0	0.0
NAHCO3	1.67885E-11	0.0	0.0	0.0
NAHSIO3	5.34669E-07	0.0	0.0	0.0
NANO3	1.45998E-05	0.0	0.0	0.0
NIOH2	1.88339E-12	7.58295E-07	0.0	0.0
NISO4	3.59972E-09	0.0	0.0	0.0
PBCL2	1.71248E-08	0.0	0.0	0.0
PBHPO4	2.92193E-15	0.0	0.0	0.0
PBNO32	9.80188E-11	0.0	0.0	0.0
PBO	7.96125E-13	0.0	0.0	0.0
CACL2	2.84288E-23	0.0	0.0	0.0
SIO2	6.34872E-07	1.35923E-04	0.0	0.0
CACO3	3.43721E-12	0.0	0.0	0.0
SRHPO4	3.13846E-14	0.0	0.0	0.0

SRNO32	4.08544E-08	0.0	0.0	0.0
SRSO4	1.27819E-08	1.03945E-05	0.0	0.0
UIVOH4	7.20293E-14	0.0	0.0	0.0
ZNCL2	2.10224E-06	0.0	0.0	0.0
ZNHPO4	2.29442E-11	0.0	0.0	0.0
ZNNO32	2.31923E-08	0.0	0.0	0.0
ZNOH2	2.41090E-09	2.13114E-06	0.0	0.0
OHION	3.40030E-10	0.0	0.0	0.0
ALION	3.71670E-19	0.0	0.0	0.0
ALOH2ION	7.14143E-15	0.0	0.0	0.0
ALOH4ION	2.77945E-11	0.0	0.0	0.0
ALOHCLION	3.90188E-16	0.0	0.0	0.0
ALOHION	5.92413E-17	0.0	0.0	0.0
ALSO42ION	3.55840E-20	0.0	0.0	0.0
ALSO4ION	2.33383E-19	0.0	0.0	0.0
BAHCO3ION	7.41397E-17	0.0	0.0	0.0
BAION	5.80000E-10	0.0	0.0	0.0
BAOHION	1.07484E-17	0.0	0.0	0.0
CACLION	2.29960E-10	0.0	0.0	0.0
CAH2PO4ION	1.41198E-11	0.0	0.0	0.0
CAHCO3ION	2.36882E-11	0.0	0.0	0.0
CAHSIO3ION	5.24702E-09	0.0	0.0	0.0
CAION	4.57212E-05	0.0	0.0	0.0
CANO3ION	2.17242E-05	0.0	0.0	0.0
CAOHION	1.17835E-10	0.0	0.0	0.0
CAPO4ION	1.07328E-10	0.0	0.0	0.0
CDCL3ION	5.53697E-10	0.0	0.0	0.0
CDCL4ION	6.99740E-09	0.0	0.0	0.0
CDCLION	7.34225E-11	0.0	0.0	0.0
CDION	2.81217E-12	0.0	0.0	0.0
CDNO3ION	4.88319E-13	0.0	0.0	0.0
CDOH3ION	4.62896E-23	0.0	0.0	0.0
CDOH4ION	1.04833E-28	0.0	0.0	0.0
CDOHION	1.25477E-15	0.0	0.0	0.0
CLION	0.00129759	0.0	0.0	0.0
CO3ION	2.74574E-12	0.0	0.0	0.0
CRIIIICL2ION	4.86591E-14	0.0	0.0	0.0
CRIIIICLION	7.03122E-14	0.0	0.0	0.0
CRIIIH2PO4ION	8.72899E-17	0.0	0.0	0.0
CRIIIHPO4ION	1.97410E-10	0.0	0.0	0.0
CRIIIIION	1.11994E-16	0.0	0.0	0.0
CRIIINO3ION	8.11412E-12	0.0	0.0	0.0
CROH2ION	4.91687E-12	0.0	0.0	0.0
CROH4ION	6.31542E-13	0.0	0.0	0.0
CROHION	7.31035E-09	0.0	0.0	0.0
CRSO4ION	8.85146E-11	0.0	0.0	0.0
CUCL3ION	1.67398E-11	0.0	0.0	0.0
CUCLION	2.39615E-09	0.0	0.0	0.0
CUCO32ION	1.79616E-18	0.0	0.0	0.0
CUION	2.00082E-09	0.0	0.0	0.0
CUNO3ION	4.01975E-10	0.0	0.0	0.0
CUOH3ION	1.20377E-13	0.0	0.0	0.0
CUOH4ION	4.34609E-18	0.0	0.0	0.0
CUOHION	3.87661E-10	0.0	0.0	0.0
DODECION	2.64402E-07	0.0	0.0	0.0
FEIICLION	1.31229E-11	0.0	0.0	0.0
FEIICO32ION	1.98677E-20	0.0	0.0	0.0
FEIIH2PO4ION	3.26501E-16	0.0	0.0	0.0

FEIIHCO3ION	7.05833E-17	0.0	0.0	0.0
FEIIION	8.35608E-09	0.0	0.0	0.0
FEIIOH3ION	3.98249E-17	0.0	0.0	0.0
FEIIOH4ION	2.80141E-23	0.0	0.0	0.0
FEIIOHION	5.64064E-11	0.0	0.0	0.0
H2P2O7ION	1.26416E-20	0.0	0.0	0.0
H2PO4ION	1.59551E-11	0.0	0.0	0.0
H2SIO4ION	4.08128E-13	0.0	0.0	0.0
H3P2O7ION	3.59013E-27	0.0	0.0	0.0
H3SIO4ION	6.96191E-09	0.0	0.0	0.0
HCO3ION	1.12332E-10	0.0	0.0	0.0
HION	9.27337E-12	0.0	0.0	0.0
HP2O7ION	2.13266E-18	0.0	0.0	0.0
HPBO2ION	1.23850E-15	0.0	0.0	0.0
HPO4ION	5.92132E-10	0.0	0.0	0.0
HSO4ION	2.18474E-12	0.0	0.0	0.0
KION	1.34739E-04	0.0	0.0	0.0
KSO4ION	2.00278E-06	0.0	0.0	0.0
MGH2PO4ION	2.23615E-10	0.0	0.0	0.0
MGHCO3ION	8.61421E-10	0.0	0.0	0.0
MGHSIO3ION	1.19470E-07	0.0	0.0	0.0
MGION	2.37175E-04	0.0	0.0	0.0
MGOHION	1.39145E-08	0.0	0.0	0.0
MGP2O7ION	2.70856E-14	0.0	0.0	0.0
MGPO4ION	1.45113E-09	0.0	0.0	0.0
NACO3ION	1.04152E-12	0.0	0.0	0.0
NAION	9.12441E-04	0.0	0.0	0.0
NASO4ION	6.78597E-06	0.0	0.0	0.0
NICLION	5.41109E-09	0.0	0.0	0.0
NIION	1.34273E-07	0.0	0.0	0.0
NINO3ION	3.52460E-08	0.0	0.0	0.0
NIOH3ION	3.46727E-15	0.0	0.0	0.0
NIOHION	1.40910E-10	0.0	0.0	0.0
NO3ION	3.01013E-04	0.0	0.0	0.0
P2O7ION	5.20041E-18	0.0	0.0	0.0
PBCL3ION	5.74322E-08	0.0	0.0	0.0
PBCL4ION	1.06286E-06	0.0	0.0	0.0
PBCLION	5.67102E-09	0.0	0.0	0.0
PBH2PO4ION	8.96518E-17	0.0	0.0	0.0
PBION	2.89020E-10	0.0	0.0	0.0
PBNO33ION	2.55965E-11	0.0	0.0	0.0
PBNO3ION	9.26020E-10	0.0	0.0	0.0
PBOHION	9.86104E-11	0.0	0.0	0.0
PO4ION	2.73981E-13	0.0	0.0	0.0
SO4ION	1.99910E-05	0.0	0.0	0.0
SRION	5.77806E-07	0.0	0.0	0.0
SRNO3ION	2.75442E-07	0.0	0.0	0.0
SROHION	3.70930E-13	0.0	0.0	0.0
SRPO4ION	8.61708E-15	0.0	0.0	0.0
UIVOH2ION	2.75416E-26	0.0	0.0	0.0
UIVOH3ION	4.82499E-20	0.0	0.0	0.0
UIVOH5ION	6.75488E-16	0.0	0.0	0.0
UIVOHION	0.0	0.0	0.0	0.0
ZNCL3ION	4.90239E-06	0.0	0.0	0.0
ZNCLION	2.26159E-06	0.0	0.0	0.0
ZNH2PO4ION	5.75068E-13	0.0	0.0	0.0
ZNHCO3ION	2.23404E-12	0.0	0.0	0.0
ZNION	7.44259E-06	0.0	0.0	0.0

ZNNO3ION	9.28867E-07	0.0	0.0	0.0
ZNOH3ION	3.18508E-12	0.0	0.0	0.0
ZNOH4ION	2.54295E-16	0.0	0.0	0.0
ZNOHION	4.61300E-08	0.0	0.0	0.0
CA3PO42	0.0	7.17841E-05	0.0	0.0
CASO4.2H2O	0.0	4.39942E-04	0.0	0.0
CHAMOSITE7A	0.0	2.77736E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.04740E-06	0.0	0.0
PB3PO42	0.0	3.27028E-07	0.0	0.0
UIVO2	0.0	2.01681E-06	0.0	0.0
ZN3PO42.2H2O	0.0	5.22053E-07	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.642955	0.120007	0.0	0.0
Volume, L/hr	5.69674E-04	4.08147E-05	0.0	0.0
Enthalpy, cal/hr	-2202.12	-345.229	0.0	0.0
Density, g/L	1128.64	2940.29		
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	153.149			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.170265			
E-Con, cm2/ohm-mol	31.4588			
Abs Visc, cP	1.33985			
Rel Visc	1.50423			
Ionic Strength	3.68279			

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PROCESS:AWE65_2

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STREAM: Condensate
TO :
FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.56912			
Total mol/hr	55.46416	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4631	0.0	0.0	0.0
CO2	9.83349E-04	0.0	0.0	0.0
HCL	2.34044E-19	0.0	0.0	0.0
HNO3	4.25426E-15	0.0	0.0	0.0
LAURICACID	2.29942E-05	0.0	0.0	0.0
OHION	3.78067E-10	0.0	0.0	0.0
CLION	1.47398E-08	0.0	0.0	0.0
CO3ION	2.95310E-11	0.0	0.0	0.0
DODECION	1.04435E-05	0.0	0.0	0.0
HCO3ION	1.66503E-05	0.0	0.0	0.0
HION	2.71121E-05	0.0	0.0	0.0
NO3ION	3.18430E-09	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	999.237	0.0	0.0	0.0
Volume, L/hr	1.00238	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78896E+06	0.0	0.0	0.0
Density, g/L	996.863			
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	0.0258913			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.07972E-05			
E-Con, cm2/ohm-mol	10.4726			
Abs Visc, cP	0.890739			
Rel Visc	1.00002			
Ionic Strength	2.71345E-05			

=====
Block Heat Duties
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Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.17262D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-4.50883D+01
MIX	CONDENSATE MIXER	-6.17215D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.999411

Standard Block Information

Duty, cal/hr 617262.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	1.13687E-16
Total Energy cal/hr	-3.79151E+06	-3.17425E+06	0.0

Mix Output

Outlet Temperature, C 102.855
 Outlet Pressure, atm 1.
 Aqueous pH 6.46129
 V/F (molar) 0.999412

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.031917	0.656214	6.14120E-04	-2211.27
Solid	7.28932E-04	0.106748	3.13528E-05	-290.985
Vapor	55.4641	999.237	1697.27	-3.17175E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4968	1000.	1697.27	-3.17425E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap separator
 BLOCK TYPE: Separate
 =====

Separate Input

 Liquid Outlet Stream Bottoms
 Vapor Outlet Stream Overhead
 Suspended Solids, g solid/g liq solution 0.0
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Pressure Specification, atm
 Outlet Pressure = Min Inlet Pressure
 Equilibrium Type Adiabatic
 Duty, cal/hr 0.0

Standard Block Information

 Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	0.0
Total Energy cal/hr	-3.17425E+06	-3.17425E+06	0.0

Separate Output

 Outlet Temperature, C 102.855
 Outlet Pressure, atm 1.
 Aqueous pH 6.46129
 Suspended Solids, g solid/g liq solution 0.162673
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Liquid Stream	Bottoms			
	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.031917	0.656214	6.14120E-04	-2211.27
Solid	7.28932E-04	0.106748	3.13528E-05	-290.985
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0326459	0.762962	6.45473E-04	-2502.26

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PROCESS:AWE65_2

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4641	999.237	1697.27	-3.17175E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4641	999.237	1697.27	-3.17175E+06

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PROCESS:AWE65_2

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -45.0883

	In	Out	Rel. Diff.
Total Mass g/hr	0.762962	0.762962	-5.82059E-16
Total Energy cal/hr	-2502.26	-2547.35	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 7.7108
 V/F (molar) 0.0

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0310547	0.642955	5.69674E-04	-2202.12
Solid	7.00490E-04	0.120007	4.08147E-05	-345.229
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0317552	0.762962	6.10489E-04	-2547.35

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PROCESS:AWE65_2

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.17215E+05

	In	Out	Rel. Diff.
Total Mass g/hr	999.237	999.237	-1.13774E-16
Total Energy cal/hr	-3.17175E+06	-3.78896E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.56912
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4641	999.237	1.00238	-3.78896E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4641	999.237	1.00238	-3.78896E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block               Mix: Evap mixer
Control Parameter              Vapor Fraction
Control Parameter Minimum      0.0
Control Parameter Maximum      0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations             20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:     Solution Species
```

Controller Output

```
-----
Specification Stream           Cooled Bottoms
Controlled Block               Evap mixer
Control Parameter Type: General Process Variable
Convergence: Converged
Iterations Completed this Sequence      14.
Total Iterations Completed all Sequences 14.
Last Parameter Value                   0.999411
Last DIFF (Computed-Setpoint)           5.09815E-06
Previous Parameter Value                 0.999412
Previous DIFF (Computed-Setpoint)        -3.32562E-04
Control Parameter Minimum                0.9994
Control Parameter Maximum                 0.999412
Control Parameter Stepsize                0.0
Maximum Iterations                       0.0
```


Influent Limit Composition 60% Target pH=6.5

=====

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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 September 1, 2002

PROCESS: AWE65_3

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE65_3.LIS

DATE: 12/05/2002

=====

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	6.28091D+01	-2.37655D+05
Total in	6.28091D+01	-2.37655D+05

Outlet	g/hr	cal/hr
COOLED BOTTOMS	9.28910D-01	-3.10560D+03
CONDENSATE	6.18802D+01	-2.34550D+05
Total out	6.28091D+01	-2.37655D+05

Block Heat Duties	cal/hr
EVAP MIXER	3.82504D+04
EVAP BOTTOMS COOLING MIXER	-5.66153D+01
CONDENSATE MIXER	-3.81935D+04
Total Duty	2.90096D-01

DIFFERENCE	7.10543D-15	7.27596D-12
REL DIFFERENCE	1.13127D-16	-3.06156D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	6.93835D+00	6.93835D+00	1.77636D-15	2.56020D-16
K(+1)	1.73235D-04	1.73235D-04	8.13152D-20	4.69393D-16
NA(+1)	1.17802D-03	1.17802D-03	1.30104D-18	1.10443D-15
BA(+2)	4.96350D-07	4.96350D-07	-1.05879D-22	-2.13315D-16
CA(+2)	7.98005D-04	7.98005D-04	-2.16840D-19	-2.71728D-16
ZN(+2)	2.59939D-05	2.59939D-05	3.38813D-21	1.30343D-16
CU(+2)	3.93701D-06	3.93701D-06	8.47033D-22	2.15146D-16
FE(+2)	7.16846D-05	7.16846D-05	0.00000D+00	0.00000D+00
MG(+2)	2.83951D-04	2.83951D-04	5.42101D-20	1.90914D-16
PB(+2)	2.57488D-06	2.57488D-06	-1.69407D-21	-6.57921D-16
AL(+3)	7.77778D-05	7.77778D-05	1.35525D-20	1.74247D-16
NI(+2)	1.09029D-06	1.09029D-06	-1.05879D-21	-9.71110D-16
O(-2)	3.47629D+00	3.47629D+00	0.00000D+00	0.00000D+00
CL(-1)	1.57746D-03	1.57746D-03	1.08420D-18	6.87307D-16
C(+4)	1.10000D-03	1.10000D-03	-8.67362D-19	-7.88511D-16
P(+5)	2.38934D-04	2.38934D-04	-2.71051D-20	-1.13441D-16
S(+6)	5.83333D-04	5.83333D-04	-1.08420D-19	-1.85863D-16
N(+5)	4.03226D-04	4.03226D-04	3.25261D-19	8.06645D-16
SI(+4)	1.83333D-04	1.83333D-04	2.71051D-20	1.47846D-16
SR(+2)	1.48402D-05	1.48402D-05	1.69407D-21	1.14154D-16

CD (+2)	1.27340D-08	1.27340D-08	2.64698D-23	2.07867D-15
CR (+3)	6.53846D-08	6.53846D-08	7.94093D-23	1.21450D-15
U (+4)	2.43698D-06	2.43698D-06	0.00000D+00	0.00000D+00

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DODEC(-1)

3.79916D-05 3.79916D-05 -1.82959D-19 -4.81578D-15

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.59463			
Total mol/hr	3.475029	2.45839E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	3.46876	0.0	0.0	0.0
CO2	8.78408E-04	0.0	0.0	0.0
H2SO4	4.39377E-24	0.0	0.0	0.0
HCL	1.89132E-15	0.0	0.0	0.0
HNO3	3.93586E-11	0.0	0.0	0.0
LAURICACID	5.23869E-06	0.0	0.0	0.0
SO3	5.69668E-28	0.0	0.0	0.0
CAH2SIO4	4.52942E-14	0.0	0.0	0.0
CASO4	2.73422E-05	0.0	0.0	0.0
CDCL2	1.45147E-09	0.0	0.0	0.0
CDOH2	1.88749E-18	0.0	0.0	0.0
CDSO4	1.98971E-09	0.0	0.0	0.0
CROH3	3.10237E-16	0.0	0.0	0.0
CUCL2	5.04858E-12	0.0	0.0	0.0
CUCO3	1.29397E-09	0.0	0.0	0.0
CUNO32	6.59544E-14	0.0	0.0	0.0
CUOH2	6.56365E-12	0.0	0.0	0.0
FEIICL2	5.66444E-14	0.0	0.0	0.0
FEIICO3	1.67089E-07	0.0	0.0	0.0
FEIIHPO4	2.27118E-08	0.0	0.0	0.0
FEIIOH2	1.06084E-14	0.0	0.0	0.0
ALO2H2CL	3.66481E-28	0.0	0.0	0.0
H3PO4	2.92216E-08	0.0	0.0	0.0
H4P2O7	2.45304E-17	0.0	0.0	0.0
ALOH3	1.48707E-10	7.77774E-05	0.0	0.0
BACO3	4.62814E-14	0.0	0.0	0.0
KCL	2.19910E-08	0.0	0.0	0.0
KHSO4	1.80473E-12	0.0	0.0	0.0
BASO4	1.27448E-11	4.87776E-07	0.0	0.0
MGCO3	4.22188E-09	0.0	0.0	0.0
MGH2SIO4	1.70435E-13	0.0	0.0	0.0
MGHPO4	3.65226E-06	0.0	0.0	0.0
MGSO4	1.85518E-05	0.0	0.0	0.0
NAHCO3	9.51033E-07	0.0	0.0	0.0
NAHSIO3	1.17080E-08	0.0	0.0	0.0
NANO3	2.61278E-07	0.0	0.0	0.0
NIOH2	5.20166E-15	0.0	0.0	0.0
NISO4	2.02199E-07	0.0	0.0	0.0
PBCL2	1.02345E-10	0.0	0.0	0.0
PBHPO4	1.32707E-10	0.0	0.0	0.0
PBNO32	1.22050E-12	0.0	0.0	0.0
PBO	3.91822E-15	0.0	0.0	0.0
CACL2	9.33087E-26	0.0	0.0	0.0
SIO2	1.18247E-04	6.50656E-05	0.0	0.0

CACO3	2.40341E-08	0.0	0.0	0.0
SRHPO4	2.67230E-09	0.0	0.0	0.0
SRNO32	9.53694E-10	0.0	0.0	0.0
SRSO4	2.67040E-06	2.32310E-07	0.0	0.0
UIVOH4	1.86522E-11	0.0	0.0	0.0
UIVSO42	5.51711E-24	0.0	0.0	0.0
ZNCL2	6.38549E-09	0.0	0.0	0.0
ZNHPO4	5.29631E-07	0.0	0.0	0.0
ZNNO32	1.46773E-10	0.0	0.0	0.0
ZNOH2	6.71404E-12	0.0	0.0	0.0
OHION	3.15387E-10	0.0	0.0	0.0
ALION	8.16271E-11	0.0	0.0	0.0
ALOH2ION	8.91500E-11	0.0	0.0	0.0
ALOH4ION	1.89985E-11	0.0	0.0	0.0
ALOHCLION	3.33617E-12	0.0	0.0	0.0
ALOHION	9.96534E-11	0.0	0.0	0.0
ALSO42ION	9.06627E-12	0.0	0.0	0.0
ALSO4ION	3.87419E-11	0.0	0.0	0.0
BAHCO3ION	7.71248E-11	0.0	0.0	0.0
BAION	8.48445E-09	0.0	0.0	0.0
BAOHION	6.58659E-18	0.0	0.0	0.0
CACLION	1.44495E-10	0.0	0.0	0.0
CAH2PO4ION	1.53563E-05	0.0	0.0	0.0
CAHCO3ION	8.74276E-06	0.0	0.0	0.0
CAHSIO3ION	6.18739E-10	0.0	0.0	0.0
CAION	6.44687E-04	0.0	0.0	0.0
CANO3ION	4.16803E-06	0.0	0.0	0.0
CAOHION	2.11420E-11	0.0	0.0	0.0
CAPO4ION	7.13630E-09	0.0	0.0	0.0
CDCL3ION	1.83572E-12	0.0	0.0	0.0
CDCL4ION	4.37353E-14	0.0	0.0	0.0
CDCLION	4.34115E-09	0.0	0.0	0.0
CDION	4.91774E-09	0.0	0.0	0.0
CDNO3ION	3.19680E-11	0.0	0.0	0.0
CDOH3ION	1.34727E-25	0.0	0.0	0.0
CDOHION	7.65899E-14	0.0	0.0	0.0
CLION	0.00157705	0.0	0.0	0.0
CO3ION	7.87523E-09	0.0	0.0	0.0
CRIIIICL2ION	2.11958E-18	0.0	0.0	0.0
CRIIIICLION	1.33912E-15	0.0	0.0	0.0
CRIIIH2PO4ION	7.97287E-13	0.0	0.0	0.0
CRIIIHPO4ION	6.53111E-08	0.0	0.0	0.0
CRIIIIION	5.34965E-14	0.0	0.0	0.0
CRIIINO3ION	1.80639E-14	0.0	0.0	0.0
CROH2ION	3.00152E-16	0.0	0.0	0.0
CROH4ION	1.83095E-21	0.0	0.0	0.0
CROHION	6.44523E-13	0.0	0.0	0.0
CRSO4ION	7.20119E-11	0.0	0.0	0.0
CUCL3ION	2.76692E-16	0.0	0.0	0.0
CUCLION	7.06319E-10	0.0	0.0	0.0
CUCO32ION	2.54009E-13	0.0	0.0	0.0
CUION	1.34441E-08	0.0	0.0	0.0
CUNO3ION	1.18605E-10	0.0	0.0	0.0
CUOH3ION	1.81040E-18	0.0	0.0	0.0
CUOH4ION	1.13833E-25	0.0	0.0	0.0
CUOHION	1.18320E-10	0.0	0.0	0.0
DODECION	3.27529E-05	0.0	0.0	0.0
FEIICLION	9.79817E-10	0.0	0.0	0.0

FEIICO32ION	7.09618E-13	0.0	0.0	0.0
FEIIH2PO4ION	1.52463E-07	0.0	0.0	0.0
FEIIHCO3ION	1.30543E-08	0.0	0.0	0.0
FEIIION	7.13239E-05	0.0	0.0	0.0
FEIIOH3ION	2.08781E-19	0.0	0.0	0.0
FEIIOH4ION	1.85379E-28	0.0	0.0	0.0
FEIIOHION	4.34989E-09	0.0	0.0	0.0
H2P2O7ION	1.31601E-09	0.0	0.0	0.0
H2PO4ION	1.03434E-04	0.0	0.0	0.0
H2SIO4ION	5.56977E-16	0.0	0.0	0.0
H3P2O7ION	3.46322E-13	0.0	0.0	0.0
H3SIO4ION	8.39113E-09	0.0	0.0	0.0
HCO3ION	1.99383E-04	0.0	0.0	0.0
HION	2.00000E-07	0.0	0.0	0.0
HP2O7ION	4.45121E-10	0.0	0.0	0.0
HPBO2ION	2.23185E-20	0.0	0.0	0.0
HPO4ION	5.41048E-06	0.0	0.0	0.0
HSO4ION	5.59266E-08	0.0	0.0	0.0
KION	1.69391E-04	0.0	0.0	0.0
KSO4ION	3.82168E-06	0.0	0.0	0.0
MGH2PO4ION	7.68244E-06	0.0	0.0	0.0
MGHCO3ION	1.16677E-05	0.0	0.0	0.0
MGHSIO3ION	4.45036E-10	0.0	0.0	0.0
MGION	2.42387E-04	0.0	0.0	0.0
MGOHION	7.89474E-11	0.0	0.0	0.0
MGP2O7ION	8.15919E-10	0.0	0.0	0.0
MGPO4ION	4.00246E-09	0.0	0.0	0.0
NACO3ION	1.92106E-10	0.0	0.0	0.0
NAION	0.0011483	0.0	0.0	0.0
NASO4ION	2.84976E-05	0.0	0.0	0.0
NICLION	8.63627E-10	0.0	0.0	0.0
NIION	8.80975E-07	0.0	0.0	0.0
NINO3ION	6.22857E-09	0.0	0.0	0.0
NIOH3ION	2.72453E-20	0.0	0.0	0.0
NIOHION	2.33110E-11	0.0	0.0	0.0
NO3ION	3.98455E-04	0.0	0.0	0.0
P2O7ION	4.98294E-13	0.0	0.0	0.0
PBCL3ION	1.31253E-12	0.0	0.0	0.0
PBCL4ION	3.57913E-14	0.0	0.0	0.0
PBCLION	1.80071E-09	0.0	0.0	0.0
PBH2PO4ION	1.77538E-10	0.0	0.0	0.0
PBION	6.94184E-09	0.0	0.0	0.0
PBNO33ION	1.36675E-15	0.0	0.0	0.0
PBNO3ION	3.24657E-10	0.0	0.0	0.0
PBOHION	3.23735E-11	0.0	0.0	0.0
PO4ION	3.52231E-12	0.0	0.0	0.0
SO4ION	5.01469E-04	0.0	0.0	0.0
SRION	1.17667E-05	0.0	0.0	0.0
SRNO3ION	1.67144E-07	0.0	0.0	0.0
SROHION	1.49306E-13	0.0	0.0	0.0
SRPO4ION	1.87554E-12	0.0	0.0	0.0
UIVCLION	3.15521E-28	0.0	0.0	0.0
UIVION	1.48946E-27	0.0	0.0	0.0
UIVOH2ION	3.82821E-20	0.0	0.0	0.0
UIVOH3ION	6.87777E-16	0.0	0.0	0.0
UIVOH5ION	4.97591E-16	0.0	0.0	0.0
UIVOHION	4.90006E-23	0.0	0.0	0.0
UIVSO4ION	6.98584E-25	0.0	0.0	0.0

ZNCL3ION	5.69070E-11	0.0	0.0	0.0
ZNCLION	3.63972E-07	0.0	0.0	0.0
ZNH2PO4ION	5.78797E-07	0.0	0.0	0.0
ZNHCO3ION	6.30702E-07	0.0	0.0	0.0
ZNION	2.37132E-05	0.0	0.0	0.0
ZNNO3ION	1.65513E-07	0.0	0.0	0.0
ZNOH3ION	3.36491E-17	0.0	0.0	0.0
ZNOH4ION	3.65825E-24	0.0	0.0	0.0
ZNOHION	5.44966E-09	0.0	0.0	0.0
CAHPO4	0.0	9.76768E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.30710E-06	0.0	0.0
PB3PO42	0.0	8.55122E-07	0.0	0.0
UIVO2	0.0	2.43696E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	62.7838	0.025319	0.0	0.0
Volume, L/hr	0.0627661	4.45404E-06	0.0	0.0
Enthalpy, cal/hr	-2.37574E+05	-81.6577	0.0	0.0
Density, g/L	1000.28	5684.52		
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	2.43198			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.0050961			
E-Con, cm2/ohm-mol	94.8793			
Abs Visc, cP	0.90234			
Rel Visc	1.01305			
Ionic Strength	0.0777549			

STREAM: Evap Contents
 TO : Evap separator
 FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.737	102.737	102.737	102.737
Pressure, atm	1.	1.	1.	1.
pH	4.45631			
Total mol/hr	0.04090427	9.28526E-04	3.43289	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0373705	0.0	3.431752	0.0
CO2	1.56675E-09	0.0	0.001100001	0.0
H2SO4	1.02644E-23	0.0	8.14571E-22	0.0
HCL	9.63205E-13	0.0	8.32689E-08	0.0
HNO3	1.06914E-09	0.0	1.97149E-08	0.0
LAURICACID	8.11741E-09	0.0	3.79249E-05	0.0
SO3	7.21126E-27	0.0	2.08399E-27	0.0
CAH2SIO4	1.59573E-16	0.0	0.0	0.0
CASO4	3.93900E-07	5.53566E-04	0.0	0.0
CDCL2	5.62613E-09	0.0	0.0	0.0
CDOH2	2.57452E-20	0.0	0.0	0.0
CDSO4	1.73611E-13	0.0	0.0	0.0
CROH3	1.87690E-20	0.0	0.0	0.0
CUCL2	3.37479E-09	0.0	0.0	0.0
CUCO3	6.94067E-17	0.0	0.0	0.0
CUNO32	2.74114E-11	0.0	0.0	0.0
CUOH2	3.91008E-13	0.0	0.0	0.0
FEIICL2	3.00417E-09	0.0	0.0	0.0
FEIICO3	1.09143E-13	0.0	0.0	0.0
FEIIHPO4	9.33217E-10	0.0	0.0	0.0
FEIIOH2	1.92289E-13	0.0	0.0	0.0
ALO2H2CL	3.50559E-27	0.0	0.0	0.0
H3PO4	3.86882E-09	0.0	0.0	0.0
H4P2O7	5.40540E-16	0.0	0.0	0.0
ALOH3	2.26296E-11	0.0	0.0	0.0
BACO3	6.09200E-20	0.0	0.0	0.0
KCL	3.42904E-06	0.0	0.0	0.0
KHSO4	8.29818E-11	0.0	0.0	0.0
BASO4	7.01262E-13	4.91767E-07	0.0	0.0
MGCO3	1.18025E-14	0.0	0.0	0.0
MGH2SIO4	1.55392E-14	0.0	0.0	0.0
MGHPO4	4.47172E-07	0.0	0.0	0.0
MGSO4	2.91865E-06	0.0	0.0	0.0
NAHCO3	3.05439E-11	0.0	0.0	0.0
NAHSIO3	1.16238E-09	0.0	0.0	0.0
NANO3	6.03538E-05	0.0	0.0	0.0
NIOH2	1.93004E-15	0.0	0.0	0.0
NISO4	3.49814E-08	0.0	0.0	0.0
PBCL2	1.06593E-07	0.0	0.0	0.0
PBHPO4	8.04022E-13	0.0	0.0	0.0
PBNO32	3.67470E-09	0.0	0.0	0.0
PBO	1.44816E-15	0.0	0.0	0.0
CACL2	7.94439E-15	0.0	0.0	0.0
SIO2	2.92733E-06	1.80403E-04	0.0	0.0

CACO3	3.63819E-15	0.0	0.0	0.0
SRHPO4	7.87836E-12	0.0	0.0	0.0
SRNO32	2.42113E-07	0.0	0.0	0.0
SRSO4	6.70979E-09	1.33598E-05	0.0	0.0
UIVOH4	8.58917E-13	0.0	0.0	0.0
UIVSO42	4.83671E-24	0.0	0.0	0.0
ZNCL2	5.45529E-06	0.0	0.0	0.0
ZNHPO4	1.30597E-10	0.0	0.0	0.0
ZNNO32	2.76139E-09	0.0	0.0	0.0
ZNOH2	9.04633E-14	0.0	0.0	0.0
OHION	1.79174E-11	0.0	0.0	0.0
ALION	6.25721E-13	0.0	0.0	0.0
ALOH2ION	1.09638E-11	0.0	0.0	0.0
ALOH4ION	6.15820E-12	0.0	0.0	0.0
ALOHCLION	1.78208E-11	0.0	0.0	0.0
ALOHION	5.18750E-12	0.0	0.0	0.0
ALSO42ION	2.29577E-14	0.0	0.0	0.0
ALSO4ION	3.26362E-13	0.0	0.0	0.0
BAHCO3ION	3.68087E-15	0.0	0.0	0.0
BAION	4.58276E-09	0.0	0.0	0.0
BAOHION	5.73358E-17	0.0	0.0	0.0
CACLION	1.38789E-07	0.0	0.0	0.0
CAH2PO4ION	1.37592E-06	0.0	0.0	0.0
CAHCO3ION	7.57574E-12	0.0	0.0	0.0
CAHSIO3ION	5.72952E-11	0.0	0.0	0.0
CAION	4.64036E-05	0.0	0.0	0.0
CANO3ION	2.36869E-05	0.0	0.0	0.0
CAOHION	1.16947E-11	0.0	0.0	0.0
CAPO4ION	9.49169E-12	0.0	0.0	0.0
CDCL3ION	5.31240E-09	0.0	0.0	0.0
CDCL4ION	1.48220E-09	0.0	0.0	0.0
CDCLION	3.05347E-10	0.0	0.0	0.0
CDION	5.99333E-12	0.0	0.0	0.0
CDNO3ION	1.75702E-12	0.0	0.0	0.0
CDOH3ION	6.20150E-27	0.0	0.0	0.0
CDOHION	1.99394E-16	0.0	0.0	0.0
CLION	0.00151648	0.0	0.0	0.0
CO3ION	1.05085E-15	0.0	0.0	0.0
CRIIIICL2ION	1.52229E-16	0.0	0.0	0.0
CRIIIICLION	3.95992E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.09623E-16	0.0	0.0	0.0
CRIIIHPO4ION	6.53843E-08	0.0	0.0	0.0
CRIIIIION	2.14668E-19	0.0	0.0	0.0
CRIIINO3ION	6.05454E-14	0.0	0.0	0.0
CROH2ION	2.22428E-19	0.0	0.0	0.0
CROH4ION	7.07313E-26	0.0	0.0	0.0
CROHION	5.78927E-14	0.0	0.0	0.0
CRSO4ION	2.44928E-13	0.0	0.0	0.0
CUCL3ION	5.49205E-11	0.0	0.0	0.0
CUCLION	2.00667E-08	0.0	0.0	0.0
CUCO32ION	5.96967E-25	0.0	0.0	0.0
CUION	5.66669E-09	0.0	0.0	0.0
CUNO3ION	1.05964E-09	0.0	0.0	0.0
CUOH3ION	5.98229E-19	0.0	0.0	0.0
CUOH4ION	1.97300E-24	0.0	0.0	0.0
CUOHION	2.16470E-11	0.0	0.0	0.0
DODECION	5.85553E-08	0.0	0.0	0.0
FEIICLION	5.99799E-07	0.0	0.0	0.0

FEIICO32ION	2.78794E-23	0.0	0.0	0.0
FEIIH2PO4ION	7.09778E-08	0.0	0.0	0.0
FEIIHCO3ION	2.13231E-13	0.0	0.0	0.0
FEIIION	7.09998E-05	0.0	0.0	0.0
FEIIOH3ION	4.48388E-18	0.0	0.0	0.0
FEIIOH4ION	2.07803E-25	0.0	0.0	0.0
FEIIOHION	1.00702E-08	0.0	0.0	0.0
H2P2O7ION	4.64500E-10	0.0	0.0	0.0
H2PO4ION	8.55701E-07	0.0	0.0	0.0
H2SIO4ION	1.17191E-17	0.0	0.0	0.0
H3P2O7ION	4.10102E-13	0.0	0.0	0.0
H3SIO4ION	5.12980E-10	0.0	0.0	0.0
HCO3ION	2.75406E-11	0.0	0.0	0.0
HION	3.24763E-08	0.0	0.0	0.0
HP2O7ION	2.47963E-11	0.0	0.0	0.0
HPBO2ION	2.45411E-20	0.0	0.0	0.0
HPO4ION	1.29088E-08	0.0	0.0	0.0
HSO4ION	2.06367E-08	0.0	0.0	0.0
KION	1.67917E-04	0.0	0.0	0.0
KSO4ION	1.88841E-06	0.0	0.0	0.0
MGH2PO4ION	3.03366E-06	0.0	0.0	0.0
MGHCO3ION	9.10307E-11	0.0	0.0	0.0
MGHSIO3ION	7.32401E-10	0.0	0.0	0.0
MGION	1.52423E-04	0.0	0.0	0.0
MGOHION	6.31977E-10	0.0	0.0	0.0
MGP2O7ION	8.50307E-10	0.0	0.0	0.0
MGPO4ION	6.20806E-11	0.0	0.0	0.0
NACO3ION	1.28421E-16	0.0	0.0	0.0
NAION	0.00111766	0.0	0.0	0.0
NASO4ION	7.68611E-14	0.0	0.0	0.0
NICLION	6.82402E-08	0.0	0.0	0.0
NIION	8.60422E-07	0.0	0.0	0.0
NINO3ION	1.26614E-07	0.0	0.0	0.0
NIOH3ION	7.30731E-21	0.0	0.0	0.0
NIOHION	3.21897E-11	0.0	0.0	0.0
NO3ION	3.17698E-04	0.0	0.0	0.0
P2O7ION	6.16455E-15	0.0	0.0	0.0
PBCL3ION	2.74897E-07	0.0	0.0	0.0
PBCL4ION	2.15131E-06	0.0	0.0	0.0
PBCLION	2.85015E-08	0.0	0.0	0.0
PBH2PO4ION	2.97954E-11	0.0	0.0	0.0
PBION	8.90113E-10	0.0	0.0	0.0
PBNO33ION	1.53876E-10	0.0	0.0	0.0
PBNO3ION	8.80386E-09	0.0	0.0	0.0
PBOHION	2.39698E-11	0.0	0.0	0.0
PO4ION	4.65813E-15	0.0	0.0	0.0
SO4ION	1.06528E-05	0.0	0.0	0.0
SRION	4.80009E-07	0.0	0.0	0.0
SRNO3ION	7.51546E-07	0.0	0.0	0.0
SROHION	8.54009E-14	0.0	0.0	0.0
SRPO4ION	2.24996E-15	0.0	0.0	0.0
UIVCLION	9.70065E-26	0.0	0.0	0.0
UIVION	2.09133E-27	0.0	0.0	0.0
UIVOH2ION	2.45045E-20	0.0	0.0	0.0
UIVOH3ION	9.46804E-18	0.0	0.0	0.0
UIVOH5ION	1.23304E-17	0.0	0.0	0.0
UIVOHION	3.74558E-22	0.0	0.0	0.0
UIVSO4ION	8.50349E-24	0.0	0.0	0.0

ZNCL3ION	8.14736E-06	0.0	0.0	0.0
ZNCLION	1.15744E-05	0.0	0.0	0.0
ZNH2PO4ION	2.35833E-09	0.0	0.0	0.0
ZNHCO3ION	5.71860E-14	0.0	0.0	0.0
ZNION	7.22646E-07	0.0	0.0	0.0
ZNNO3ION	8.13582E-08	0.0	0.0	0.0
ZNOH3ION	6.16939E-18	0.0	0.0	0.0
ZNOH4ION	7.17781E-24	0.0	0.0	0.0
ZNOHION	7.56697E-09	0.0	0.0	0.0
ALPO4	0.0	3.20810E-05	0.0	0.0
ALOOH	0.0	4.56967E-05	0.0	0.0
CA3PO42	0.0	5.74802E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.30225E-06	0.0	0.0
MG3PO42	0.0	4.17085E-05	0.0	0.0
UIVO2	0.0	2.43698E-06	0.0	0.0
=====				
Total g/hr	0.803492	0.125418	61.8802	0.0
Volume, L/hr	7.52271E-04	3.90519E-05	105.018	0.0
Enthalpy, cal/hr	-2697.17	-351.817	-1.96356E+05	0.0
Density, g/L	1068.09	3211.57	0.589236	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	156.67			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.416283			
E-Con, cm2/ohm-mol	51.041			
Abs Visc, cP	0.375384			
Rel Visc	1.37159			
Ionic Strength	3.20213			

ESP V-6.6

PROCESS:AWE65_3

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.737	102.737	102.737	102.737
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	3.43289	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	3.431752	0.0
CO2	0.0	0.0	0.001100001	0.0
H2SO4	0.0	0.0	8.14571E-22	0.0
HCL	0.0	0.0	8.32689E-08	0.0
HNO3	0.0	0.0	1.97149E-08	0.0
LAURICACID	0.0	0.0	3.79249E-05	0.0
SO3	0.0	0.0	2.08399E-27	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	61.8802	0.0
Volume, L/hr	0.0	0.0	105.018	0.0
Enthalpy, cal/hr	0.0	0.0	-1.96356E+05	0.0
Density, g/L			0.589236	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.737	102.737	102.737	102.737
Pressure, atm	1.	1.	1.	1.
pH	4.45631			
Total mol/hr	0.04090427	9.28526E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0373705	0.0	0.0	0.0
CO2	1.56675E-09	0.0	0.0	0.0
H2SO4	1.02644E-23	0.0	0.0	0.0
HCL	9.63205E-13	0.0	0.0	0.0
HNO3	1.06914E-09	0.0	0.0	0.0
LAURICACID	8.11741E-09	0.0	0.0	0.0
SO3	7.21126E-27	0.0	0.0	0.0
CAH2SIO4	1.59573E-16	0.0	0.0	0.0
CASO4	3.93900E-07	5.53566E-04	0.0	0.0
CDCL2	5.62613E-09	0.0	0.0	0.0
CDOH2	2.57452E-20	0.0	0.0	0.0
CDSO4	1.73611E-13	0.0	0.0	0.0
CROH3	1.87690E-20	0.0	0.0	0.0
CUCL2	3.37479E-09	0.0	0.0	0.0
CUCO3	6.94067E-17	0.0	0.0	0.0
CUNO32	2.74114E-11	0.0	0.0	0.0
CUOH2	3.91008E-13	0.0	0.0	0.0
FEIICL2	3.00417E-09	0.0	0.0	0.0
FEIICO3	1.09143E-13	0.0	0.0	0.0
FEIIHPO4	9.33217E-10	0.0	0.0	0.0
FEIIOH2	1.92289E-13	0.0	0.0	0.0
ALO2H2CL	3.50559E-27	0.0	0.0	0.0
H3PO4	3.86882E-09	0.0	0.0	0.0
H4P2O7	5.40540E-16	0.0	0.0	0.0
ALOH3	2.26296E-11	0.0	0.0	0.0
BACO3	6.09200E-20	0.0	0.0	0.0
KCL	3.42904E-06	0.0	0.0	0.0
KHSO4	8.29818E-11	0.0	0.0	0.0
BASO4	7.01262E-13	4.91767E-07	0.0	0.0
MGCO3	1.18025E-14	0.0	0.0	0.0
MGH2SIO4	1.55392E-14	0.0	0.0	0.0
MGHPO4	4.47172E-07	0.0	0.0	0.0
MGSO4	2.91865E-06	0.0	0.0	0.0
NAHCO3	3.05439E-11	0.0	0.0	0.0
NAHSIO3	1.16238E-09	0.0	0.0	0.0
NANO3	6.03538E-05	0.0	0.0	0.0
NIOH2	1.93004E-15	0.0	0.0	0.0
NISO4	3.49814E-08	0.0	0.0	0.0
PBCL2	1.06593E-07	0.0	0.0	0.0
PBHPO4	8.04022E-13	0.0	0.0	0.0
PBNO32	3.67470E-09	0.0	0.0	0.0
PBO	1.44816E-15	0.0	0.0	0.0
CACL2	7.94439E-15	0.0	0.0	0.0
SIO2	2.92733E-06	1.80403E-04	0.0	0.0

CACO3	3.63819E-15	0.0	0.0	0.0
SRHPO4	7.87836E-12	0.0	0.0	0.0
SRNO32	2.42113E-07	0.0	0.0	0.0
SRSO4	6.70979E-09	1.33598E-05	0.0	0.0
UIVOH4	8.58917E-13	0.0	0.0	0.0
UIVSO42	4.83671E-24	0.0	0.0	0.0
ZNCL2	5.45529E-06	0.0	0.0	0.0
ZNHPO4	1.30597E-10	0.0	0.0	0.0
ZNNO32	2.76139E-09	0.0	0.0	0.0
ZNOH2	9.04633E-14	0.0	0.0	0.0
OHION	1.79174E-11	0.0	0.0	0.0
ALION	6.25721E-13	0.0	0.0	0.0
ALOH2ION	1.09638E-11	0.0	0.0	0.0
ALOH4ION	6.15820E-12	0.0	0.0	0.0
ALOHCLION	1.78208E-11	0.0	0.0	0.0
ALOHION	5.18750E-12	0.0	0.0	0.0
ALSO42ION	2.29577E-14	0.0	0.0	0.0
ALSO4ION	3.26362E-13	0.0	0.0	0.0
BAHCO3ION	3.68087E-15	0.0	0.0	0.0
BAION	4.58276E-09	0.0	0.0	0.0
BAOHION	5.73358E-17	0.0	0.0	0.0
CACLION	1.38789E-07	0.0	0.0	0.0
CAH2PO4ION	1.37592E-06	0.0	0.0	0.0
CAHCO3ION	7.57574E-12	0.0	0.0	0.0
CAHSIO3ION	5.72952E-11	0.0	0.0	0.0
CAION	4.64036E-05	0.0	0.0	0.0
CANO3ION	2.36869E-05	0.0	0.0	0.0
CAOHION	1.16947E-11	0.0	0.0	0.0
CAPO4ION	9.49169E-12	0.0	0.0	0.0
CDCL3ION	5.31240E-09	0.0	0.0	0.0
CDCL4ION	1.48220E-09	0.0	0.0	0.0
CDCLION	3.05347E-10	0.0	0.0	0.0
CDION	5.99333E-12	0.0	0.0	0.0
CDNO3ION	1.75702E-12	0.0	0.0	0.0
CDOH3ION	6.20150E-27	0.0	0.0	0.0
CDOHION	1.99394E-16	0.0	0.0	0.0
CLION	0.00151648	0.0	0.0	0.0
CO3ION	1.05085E-15	0.0	0.0	0.0
CRIIIICL2ION	1.52229E-16	0.0	0.0	0.0
CRIIIICLION	3.95992E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.09623E-16	0.0	0.0	0.0
CRIIIHPO4ION	6.53843E-08	0.0	0.0	0.0
CRIIIIION	2.14668E-19	0.0	0.0	0.0
CRIIINO3ION	6.05454E-14	0.0	0.0	0.0
CROH2ION	2.22428E-19	0.0	0.0	0.0
CROH4ION	7.07313E-26	0.0	0.0	0.0
CROHION	5.78927E-14	0.0	0.0	0.0
CRSO4ION	2.44928E-13	0.0	0.0	0.0
CUCL3ION	5.49205E-11	0.0	0.0	0.0
CUCLION	2.00667E-08	0.0	0.0	0.0
CUCO32ION	5.96967E-25	0.0	0.0	0.0
CUION	5.66669E-09	0.0	0.0	0.0
CUNO3ION	1.05964E-09	0.0	0.0	0.0
CUOH3ION	5.98229E-19	0.0	0.0	0.0
CUOH4ION	1.97300E-24	0.0	0.0	0.0
CUOHION	2.16470E-11	0.0	0.0	0.0
DODECION	5.85553E-08	0.0	0.0	0.0
FEIICLION	5.99799E-07	0.0	0.0	0.0

FEIICO32ION	2.78794E-23	0.0	0.0	0.0
FEIIH2PO4ION	7.09778E-08	0.0	0.0	0.0
FEIIHCO3ION	2.13231E-13	0.0	0.0	0.0
FEIIION	7.09998E-05	0.0	0.0	0.0
FEIIOH3ION	4.48388E-18	0.0	0.0	0.0
FEIIOH4ION	2.07803E-25	0.0	0.0	0.0
FEIIOHION	1.00702E-08	0.0	0.0	0.0
H2P2O7ION	4.64500E-10	0.0	0.0	0.0
H2PO4ION	8.55701E-07	0.0	0.0	0.0
H2SIO4ION	1.17191E-17	0.0	0.0	0.0
H3P2O7ION	4.10102E-13	0.0	0.0	0.0
H3SIO4ION	5.12980E-10	0.0	0.0	0.0
HCO3ION	2.75406E-11	0.0	0.0	0.0
HION	3.24763E-08	0.0	0.0	0.0
HP2O7ION	2.47963E-11	0.0	0.0	0.0
HPBO2ION	2.45411E-20	0.0	0.0	0.0
HPO4ION	1.29088E-08	0.0	0.0	0.0
HSO4ION	2.06367E-08	0.0	0.0	0.0
KION	1.67917E-04	0.0	0.0	0.0
KSO4ION	1.88841E-06	0.0	0.0	0.0
MGH2PO4ION	3.03366E-06	0.0	0.0	0.0
MGHCO3ION	9.10307E-11	0.0	0.0	0.0
MGHSIO3ION	7.32401E-10	0.0	0.0	0.0
MGION	1.52423E-04	0.0	0.0	0.0
MGOHION	6.31977E-10	0.0	0.0	0.0
MGP2O7ION	8.50307E-10	0.0	0.0	0.0
MGPO4ION	6.20806E-11	0.0	0.0	0.0
NACO3ION	1.28421E-16	0.0	0.0	0.0
NAION	0.00111766	0.0	0.0	0.0
NASO4ION	7.68611E-14	0.0	0.0	0.0
NICLION	6.82402E-08	0.0	0.0	0.0
NIION	8.60422E-07	0.0	0.0	0.0
NINO3ION	1.26614E-07	0.0	0.0	0.0
NIOH3ION	7.30731E-21	0.0	0.0	0.0
NIOHION	3.21897E-11	0.0	0.0	0.0
NO3ION	3.17698E-04	0.0	0.0	0.0
P2O7ION	6.16455E-15	0.0	0.0	0.0
PBCL3ION	2.74897E-07	0.0	0.0	0.0
PBCL4ION	2.15131E-06	0.0	0.0	0.0
PBCLION	2.85015E-08	0.0	0.0	0.0
PBH2PO4ION	2.97954E-11	0.0	0.0	0.0
PBION	8.90113E-10	0.0	0.0	0.0
PBNO33ION	1.53876E-10	0.0	0.0	0.0
PBNO3ION	8.80386E-09	0.0	0.0	0.0
PBOHION	2.39698E-11	0.0	0.0	0.0
PO4ION	4.65813E-15	0.0	0.0	0.0
SO4ION	1.06528E-05	0.0	0.0	0.0
SRION	4.80009E-07	0.0	0.0	0.0
SRNO3ION	7.51546E-07	0.0	0.0	0.0
SROHION	8.54009E-14	0.0	0.0	0.0
SRPO4ION	2.24996E-15	0.0	0.0	0.0
UIVCLION	9.70065E-26	0.0	0.0	0.0
UIVION	2.09133E-27	0.0	0.0	0.0
UIVOH2ION	2.45045E-20	0.0	0.0	0.0
UIVOH3ION	9.46804E-18	0.0	0.0	0.0
UIVOH5ION	1.23304E-17	0.0	0.0	0.0
UIVOHION	3.74558E-22	0.0	0.0	0.0
UIVSO4ION	8.50349E-24	0.0	0.0	0.0

ZNCL3ION	8.14736E-06	0.0	0.0	0.0
ZNCLION	1.15744E-05	0.0	0.0	0.0
ZNH2PO4ION	2.35833E-09	0.0	0.0	0.0
ZNHCO3ION	5.71860E-14	0.0	0.0	0.0
ZNION	7.22646E-07	0.0	0.0	0.0
ZNNO3ION	8.13582E-08	0.0	0.0	0.0
ZNOH3ION	6.16939E-18	0.0	0.0	0.0
ZNOH4ION	7.17781E-24	0.0	0.0	0.0
ZNOHION	7.56697E-09	0.0	0.0	0.0
ALPO4	0.0	3.20810E-05	0.0	0.0
ALOOH	0.0	4.56967E-05	0.0	0.0
CA3PO42	0.0	5.74802E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.30225E-06	0.0	0.0
MG3PO42	0.0	4.17085E-05	0.0	0.0
UIVO2	0.0	2.43698E-06	0.0	0.0
=====				
Total g/hr	0.803492	0.125418	0.0	0.0
Volume, L/hr	7.52271E-04	3.90519E-05	0.0	0.0
Enthalpy, cal/hr	-2697.17	-351.817	0.0	0.0
Density, g/L	1068.09	3211.57		
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	156.67			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.416283			
E-Con, cm2/ohm-mol	51.041			
Abs Visc, cP	0.375384			
Rel Visc	1.37159			
Ionic Strength	3.20213			

ESP V-6.6

PROCESS:AWE65_3

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.71304			
Total mol/hr	0.03978804	9.44025E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0360935	0.0	0.0	0.0
CO2	2.57102E-10	0.0	0.0	0.0
H2SO4	1.44933E-26	0.0	0.0	0.0
HCL	9.19718E-16	0.0	0.0	0.0
HNO3	1.13124E-11	0.0	0.0	0.0
LAURICACID	2.61131E-09	0.0	0.0	0.0
SO3	2.09089E-30	0.0	0.0	0.0
CAH2SIO4	1.28983E-15	0.0	0.0	0.0
CASO4	5.44489E-07	0.0	0.0	0.0
CDCL2	1.94424E-09	0.0	0.0	0.0
CDOH2	2.94533E-22	0.0	0.0	0.0
CDSO4	2.17122E-13	0.0	0.0	0.0
CROH3	5.94481E-16	0.0	0.0	0.0
CUCL2	7.27772E-10	0.0	0.0	0.0
CUCO3	1.21111E-15	0.0	0.0	0.0
CUNO32	4.82227E-12	0.0	0.0	0.0
CUOH2	1.10225E-13	0.0	0.0	0.0
FEIICL2	1.12491E-10	0.0	0.0	0.0
FEIICO3	2.15446E-12	0.0	0.0	0.0
FEIIHPO4	1.07759E-09	0.0	0.0	0.0
FEIIOH2	2.45425E-15	0.0	0.0	0.0
ALO2H2CL	1.98299E-28	0.0	0.0	0.0
H3PO4	2.82685E-11	0.0	0.0	0.0
H4P2O7	4.37379E-21	0.0	0.0	0.0
ALOH3	8.68470E-13	7.77779E-05	0.0	0.0
BACO3	2.15420E-20	0.0	0.0	0.0
KCL	8.07284E-07	0.0	0.0	0.0
KHSO4	4.49400E-13	0.0	0.0	0.0
BASO4	7.44316E-14	4.95674E-07	0.0	0.0
MGCO3	2.73538E-13	0.0	0.0	0.0
MGH2SIO4	1.98130E-13	0.0	0.0	0.0
MGHPO4	8.70731E-07	0.0	0.0	0.0
MGSO4	1.50814E-05	0.0	0.0	0.0
NAHCO3	2.74009E-11	0.0	0.0	0.0
NAHSIO3	6.73452E-09	0.0	0.0	0.0
NANO3	1.86507E-05	0.0	0.0	0.0
NIOH2	1.15308E-15	0.0	0.0	0.0
NISO4	3.13445E-08	0.0	0.0	0.0
PBCL2	1.37395E-08	0.0	0.0	0.0
PBHPO4	4.25641E-13	0.0	0.0	0.0
PBNO32	8.31046E-11	0.0	0.0	0.0
PBO	6.81841E-17	0.0	0.0	0.0
CACL2	2.28089E-23	0.0	0.0	0.0
SIO2	7.76648E-07	1.82548E-04	0.0	0.0

CACO3	3.81452E-14	0.0	0.0	0.0
SRHPO4	4.57694E-12	0.0	0.0	0.0
SRNO32	3.46769E-08	0.0	0.0	0.0
SRSO4	1.55955E-08	1.39321E-05	0.0	0.0
UIVOH4	8.79825E-14	0.0	0.0	0.0
UIVSO42	1.27264E-26	0.0	0.0	0.0
ZNCL2	1.68603E-06	0.0	0.0	0.0
ZNHPO4	3.34107E-09	0.0	0.0	0.0
ZNNO32	1.96562E-08	0.0	0.0	0.0
ZNOH2	2.06520E-13	0.0	0.0	0.0
OHION	3.98303E-12	0.0	0.0	0.0
ALION	4.57005E-13	0.0	0.0	0.0
ALOH2ION	8.68536E-13	0.0	0.0	0.0
ALOH4ION	3.38644E-13	0.0	0.0	0.0
ALOHCLION	4.56846E-12	0.0	0.0	0.0
ALOHION	7.23010E-13	0.0	0.0	0.0
ALSO42ION	8.80028E-14	0.0	0.0	0.0
ALSO4ION	4.01498E-13	0.0	0.0	0.0
BAHCO3ION	8.17345E-17	0.0	0.0	0.0
BAION	6.76319E-10	0.0	0.0	0.0
BAOHION	9.19055E-20	0.0	0.0	0.0
CACLION	1.81335E-10	0.0	0.0	0.0
CAH2PO4ION	2.04082E-07	0.0	0.0	0.0
CAHCO3ION	2.66544E-11	0.0	0.0	0.0
CAHSIO3ION	4.45914E-11	0.0	0.0	0.0
CAION	3.94833E-05	0.0	0.0	0.0
CANO3ION	1.83685E-05	0.0	0.0	0.0
CAOHION	1.00670E-12	0.0	0.0	0.0
CAPO4ION	1.59594E-10	0.0	0.0	0.0
CDCL3ION	8.03391E-10	0.0	0.0	0.0
CDCL4ION	9.86787E-09	0.0	0.0	0.0
CDCLION	1.13064E-10	0.0	0.0	0.0
CDION	4.44687E-12	0.0	0.0	0.0
CDNO3ION	7.69334E-13	0.0	0.0	0.0
CDOH3ION	7.41373E-29	0.0	0.0	0.0
CDOHION	1.99739E-17	0.0	0.0	0.0
CLION	0.00155643	0.0	0.0	0.0
CO3ION	4.51588E-14	0.0	0.0	0.0
CRIIIICL2ION	8.82346E-14	0.0	0.0	0.0
CRIIIICLION	1.40799E-13	0.0	0.0	0.0
CRIIIH2PO4ION	2.85403E-12	0.0	0.0	0.0
CRIIIHPO4ION	6.49888E-08	0.0	0.0	0.0
CRIIIIION	2.55665E-16	0.0	0.0	0.0
CRIIINO3ION	1.55460E-11	0.0	0.0	0.0
CROH2ION	9.57392E-16	0.0	0.0	0.0
CROH4ION	1.23722E-20	0.0	0.0	0.0
CROHION	1.34400E-10	0.0	0.0	0.0
CRSO4ION	2.42793E-10	0.0	0.0	0.0
CUCL3ION	1.30317E-11	0.0	0.0	0.0
CUCLION	1.97972E-09	0.0	0.0	0.0
CUCO32ION	2.59999E-22	0.0	0.0	0.0
CUION	1.68924E-09	0.0	0.0	0.0
CUNO3ION	3.39643E-10	0.0	0.0	0.0
CUOH3ION	1.03329E-19	0.0	0.0	0.0
CUOH4ION	3.75100E-26	0.0	0.0	0.0
CUOHION	3.31096E-12	0.0	0.0	0.0
DODECION	6.40614E-08	0.0	0.0	0.0
FEIICLION	3.78340E-08	0.0	0.0	0.0

FEIICO32ION	9.83131E-21	0.0	0.0	0.0
FEIIH2PO4ION	1.64612E-08	0.0	0.0	0.0
FEIIHCO3ION	2.72513E-13	0.0	0.0	0.0
FEIIION	2.52134E-05	0.0	0.0	0.0
FEIIOH3ION	1.21522E-19	0.0	0.0	0.0
FEIIOH4ION	8.26999E-28	0.0	0.0	0.0
FEIIOHION	1.68095E-09	0.0	0.0	0.0
H2P2O7ION	4.55328E-12	0.0	0.0	0.0
H2PO4ION	3.40821E-07	0.0	0.0	0.0
H2SIO4ION	5.17781E-17	0.0	0.0	0.0
H3P2O7ION	1.28355E-16	0.0	0.0	0.0
H3SIO4ION	8.85165E-11	0.0	0.0	0.0
HCO3ION	1.78002E-10	0.0	0.0	0.0
HION	1.13910E-09	0.0	0.0	0.0
HP2O7ION	7.55724E-12	0.0	0.0	0.0
HPBO2ION	1.05889E-21	0.0	0.0	0.0
HPO4ION	1.26441E-07	0.0	0.0	0.0
HSO4ION	3.84568E-10	0.0	0.0	0.0
KION	1.68830E-04	0.0	0.0	0.0
KSO4ION	3.59769E-06	0.0	0.0	0.0
MGH2PO4ION	4.16790E-06	0.0	0.0	0.0
MGHCO3ION	1.22942E-09	0.0	0.0	0.0
MGHSIO3ION	1.30930E-09	0.0	0.0	0.0
MGION	2.63824E-04	0.0	0.0	0.0
MGOHION	1.53297E-10	0.0	0.0	0.0
MGP2O7ION	8.71039E-10	0.0	0.0	0.0
MGPO4ION	2.80692E-09	0.0	0.0	0.0
NACO3ION	1.69043E-14	0.0	0.0	0.0
NAION	0.00114698	0.0	0.0	0.0
NASO4ION	1.23821E-05	0.0	0.0	0.0
NICLION	3.19531E-08	0.0	0.0	0.0
NIION	8.14045E-07	0.0	0.0	0.0
NINO3ION	2.12939E-07	0.0	0.0	0.0
NIOH3ION	2.12794E-20	0.0	0.0	0.0
NIOHION	8.60165E-12	0.0	0.0	0.0
NO3ION	3.64846E-04	0.0	0.0	0.0
P2O7ION	1.90505E-13	0.0	0.0	0.0
PBCL3ION	4.45096E-08	0.0	0.0	0.0
PBCL4ION	8.05806E-07	0.0	0.0	0.0
PBCLION	4.69205E-09	0.0	0.0	0.0
PBH2PO4ION	1.29579E-12	0.0	0.0	0.0
PBION	2.60780E-10	0.0	0.0	0.0
PBNO33ION	2.16545E-11	0.0	0.0	0.0
PBNO3ION	7.83050E-10	0.0	0.0	0.0
PBOHION	8.42942E-13	0.0	0.0	0.0
PO4ION	5.80138E-13	0.0	0.0	0.0
SO4ION	3.54647E-05	0.0	0.0	0.0
SRION	6.24734E-07	0.0	0.0	0.0
SRNO3ION	2.33098E-07	0.0	0.0	0.0
SROHION	3.15478E-15	0.0	0.0	0.0
SRPO4ION	1.26003E-14	0.0	0.0	0.0
UIVCLION	3.30738E-28	0.0	0.0	0.0
UIVION	1.09407E-29	0.0	0.0	0.0
UIVOH2ION	3.36434E-22	0.0	0.0	0.0
UIVOH3ION	5.87378E-18	0.0	0.0	0.0
UIVOH5ION	8.27698E-18	0.0	0.0	0.0
UIVOHION	5.77716E-25	0.0	0.0	0.0
UIVSO4ION	2.30607E-26	0.0	0.0	0.0

ZNCL3ION	3.79711E-06	0.0	0.0	0.0
ZNCLION	1.86856E-06	0.0	0.0	0.0
ZNH2PO4ION	8.30870E-09	0.0	0.0	0.0
ZNHCO3ION	2.45923E-12	0.0	0.0	0.0
ZNION	6.28873E-06	0.0	0.0	0.0
ZNNO3ION	7.85165E-07	0.0	0.0	0.0
ZNOH3ION	2.72040E-18	0.0	0.0	0.0
ZNOH4ION	2.19835E-24	0.0	0.0	0.0
ZNOHION	3.91990E-10	0.0	0.0	0.0
CAHPO4	0.0	9.69680E-05	0.0	0.0
CA3PO42	0.0	4.68829E-05	0.0	0.0
CASO4.2H2O	0.0	5.01787E-04	0.0	0.0
CU3PO42.2H2O	0.0	1.31075E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.54713E-05	0.0	0.0
PB3PO42	0.0	5.68327E-07	0.0	0.0
UIVO2	0.0	2.43698E-06	0.0	0.0
ZN3PO42.2H2O	0.0	3.84553E-06	0.0	0.0
=====				
Total g/hr	0.784022	0.144888	0.0	0.0
Volume, L/hr	6.93695E-04	4.92126E-05	0.0	0.0
Enthalpy, cal/hr	-2683.14	-422.457	0.0	0.0
Density, g/L	1130.21	2944.13		
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	152.378			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.169011			
E-Con, cm2/ohm-mol	30.8339			
Abs Visc, cP	1.3494			
Rel Visc	1.51495			
Ionic Strength	3.67098			

ESP V-6.6

PROCESS:AWE65_3

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STREAM: Condensate
TO :
FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	3.97457			
Total mol/hr	3.432874	2.07641E-05	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	3.43175	0.0	0.0	0.0
CO2	0.00109525	0.0	0.0	0.0
HCL	5.16742E-18	0.0	0.0	0.0
HNO3	1.02948E-13	0.0	0.0	0.0
LAURICACID	1.53742E-05	2.07641E-05	0.0	0.0
OHION	5.98394E-12	0.0	0.0	0.0
CLION	8.32689E-08	0.0	0.0	0.0
CO3ION	2.17907E-12	0.0	0.0	0.0
DODECION	1.78667E-06	0.0	0.0	0.0
HCO3ION	4.74472E-06	0.0	0.0	0.0
HION	6.63439E-06	0.0	0.0	0.0
NO3ION	1.97148E-08	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	61.8761	0.00415953	0.0	0.0
Volume, L/hr	0.0620562	0.0	0.0	0.0
Enthalpy, cal/hr	-2.34546E+05	-3.84414	0.0	0.0
Density, g/L	997.097			
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	0.443444			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	4.24985E-05			
E-Con, cm2/ohm-mol	2.31743			
Abs Visc, cP	0.890776			
Rel Visc	1.00006			
Ionic Strength	1.07312E-04			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	3.82504D+04
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-5.66153D+01
MIX	CONDENSATE MIXER	-3.81935D+04

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.988507

Standard Block Information

Duty, cal/hr 38250.4

	In	Out	Rel. Diff.
Total Mass g/hr	62.8091	62.8091	2.26255E-16
Total Energy cal/hr	-2.37655E+05	-1.99405E+05	0.0

Mix Output

Outlet Temperature, C 102.737
 Outlet Pressure, atm 1.
 Aqueous pH 4.45631
 V/F (molar) 0.988484

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0390664	0.803492	7.52271E-04	-2697.17
Solid	9.28526E-04	0.125418	3.90519E-05	-351.817
Vapor	3.43289	61.8802	105.018	-1.96356E+05
2nd Liq	0.0	0.0	0.0	0.0
Total	3.47289	62.8091	105.018	-1.99405E+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

=====

Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification,atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type	Adiabatic
Duty,cal/hr	0.0

Standard Block Information

Duty, cal/hr	0.0			
		In	Out	Rel. Diff.
Total Mass g/hr		62.8091	62.8091	0.0
Total Energy cal/hr		-1.99405E+05	-1.99405E+05	0.0

Separate Output

Outlet Temperature, C	102.737
Outlet Pressure, atm	1.
Aqueous pH	4.45631
Suspended Solids, g solid/g liq solution	0.156091
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0390664	0.803492	7.52271E-04	-2697.17
Solid	9.28526E-04	0.125418	3.90519E-05	-351.817
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0399949	0.92891	7.91323E-04	-3048.99

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PROCESS:AWE65_3

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	3.43289	61.8802	105.018	-1.96356E+05
2nd Liq	0.0	0.0	0.0	0.0
Total	3.43289	61.8802	105.018	-1.96356E+05

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -56.6153

	In	Out	Rel. Diff.
Total Mass g/hr	0.92891	0.92891	4.78075E-16
Total Energy cal/hr	-3048.99	-3105.6	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 5.71304
 V/F (molar) 0.0

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0378364	0.784022	6.93695E-04	-2683.14
Solid	9.44025E-04	0.144888	4.92126E-05	-422.457
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0387804	0.92891	7.42908E-04	-3105.6

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===== BLOCK REPORT =====

BLOCK NAME: Condensate mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type T, P

Temp, C 25.

Standard Block Information

Duty, cal/hr -38193.5

	In	Out	Rel. Diff.
Total Mass g/hr	61.8802	61.8802	-1.14826E-16
Total Energy cal/hr	-1.96356E+05	-2.34550E+05	0.0

Mix Output

Outlet Temperature, C 25.

Outlet Pressure, atm 1.

Aqueous pH 3.97457

V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	3.43287	61.8761	0.0620562	-2.34546E+05
Solid	2.07641E-05	0.00415953	0.0	-3.84414
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	3.43289	61.8802	0.0620562	-2.34550E+05

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance      Default Tolerance
Specification Value
  Composition,weight fraction  0.7
  Species
  H2O
Controlled block          Mix: Evap mixer
Control Parameter         Vapor Fraction
Control Parameter Minimum  0.49
Control Parameter Maximum  0.99
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations        20.
  Termination at Maximum Iterations
```

```
Specification Phase:      Total
Specification Composition: Solution Species
```

Controller Output

```
-----
Specification Stream      Cooled Bottoms
Controlled Block          Evap mixer
Control Parameter Type:   General Process Variable
Convergence:              Converged
Iterations Completed this Sequence      13.
Total Iterations Completed all Sequences 13.
Last Parameter Value          0.988507
Last DIFF (Computed-Setpoint) -1.07699E-06
Previous Parameter Value      0.9885
Previous DIFF (Computed-Setpoint) 1.35019E-04
Control Parameter Minimum      0.9885
Control Parameter Maximum      0.989338
Control Parameter Stepsize      0.0
Maximum Iterations            0.0
```

Influent Limit Composition 70% Target pH=6.5

6.5-70

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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 September 1, 2002

PROCESS: AWE65_4

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE65_4.LIS

DATE: 12/05/2002

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79130D+06
Total in	1.00000D+03	-3.79130D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	1.14440D+00	-3.80311D+03
CONDENSATE	9.98856D+02	-3.78750D+06
Total out	1.00000D+03	-3.79130D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.17140D+05
EVAP BOTTOMS COOLING MIXER	-6.95779D+01
CONDENSATE MIXER	-6.17069D+05
Total Duty	1.59220D+00

DIFFERENCE	1.13687D-12	3.49246D-10
REL DIFFERENCE	1.13687D-15	-9.21176D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10974D+02	1.10974D+02	7.10543D-14	6.40276D-16
K(+1)	2.65152D-04	2.65152D-04	5.42101D-20	2.04449D-16
NA(+1)	1.80307D-03	1.80307D-03	8.67362D-19	4.81048D-16
BA(+2)	5.83942D-07	5.83942D-07	-2.32934D-21	-3.98900D-15
CA(+2)	8.72818D-04	8.72818D-04	1.08420D-19	1.24219D-16
ZN(+2)	2.90520D-05	2.90520D-05	3.38813D-20	1.16623D-15
CU(+2)	5.19685D-06	5.19685D-06	0.00000D+00	0.00000D+00
FE(+2)	8.60215D-05	8.60215D-05	1.35525D-20	1.57548D-16
MG(+2)	3.29218D-04	3.29218D-04	2.16840D-19	6.58653D-16
PB(+2)	2.99517D-06	2.99517D-06	2.96462D-21	9.89799D-16
AL(+3)	8.88889D-05	8.88889D-05	0.00000D+00	0.00000D+00
NI(+2)	1.29472D-06	1.29472D-06	-2.11758D-22	-1.63555D-16
O(-2)	5.54954D+01	5.54954D+01	4.26326D-14	7.68218D-16
CL(-1)	2.14085D-03	2.14085D-03	8.67362D-19	4.05149D-16
C(+4)	1.20000D-03	1.20000D-03	-8.67362D-19	-7.22801D-16
P(+5)	2.10526D-04	2.10526D-04	0.00000D+00	0.00000D+00
S(+6)	7.39583D-04	7.39583D-04	-1.08420D-19	-1.46596D-16
N(+5)	4.67742D-04	4.67742D-04	-1.62630D-19	-3.47692D-16
SI(+4)	2.00000D-04	2.00000D-04	2.71051D-20	1.35525D-16
SR(+2)	1.71233D-05	1.71233D-05	3.38813D-21	1.97867D-16

CD (+2)	3.57143D-08	3.57143D-08	2.84550D-22	7.96740D-15
CR (+3)	7.88462D-08	7.88462D-08	-2.55433D-21	-3.23964D-14
U (+4)	2.89916D-06	2.89916D-06	0.00000D+00	0.00000D+00

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DODEC(-1)

4.16682D-05 4.16682D-05 2.03288D-20 4.87873D-16

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.98541			
Total mol/hr	55.49506	9.47054E-05	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4867	0.0	0.0	0.0
CO2	8.06975E-04	0.0	0.0	0.0
H2SO4	1.97280E-24	0.0	0.0	0.0
HCL	1.20286E-15	0.0	0.0	0.0
HNO3	2.20308E-11	0.0	0.0	0.0
LAURICACID	3.00189E-06	0.0	0.0	0.0
SO3	2.55365E-28	0.0	0.0	0.0
CAH2SIO4	7.14553E-14	0.0	0.0	0.0
CASO4	1.13831E-05	0.0	0.0	0.0
CDCL2	1.47410E-10	0.0	0.0	0.0
CDOH2	1.23963E-16	0.0	0.0	0.0
CDSO4	3.62194E-09	0.0	0.0	0.0
CROH3	2.14687E-14	0.0	0.0	0.0
CUCL2	9.13852E-13	0.0	0.0	0.0
CUCO3	8.60238E-09	0.0	0.0	0.0
CUNO32	9.21330E-15	0.0	0.0	0.0
CUOH2	7.68326E-10	0.0	0.0	0.0
FEIICL2	1.17817E-15	0.0	0.0	0.0
FEIICO3	1.27640E-07	0.0	0.0	0.0
FEIIHPO4	1.56505E-08	0.0	0.0	0.0
FEIIOH2	1.42690E-13	0.0	0.0	0.0
ALO2H2CL	2.32698E-28	0.0	0.0	0.0
H3PO4	2.42516E-08	0.0	0.0	0.0
H4P2O7	1.04468E-18	0.0	0.0	0.0
ALOH3	2.40116E-09	8.88852E-05	0.0	0.0
BACO3	1.53125E-12	0.0	0.0	0.0
KCL	3.94455E-09	0.0	0.0	0.0
KHSO4	2.28539E-13	0.0	0.0	0.0
BASO4	2.05789E-10	2.66050E-07	0.0	0.0
MGCO3	3.42041E-09	0.0	0.0	0.0
MGH2SIO4	2.55355E-13	0.0	0.0	0.0
MGHPO4	2.66915E-06	0.0	0.0	0.0
MGSO4	7.33513E-06	0.0	0.0	0.0
NAHCO3	2.44060E-07	0.0	0.0	0.0
NAHSIO3	5.54737E-09	0.0	0.0	0.0
NANO3	4.04584E-08	0.0	0.0	0.0
NIOH2	8.13408E-14	0.0	0.0	0.0
NISO4	8.76371E-08	0.0	0.0	0.0
PBCL2	1.85457E-11	0.0	0.0	0.0
PBHPO4	7.96709E-10	0.0	0.0	0.0
PBNO32	1.70679E-13	0.0	0.0	0.0
PBO	4.58409E-13	0.0	0.0	0.0
CACL2	2.16728E-27	0.0	0.0	0.0
SIO2	1.99964E-04	0.0	0.0	0.0

CACO3	2.05025E-08	0.0	0.0	0.0
SRHPO4	2.06588E-09	0.0	0.0	0.0
SRNO32	1.71739E-11	0.0	0.0	0.0
SRSO4	1.11688E-06	0.0	0.0	0.0
UIVOH4	3.02159E-10	0.0	0.0	0.0
UIVSO42	6.86595E-26	0.0	0.0	0.0
ZNCL2	1.35956E-10	0.0	0.0	0.0
ZNHPO4	3.73598E-07	0.0	0.0	0.0
ZNNO32	2.41166E-12	0.0	0.0	0.0
ZNOH2	9.24446E-11	0.0	0.0	0.0
OHION	1.06949E-08	0.0	0.0	0.0
ALION	2.30435E-11	0.0	0.0	0.0
ALOH2ION	4.95944E-10	0.0	0.0	0.0
ALOH4ION	6.35405E-10	0.0	0.0	0.0
ALOHCLION	7.20499E-13	0.0	0.0	0.0
ALOHION	1.44809E-10	0.0	0.0	0.0
ALSO42ION	2.32256E-13	0.0	0.0	0.0
ALSO4ION	5.91730E-12	0.0	0.0	0.0
BAHCO3ION	8.70121E-10	0.0	0.0	0.0
BAION	3.16815E-07	0.0	0.0	0.0
BAOHION	1.32387E-15	0.0	0.0	0.0
CACLION	3.08354E-11	0.0	0.0	0.0
CAH2PO4ION	4.02789E-06	0.0	0.0	0.0
CAHCO3ION	2.60091E-06	0.0	0.0	0.0
CAHSIO3ION	3.32004E-10	0.0	0.0	0.0
CAION	8.54034E-04	0.0	0.0	0.0
CANO3ION	7.39509E-07	0.0	0.0	0.0
CAOHION	1.09563E-10	0.0	0.0	0.0
CAPO4ION	1.15192E-08	0.0	0.0	0.0
CDCL3ION	1.51284E-14	0.0	0.0	0.0
CDCL4ION	2.11142E-17	0.0	0.0	0.0
CDCLION	3.84223E-09	0.0	0.0	0.0
CDION	2.80762E-08	0.0	0.0	0.0
CDNO3ION	2.47169E-11	0.0	0.0	0.0
CDOH3ION	1.82592E-23	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	1.73457E-12	0.0	0.0	0.0
CLION	0.00214076	0.0	0.0	0.0
CO3ION	2.29126E-08	0.0	0.0	0.0
CRIIIICL2ION	7.71459E-20	0.0	0.0	0.0
CRIIIICLION	2.73084E-16	0.0	0.0	0.0
CRIIIH2PO4ION	2.37148E-13	0.0	0.0	0.0
CRIIIHPO4ION	7.87949E-08	0.0	0.0	0.0
CRIIIIION	5.43736E-14	0.0	0.0	0.0
CRIIINO3ION	3.64708E-15	0.0	0.0	0.0
CROH2ION	7.13561E-15	0.0	0.0	0.0
CROH4ION	2.61462E-19	0.0	0.0	0.0
CROHION	3.57966E-12	0.0	0.0	0.0
CRSO4ION	4.72999E-11	0.0	0.0	0.0
CUCL3ION	4.06420E-18	0.0	0.0	0.0
CUCLION	1.11422E-09	0.0	0.0	0.0
CUCO32ION	2.95151E-13	0.0	0.0	0.0
CUION	1.36314E-07	0.0	0.0	0.0
CUNO3ION	1.63168E-10	0.0	0.0	0.0
CUOH3ION	4.37661E-16	0.0	0.0	0.0
CUOH4ION	4.10087E-23	0.0	0.0	0.0
CUOHION	4.76245E-09	0.0	0.0	0.0
DODECION	3.86663E-05	0.0	0.0	0.0

FEIICLION	1.77607E-10	0.0	0.0	0.0
FEIICO32ION	9.55931E-14	0.0	0.0	0.0
FEIIH2PO4ION	3.58109E-08	0.0	0.0	0.0
FEIIHCO3ION	3.42306E-09	0.0	0.0	0.0
FEIIION	8.58186E-05	0.0	0.0	0.0
FEIIOH3ION	5.95172E-18	0.0	0.0	0.0
FEIIOH4ION	7.68374E-27	0.0	0.0	0.0
FEIIOHION	2.01679E-08	0.0	0.0	0.0
H2P2O7ION	1.79120E-10	0.0	0.0	0.0
H2PO4ION	1.81627E-04	0.0	0.0	0.0
H2SIO4ION	3.01419E-15	0.0	0.0	0.0
H3P2O7ION	3.14379E-14	0.0	0.0	0.0
H3SIO4ION	3.03114E-08	0.0	0.0	0.0
HCO3ION	3.86566E-04	0.0	0.0	0.0
HION	1.12730E-06	0.0	0.0	0.0
HP2O7ION	6.72131E-11	0.0	0.0	0.0
HPBO2ION	5.42104E-18	0.0	0.0	0.0
HPO4ION	1.42888E-05	0.0	0.0	0.0
HSO4ION	5.35047E-08	0.0	0.0	0.0
KION	2.64150E-04	0.0	0.0	0.0
KSO4ION	9.98165E-07	0.0	0.0	0.0
MGH2PO4ION	1.91375E-06	0.0	0.0	0.0
MGHCO3ION	3.25864E-06	0.0	0.0	0.0
MGHSIO3ION	2.26790E-10	0.0	0.0	0.0
MGION	3.14031E-04	0.0	0.0	0.0
MGOHION	3.88198E-10	0.0	0.0	0.0
MGP2O7ION	9.37567E-11	0.0	0.0	0.0
MGPO4ION	6.06736E-09	0.0	0.0	0.0
NACO3ION	1.02117E-10	0.0	0.0	0.0
NAION	0.00179531	0.0	0.0	0.0
NASO4ION	7.47156E-06	0.0	0.0	0.0
NICLION	1.81996E-10	0.0	0.0	0.0
NIION	1.20563E-06	0.0	0.0	0.0
NINO3ION	1.14663E-09	0.0	0.0	0.0
NIOH3ION	8.79200E-19	0.0	0.0	0.0
NIOHION	1.25229E-10	0.0	0.0	0.0
NO3ION	4.66904E-04	0.0	0.0	0.0
P2O7ION	6.02459E-14	0.0	0.0	0.0
PBCL3ION	1.94176E-14	0.0	0.0	0.0
PBCL4ION	3.10912E-17	0.0	0.0	0.0
PBCLION	2.84370E-09	0.0	0.0	0.0
PBH2PO4ION	3.63303E-10	0.0	0.0	0.0
PBION	6.86049E-08	0.0	0.0	0.0
PBNO33ION	1.36251E-17	0.0	0.0	0.0
PBNO3ION	4.47883E-10	0.0	0.0	0.0
PBOHION	1.30447E-09	0.0	0.0	0.0
PO4ION	1.02238E-11	0.0	0.0	0.0
SO4ION	7.10867E-04	0.0	0.0	0.0
SRION	1.59747E-05	0.0	0.0	0.0
SRNO3ION	2.96352E-08	0.0	0.0	0.0
SROHION	7.66723E-13	0.0	0.0	0.0
SRPO4ION	2.98812E-12	0.0	0.0	0.0
UIVCLION	3.28898E-30	0.0	0.0	0.0
UIVION	6.07933E-29	0.0	0.0	0.0
UIVOH2ION	5.54752E-20	0.0	0.0	0.0
UIVOH3ION	3.83659E-15	0.0	0.0	0.0
UIVOH5ION	1.66340E-14	0.0	0.0	0.0
UIVOHION	1.32530E-23	0.0	0.0	0.0

UIVSO4ION	2.66369E-26	0.0	0.0	0.0
ZNCL3ION	9.89181E-14	0.0	0.0	0.0
ZNCLION	6.75359E-08	0.0	0.0	0.0
ZNH2PO4ION	1.39165E-07	0.0	0.0	0.0
ZNHCO3ION	1.68022E-07	0.0	0.0	0.0
ZNION	2.82510E-05	0.0	0.0	0.0
ZNNO3ION	2.68286E-08	0.0	0.0	0.0
ZNOH3ION	9.62657E-16	0.0	0.0	0.0
ZNOH4ION	1.56328E-22	0.0	0.0	0.0
ZNOHION	2.55842E-08	0.0	0.0	0.0
CU3PO42.2H2O	0.0	1.68171E-06	0.0	0.0
PB3PO42	0.0	9.73596E-07	0.0	0.0
UIVO2	0.0	2.89886E-06	0.0	0.0
=====				
Total g/hr	999.991	0.00926896	0.0	0.0
Volume, L/hr	1.00286	3.03733E-06	0.0	0.0
Enthalpy, cal/hr	-3.79128E+06	-28.8574	0.0	0.0
Density, g/L	997.135	3051.68		
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	0.223532			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	5.34981E-04			
E-Con, cm2/ohm-mol	127.468			
Abs Visc, cP	0.892176			
Rel Visc	1.00164			
Ionic Strength	0.00670117			

ESP V-6.6

PROCESS:AWE65_4

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.062	103.062	103.062	103.062
Pressure, atm	1.	1.	1.	1.
pH	4.65196			
Total mol/hr	0.0506356	0.00108315	55.4426	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0458279	0.0	55.44136	0.0
CO2	1.27929E-10	0.0	0.001200001	0.0
H2SO4	6.05781E-24	0.0	6.72785E-21	0.0
HCL	7.98029E-13	0.0	9.42925E-07	0.0
HNO3	6.83897E-10	0.0	1.81565E-07	0.0
LAURICACID	6.42487E-10	0.0	4.16600E-05	0.0
SO3	4.34119E-27	0.0	1.76649E-26	0.0
CAH2SIO4	3.78335E-16	0.0	0.0	0.0
CASO4	4.67951E-07	6.97740E-04	0.0	0.0
CDCL2	1.47042E-08	0.0	0.0	0.0
CDOH2	1.43310E-19	0.0	0.0	0.0
CDSO4	4.71165E-13	0.0	0.0	0.0
CROH3	9.53469E-20	0.0	0.0	0.0
CUCL2	3.89014E-09	0.0	0.0	0.0
CUCO3	1.12283E-17	0.0	0.0	0.0
CUNO32	2.07857E-11	0.0	0.0	0.0
CUOH2	9.48532E-13	0.0	0.0	0.0
FEIICL2	3.11910E-09	0.0	0.0	0.0
FEIICO3	1.58516E-14	0.0	0.0	0.0
FEIIHPO4	6.99211E-10	0.0	0.0	0.0
FEIIOH2	4.23290E-13	0.0	0.0	0.0
ALO2H2CL	2.86510E-27	0.0	0.0	0.0
H3PO4	1.58531E-09	0.0	0.0	0.0
H4P2O7	7.75501E-17	0.0	0.0	0.0
ALOH3	2.68709E-11	0.0	0.0	0.0
BACO3	9.91860E-21	0.0	0.0	0.0
KCL	5.61457E-06	0.0	0.0	0.0
KHSO4	9.80545E-11	0.0	0.0	0.0
BASO4	8.46119E-13	5.79798E-07	0.0	0.0
MGCO3	1.87813E-15	0.0	0.0	0.0
MGH2SIO4	3.65383E-14	0.0	0.0	0.0
MGHPO4	3.67422E-07	0.0	0.0	0.0
MGSO4	3.40068E-06	0.0	0.0	0.0
NAHCO3	4.82023E-12	0.0	0.0	0.0
NAHSIO3	2.72575E-09	0.0	0.0	0.0
NANO3	9.27790E-05	0.0	0.0	0.0
NIOH2	5.82882E-15	0.0	0.0	0.0
NISO4	5.23187E-08	0.0	0.0	0.0
PBCL2	1.09501E-07	0.0	0.0	0.0
PBHPO4	5.99252E-13	0.0	0.0	0.0
PBNO32	2.49669E-09	0.0	0.0	0.0
PBO	3.17959E-15	0.0	0.0	0.0
CACL2	9.56559E-15	0.0	0.0	0.0
SIO2	3.56801E-06	1.85045E-04	0.0	0.0

CACO3	5.85043E-16	0.0	0.0	0.0
SRHPO4	6.53011E-12	0.0	0.0	0.0
SRNO32	1.81935E-07	0.0	0.0	0.0
SRSO4	8.01427E-09	1.58791E-05	0.0	0.0
UIVOH4	1.00715E-12	0.0	0.0	0.0
UIVSO42	1.40369E-24	0.0	0.0	0.0
ZNCL2	6.22526E-06	0.0	0.0	0.0
ZNHPO4	1.06882E-10	0.0	0.0	0.0
ZNNO32	2.04894E-09	0.0	0.0	0.0
ZNOH2	2.15822E-13	0.0	0.0	0.0
OHION	3.37734E-11	0.0	0.0	0.0
ALION	1.46646E-13	0.0	0.0	0.0
ALOH2ION	8.34095E-12	0.0	0.0	0.0
ALOH4ION	1.19513E-11	0.0	0.0	0.0
ALOHCLION	9.58136E-12	0.0	0.0	0.0
ALOHION	2.25974E-12	0.0	0.0	0.0
ALSO42ION	1.05655E-14	0.0	0.0	0.0
ALSO4ION	1.25238E-13	0.0	0.0	0.0
BAHCO3ION	3.96165E-16	0.0	0.0	0.0
BAION	4.14107E-09	0.0	0.0	0.0
BAOHION	9.01766E-17	0.0	0.0	0.0
CACLION	1.73079E-07	0.0	0.0	0.0
CAH2PO4ION	7.51666E-07	0.0	0.0	0.0
CAHCO3ION	7.36762E-13	0.0	0.0	0.0
CAHSIO3ION	9.09607E-11	0.0	0.0	0.0
CAION	4.23469E-05	0.0	0.0	0.0
CANO3ION	2.11073E-05	0.0	0.0	0.0
CAOHION	1.81393E-11	0.0	0.0	0.0
CAPO4ION	1.29262E-11	0.0	0.0	0.0
CDCL3ION	1.55417E-08	0.0	0.0	0.0
CDCL4ION	4.71238E-09	0.0	0.0	0.0
CDCLION	7.38681E-10	0.0	0.0	0.0
CDION	1.32499E-11	0.0	0.0	0.0
CDNO3ION	3.59272E-12	0.0	0.0	0.0
CDOH3ION	5.58545E-26	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	7.06543E-16	0.0	0.0	0.0
CLION	0.00206795	0.0	0.0	0.0
CO3ION	2.14167E-16	0.0	0.0	0.0
CRIIIICL2ION	2.46095E-16	0.0	0.0	0.0
CRIIIICLION	3.77128E-16	0.0	0.0	0.0
CRIIIH2PO4ION	8.24052E-17	0.0	0.0	0.0
CRIIIHPO4ION	7.88455E-08	0.0	0.0	0.0
CRIIIIION	7.80907E-20	0.0	0.0	0.0
CRIIINO3ION	7.83402E-14	0.0	0.0	0.0
CROH2ION	7.32285E-19	0.0	0.0	0.0
CROH4ION	5.76485E-25	0.0	0.0	0.0
CROHION	1.72667E-13	0.0	0.0	0.0
CRSO4ION	4.12767E-13	0.0	0.0	0.0
CUCL3ION	7.06815E-11	0.0	0.0	0.0
CUCLION	2.14575E-08	0.0	0.0	0.0
CUCO32ION	1.64726E-26	0.0	0.0	0.0
CUION	5.69521E-09	0.0	0.0	0.0
CUNO3ION	9.49118E-10	0.0	0.0	0.0
CUOH3ION	2.33622E-18	0.0	0.0	0.0
CUOH4ION	1.23389E-23	0.0	0.0	0.0
CUOHION	3.38098E-11	0.0	0.0	0.0
DODECION	7.61333E-09	0.0	0.0	0.0

FEIICLION	5.75607E-07	0.0	0.0	0.0
FEIICO32ION	6.86652E-25	0.0	0.0	0.0
FEIIH2PO4ION	3.50224E-08	0.0	0.0	0.0
FEIIHCO3ION	1.97544E-14	0.0	0.0	0.0
FEIIION	6.26309E-05	0.0	0.0	0.0
FEIIOH3ION	1.75691E-17	0.0	0.0	0.0
FEIIOH4ION	1.22128E-24	0.0	0.0	0.0
FEIIOHION	1.40936E-08	0.0	0.0	0.0
H2P2O7ION	1.85294E-10	0.0	0.0	0.0
H2PO4ION	6.39609E-07	0.0	0.0	0.0
H2SIO4ION	3.74652E-17	0.0	0.0	0.0
H3P2O7ION	9.81105E-14	0.0	0.0	0.0
H3SIO4ION	9.97641E-10	0.0	0.0	0.0
HCO3ION	3.57887E-12	0.0	0.0	0.0
HION	2.35475E-08	0.0	0.0	0.0
HP2O7ION	1.18377E-11	0.0	0.0	0.0
HPBO2ION	8.22660E-20	0.0	0.0	0.0
HPO4ION	1.53633E-08	0.0	0.0	0.0
HSO4ION	2.04036E-08	0.0	0.0	0.0
KION	2.55986E-04	0.0	0.0	0.0
KSO4ION	3.55144E-06	0.0	0.0	0.0
MGH2PO4ION	1.63368E-06	0.0	0.0	0.0
MGHCO3ION	9.16345E-12	0.0	0.0	0.0
MGHSIO3ION	1.15153E-09	0.0	0.0	0.0
MGION	1.28707E-04	0.0	0.0	0.0
MGOHION	9.70254E-10	0.0	0.0	0.0
MGP2O7ION	6.31406E-10	0.0	0.0	0.0
MGPO4ION	8.74582E-11	0.0	0.0	0.0
NACO3ION	3.07702E-17	0.0	0.0	0.0
NAION	0.00171029	0.0	0.0	0.0
NASO4ION	1.53980E-14	0.0	0.0	0.0
NICLION	9.07648E-08	0.0	0.0	0.0
NIION	1.00975E-06	0.0	0.0	0.0
NINO3ION	1.41821E-07	0.0	0.0	0.0
NIOH3ION	3.54707E-20	0.0	0.0	0.0
NIOHION	6.26804E-11	0.0	0.0	0.0
NO3ION	3.52412E-04	0.0	0.0	0.0
P2O7ION	4.79769E-15	0.0	0.0	0.0
PBCL3ION	2.96895E-07	0.0	0.0	0.0
PBCL4ION	2.55122E-06	0.0	0.0	0.0
PBCLION	2.71145E-08	0.0	0.0	0.0
PBH2PO4ION	1.46667E-11	0.0	0.0	0.0
PBION	7.00391E-10	0.0	0.0	0.0
PBNO33ION	9.40299E-11	0.0	0.0	0.0
PBNO3ION	7.09682E-09	0.0	0.0	0.0
PBOHION	3.35037E-11	0.0	0.0	0.0
PO4ION	7.24830E-15	0.0	0.0	0.0
SO4ION	1.78806E-05	0.0	0.0	0.0
SRION	3.87563E-07	0.0	0.0	0.0
SRNO3ION	6.66616E-07	0.0	0.0	0.0
SROHION	1.36533E-13	0.0	0.0	0.0
SRPO4ION	3.02899E-15	0.0	0.0	0.0
UIVCLION	1.43788E-26	0.0	0.0	0.0
UIVION	1.73756E-28	0.0	0.0	0.0
UIVOH2ION	1.02176E-20	0.0	0.0	0.0
UIVOH3ION	6.99798E-18	0.0	0.0	0.0
UIVOH5ION	2.31096E-17	0.0	0.0	0.0
UIVOHION	8.00951E-23	0.0	0.0	0.0

UIVSO4ION	2.13175E-24	0.0	0.0	0.0
ZNCL3ION	9.77488E-06	0.0	0.0	0.0
ZNCLION	1.22533E-05	0.0	0.0	0.0
ZNH2PO4ION	1.27276E-09	0.0	0.0	0.0
ZNHCO3ION	5.98731E-15	0.0	0.0	0.0
ZNION	7.11093E-07	0.0	0.0	0.0
ZNNO3ION	7.18328E-08	0.0	0.0	0.0
ZNOH3ION	2.23997E-17	0.0	0.0	0.0
ZNOH4ION	4.17472E-23	0.0	0.0	0.0
ZNOHION	1.21783E-08	0.0	0.0	0.0
ALOOH	0.0	6.61265E-05	0.0	0.0
CA3PO42	0.0	3.67425E-05	0.0	0.0
CHAMOSITE7A	0.0	1.13810E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.72157E-06	0.0	0.0
MG3PO42	0.0	6.50351E-05	0.0	0.0
UIVO2	0.0	2.89915E-06	0.0	0.0
=====				
Total g/hr	0.997387	0.147011	998.856	0.0
Volume, L/hr	9.30591E-04	4.28148E-05	1697.57	0.0
Enthalpy, cal/hr	-3327.52	-406.02	-3.17043E+06	0.0
Density, g/L	1071.78	3433.64	0.588402	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	175.295			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.457163			
E-Con, cm2/ohm-mol	54.0155			
Abs Visc, cP	0.388136			
Rel Visc	1.42291			
Ionic Strength	3.3089			

ESP V-6.6

PROCESS:AWE65_4

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.062	103.062	103.062	103.062
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4426	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.44136	0.0
CO2	0.0	0.0	0.001200001	0.0
H2SO4	0.0	0.0	6.72785E-21	0.0
HCL	0.0	0.0	9.42925E-07	0.0
HNO3	0.0	0.0	1.81565E-07	0.0
LAURICACID	0.0	0.0	4.16600E-05	0.0
SO3	0.0	0.0	1.76649E-26	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	998.856	0.0
Volume, L/hr	0.0	0.0	1697.57	0.0
Enthalpy, cal/hr	0.0	0.0	-3.17043E+06	0.0
Density, g/L			0.588402	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE65_4

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STREAM: Bottoms
TO : Evap Bottoms Cooling mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.062	103.062	103.062	103.062
Pressure, atm	1.	1.	1.	1.
pH	4.65196			
Total mol/hr	0.0506356	0.00108315	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0458279	0.0	0.0	0.0
CO2	1.27929E-10	0.0	0.0	0.0
H2SO4	6.05781E-24	0.0	0.0	0.0
HCL	7.98029E-13	0.0	0.0	0.0
HNO3	6.83897E-10	0.0	0.0	0.0
LAURICACID	6.42487E-10	0.0	0.0	0.0
SO3	4.34119E-27	0.0	0.0	0.0
CAH2SIO4	3.78335E-16	0.0	0.0	0.0
CASO4	4.67951E-07	6.97740E-04	0.0	0.0
CDCL2	1.47042E-08	0.0	0.0	0.0
CDOH2	1.43310E-19	0.0	0.0	0.0
CDSO4	4.71165E-13	0.0	0.0	0.0
CROH3	9.53469E-20	0.0	0.0	0.0
CUCL2	3.89014E-09	0.0	0.0	0.0
CUCO3	1.12283E-17	0.0	0.0	0.0
CUNO32	2.07857E-11	0.0	0.0	0.0
CUOH2	9.48532E-13	0.0	0.0	0.0
FEIICL2	3.11910E-09	0.0	0.0	0.0
FEIICO3	1.58516E-14	0.0	0.0	0.0
FEIIHPO4	6.99211E-10	0.0	0.0	0.0
FEIIOH2	4.23290E-13	0.0	0.0	0.0
ALO2H2CL	2.86510E-27	0.0	0.0	0.0
H3PO4	1.58531E-09	0.0	0.0	0.0
H4P2O7	7.75501E-17	0.0	0.0	0.0
ALOH3	2.68709E-11	0.0	0.0	0.0
BACO3	9.91860E-21	0.0	0.0	0.0
KCL	5.61457E-06	0.0	0.0	0.0
KHSO4	9.80545E-11	0.0	0.0	0.0
BASO4	8.46119E-13	5.79798E-07	0.0	0.0
MGCO3	1.87813E-15	0.0	0.0	0.0
MGH2SIO4	3.65383E-14	0.0	0.0	0.0
MGHPO4	3.67422E-07	0.0	0.0	0.0
MGSO4	3.40068E-06	0.0	0.0	0.0
NAHCO3	4.82023E-12	0.0	0.0	0.0
NAHSIO3	2.72575E-09	0.0	0.0	0.0
NANO3	9.27790E-05	0.0	0.0	0.0
NIOH2	5.82882E-15	0.0	0.0	0.0
NISO4	5.23187E-08	0.0	0.0	0.0
PBCL2	1.09501E-07	0.0	0.0	0.0
PBHPO4	5.99252E-13	0.0	0.0	0.0
PBNO32	2.49669E-09	0.0	0.0	0.0
PBO	3.17959E-15	0.0	0.0	0.0
CACL2	9.56559E-15	0.0	0.0	0.0
SIO2	3.56801E-06	1.85045E-04	0.0	0.0

CACO3	5.85043E-16	0.0	0.0	0.0
SRHPO4	6.53011E-12	0.0	0.0	0.0
SRNO32	1.81935E-07	0.0	0.0	0.0
SRSO4	8.01427E-09	1.58791E-05	0.0	0.0
UIVOH4	1.00715E-12	0.0	0.0	0.0
UIVSO42	1.40369E-24	0.0	0.0	0.0
ZNCL2	6.22526E-06	0.0	0.0	0.0
ZNHPO4	1.06882E-10	0.0	0.0	0.0
ZNNO32	2.04894E-09	0.0	0.0	0.0
ZNOH2	2.15822E-13	0.0	0.0	0.0
OHION	3.37734E-11	0.0	0.0	0.0
ALION	1.46646E-13	0.0	0.0	0.0
ALOH2ION	8.34095E-12	0.0	0.0	0.0
ALOH4ION	1.19513E-11	0.0	0.0	0.0
ALOHCLION	9.58136E-12	0.0	0.0	0.0
ALOHION	2.25974E-12	0.0	0.0	0.0
ALSO42ION	1.05655E-14	0.0	0.0	0.0
ALSO4ION	1.25238E-13	0.0	0.0	0.0
BAHCO3ION	3.96165E-16	0.0	0.0	0.0
BAION	4.14107E-09	0.0	0.0	0.0
BAOHION	9.01766E-17	0.0	0.0	0.0
CACLION	1.73079E-07	0.0	0.0	0.0
CAH2PO4ION	7.51666E-07	0.0	0.0	0.0
CAHCO3ION	7.36762E-13	0.0	0.0	0.0
CAHSIO3ION	9.09607E-11	0.0	0.0	0.0
CAION	4.23469E-05	0.0	0.0	0.0
CANO3ION	2.11073E-05	0.0	0.0	0.0
CAOHION	1.81393E-11	0.0	0.0	0.0
CAPO4ION	1.29262E-11	0.0	0.0	0.0
CDCL3ION	1.55417E-08	0.0	0.0	0.0
CDCL4ION	4.71238E-09	0.0	0.0	0.0
CDCLION	7.38681E-10	0.0	0.0	0.0
CDION	1.32499E-11	0.0	0.0	0.0
CDNO3ION	3.59272E-12	0.0	0.0	0.0
CDOH3ION	5.58545E-26	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	7.06543E-16	0.0	0.0	0.0
CLION	0.00206795	0.0	0.0	0.0
CO3ION	2.14167E-16	0.0	0.0	0.0
CRIIIICL2ION	2.46095E-16	0.0	0.0	0.0
CRIIIICLION	3.77128E-16	0.0	0.0	0.0
CRIIIH2PO4ION	8.24052E-17	0.0	0.0	0.0
CRIIIHPO4ION	7.88455E-08	0.0	0.0	0.0
CRIIIIION	7.80907E-20	0.0	0.0	0.0
CRIIINO3ION	7.83402E-14	0.0	0.0	0.0
CROH2ION	7.32285E-19	0.0	0.0	0.0
CROH4ION	5.76485E-25	0.0	0.0	0.0
CROHION	1.72667E-13	0.0	0.0	0.0
CRSO4ION	4.12767E-13	0.0	0.0	0.0
CUCL3ION	7.06815E-11	0.0	0.0	0.0
CUCLION	2.14575E-08	0.0	0.0	0.0
CUCO32ION	1.64726E-26	0.0	0.0	0.0
CUION	5.69521E-09	0.0	0.0	0.0
CUNO3ION	9.49118E-10	0.0	0.0	0.0
CUOH3ION	2.33622E-18	0.0	0.0	0.0
CUOH4ION	1.23389E-23	0.0	0.0	0.0
CUOHION	3.38098E-11	0.0	0.0	0.0
DODECION	7.61333E-09	0.0	0.0	0.0

FEIICLION	5.75607E-07	0.0	0.0	0.0
FEIICO32ION	6.86652E-25	0.0	0.0	0.0
FEIIH2PO4ION	3.50224E-08	0.0	0.0	0.0
FEIIHCO3ION	1.97544E-14	0.0	0.0	0.0
FEIIION	6.26309E-05	0.0	0.0	0.0
FEIIOH3ION	1.75691E-17	0.0	0.0	0.0
FEIIOH4ION	1.22128E-24	0.0	0.0	0.0
FEIIOHION	1.40936E-08	0.0	0.0	0.0
H2P2O7ION	1.85294E-10	0.0	0.0	0.0
H2PO4ION	6.39609E-07	0.0	0.0	0.0
H2SIO4ION	3.74652E-17	0.0	0.0	0.0
H3P2O7ION	9.81105E-14	0.0	0.0	0.0
H3SIO4ION	9.97641E-10	0.0	0.0	0.0
HCO3ION	3.57887E-12	0.0	0.0	0.0
HION	2.35475E-08	0.0	0.0	0.0
HP2O7ION	1.18377E-11	0.0	0.0	0.0
HPBO2ION	8.22660E-20	0.0	0.0	0.0
HPO4ION	1.53633E-08	0.0	0.0	0.0
HSO4ION	2.04036E-08	0.0	0.0	0.0
KION	2.55986E-04	0.0	0.0	0.0
KSO4ION	3.55144E-06	0.0	0.0	0.0
MGH2PO4ION	1.63368E-06	0.0	0.0	0.0
MGHCO3ION	9.16345E-12	0.0	0.0	0.0
MGHSIO3ION	1.15153E-09	0.0	0.0	0.0
MGION	1.28707E-04	0.0	0.0	0.0
MGOHION	9.70254E-10	0.0	0.0	0.0
MGP2O7ION	6.31406E-10	0.0	0.0	0.0
MGPO4ION	8.74582E-11	0.0	0.0	0.0
NACO3ION	3.07702E-17	0.0	0.0	0.0
NAION	0.00171029	0.0	0.0	0.0
NASO4ION	1.53980E-14	0.0	0.0	0.0
NICLION	9.07648E-08	0.0	0.0	0.0
NIION	1.00975E-06	0.0	0.0	0.0
NINO3ION	1.41821E-07	0.0	0.0	0.0
NIOH3ION	3.54707E-20	0.0	0.0	0.0
NIOHION	6.26804E-11	0.0	0.0	0.0
NO3ION	3.52412E-04	0.0	0.0	0.0
P2O7ION	4.79769E-15	0.0	0.0	0.0
PBCL3ION	2.96895E-07	0.0	0.0	0.0
PBCL4ION	2.55122E-06	0.0	0.0	0.0
PBCLION	2.71145E-08	0.0	0.0	0.0
PBH2PO4ION	1.46667E-11	0.0	0.0	0.0
PBION	7.00391E-10	0.0	0.0	0.0
PBNO33ION	9.40299E-11	0.0	0.0	0.0
PBNO3ION	7.09682E-09	0.0	0.0	0.0
PBOHION	3.35037E-11	0.0	0.0	0.0
PO4ION	7.24830E-15	0.0	0.0	0.0
SO4ION	1.78806E-05	0.0	0.0	0.0
SRION	3.87563E-07	0.0	0.0	0.0
SRNO3ION	6.66616E-07	0.0	0.0	0.0
SROHION	1.36533E-13	0.0	0.0	0.0
SRPO4ION	3.02899E-15	0.0	0.0	0.0
UIVCLION	1.43788E-26	0.0	0.0	0.0
UIVION	1.73756E-28	0.0	0.0	0.0
UIVOH2ION	1.02176E-20	0.0	0.0	0.0
UIVOH3ION	6.99798E-18	0.0	0.0	0.0
UIVOH5ION	2.31096E-17	0.0	0.0	0.0
UIVOHION	8.00951E-23	0.0	0.0	0.0

UIVSO4ION	2.13175E-24	0.0	0.0	0.0
ZNCL3ION	9.77488E-06	0.0	0.0	0.0
ZNCLION	1.22533E-05	0.0	0.0	0.0
ZNH2PO4ION	1.27276E-09	0.0	0.0	0.0
ZNHCO3ION	5.98731E-15	0.0	0.0	0.0
ZNION	7.11093E-07	0.0	0.0	0.0
ZNNO3ION	7.18328E-08	0.0	0.0	0.0
ZNOH3ION	2.23997E-17	0.0	0.0	0.0
ZNOH4ION	4.17472E-23	0.0	0.0	0.0
ZNOHION	1.21783E-08	0.0	0.0	0.0
ALOOH	0.0	6.61265E-05	0.0	0.0
CA3PO42	0.0	3.67425E-05	0.0	0.0
CHAMOSITE7A	0.0	1.13810E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.72157E-06	0.0	0.0
MG3PO42	0.0	6.50351E-05	0.0	0.0
UIVO2	0.0	2.89915E-06	0.0	0.0
=====				
Total g/hr	0.997387	0.147011	0.0	0.0
Volume, L/hr	9.30591E-04	4.28148E-05	0.0	0.0
Enthalpy, cal/hr	-3327.52	-406.02	0.0	0.0
Density, g/L	1071.78	3433.64		
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	175.295			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.457163			
E-Con, cm2/ohm-mol	54.0155			
Abs Visc, cP	0.388136			
Rel Visc	1.42291			
Ionic Strength	3.3089			

STREAM: Cooled Bottoms
 TO :
 FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.10221			
Total mol/hr	0.04956092	9.73874E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0444664	0.0	0.0	0.0
CO2	9.21259E-12	0.0	0.0	0.0
H2SO4	4.41235E-27	0.0	0.0	0.0
HCL	4.83624E-16	0.0	0.0	0.0
HNO3	4.88795E-12	0.0	0.0	0.0
LAURICACID	1.27371E-10	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	5.81328E-15	0.0	0.0	0.0
CASO4	6.56413E-07	0.0	0.0	0.0
CDCL2	4.33096E-09	0.0	0.0	0.0
CDOH2	3.16343E-21	0.0	0.0	0.0
CDSO4	6.23777E-13	0.0	0.0	0.0
CROH3	1.23629E-14	0.0	0.0	0.0
CUCL2	6.86842E-10	0.0	0.0	0.0
CUCO3	1.71019E-16	0.0	0.0	0.0
CUNO32	3.20640E-12	0.0	0.0	0.0
CUOH2	5.01571E-13	0.0	0.0	0.0
FEIICL2	1.09263E-10	0.0	0.0	0.0
FEIICO3	3.13108E-13	0.0	0.0	0.0
FEIIHPO4	6.59118E-10	0.0	0.0	0.0
FEIIOH2	1.14938E-14	0.0	0.0	0.0
ALO2H2CL	1.05784E-28	0.0	0.0	0.0
H3PO4	4.20212E-12	0.0	0.0	0.0
H4P2O7	8.37031E-23	0.0	0.0	0.0
ALOH3	1.01730E-12	6.70309E-05	0.0	0.0
BACO3	2.92747E-21	0.0	0.0	0.0
KCL	1.28154E-06	0.0	0.0	0.0
KHSO4	4.13034E-13	0.0	0.0	0.0
BASO4	8.71871E-14	5.82950E-07	0.0	0.0
MGCO3	6.08844E-14	0.0	0.0	0.0
MGH2SIO4	1.42111E-12	0.0	0.0	0.0
MGHPO4	8.15694E-07	0.0	0.0	0.0
MGSO4	2.89348E-05	0.0	0.0	0.0
NAHCO3	2.98374E-12	0.0	0.0	0.0
NAHSIO3	2.39739E-08	0.0	0.0	0.0
NANO3	2.94681E-05	0.0	0.0	0.0
NIOH2	7.78428E-15	0.0	0.0	0.0
NISO4	5.66005E-08	0.0	0.0	0.0
PBCL2	1.28431E-08	0.0	0.0	0.0
PBHPO4	2.50550E-13	0.0	0.0	0.0
PBNO32	5.47303E-11	0.0	0.0	0.0
PBO	3.11758E-16	0.0	0.0	0.0
CACL2	2.13207E-23	0.0	0.0	0.0
SIO2	9.28733E-07	1.88114E-04	0.0	0.0

CACO3	5.33504E-15	0.0	0.0	0.0
SRHPO4	2.61779E-12	0.0	0.0	0.0
SRNO32	2.21896E-08	0.0	0.0	0.0
SRSO4	1.82681E-08	1.62586E-05	0.0	0.0
UIVOH4	1.00138E-13	0.0	0.0	0.0
UIVSO42	1.03636E-27	0.0	0.0	0.0
ZNCL2	1.59121E-06	0.0	0.0	0.0
ZNHPO4	1.98565E-09	0.0	0.0	0.0
ZNNO32	1.30697E-08	0.0	0.0	0.0
ZNOH2	9.39756E-13	0.0	0.0	0.0
OHION	1.07930E-11	0.0	0.0	0.0
ALION	3.34198E-14	0.0	0.0	0.0
ALOH2ION	4.34808E-13	0.0	0.0	0.0
ALOH4ION	9.82520E-13	0.0	0.0	0.0
ALOHCLION	1.07148E-12	0.0	0.0	0.0
ALOHION	1.37992E-13	0.0	0.0	0.0
ALSO42ION	1.87575E-14	0.0	0.0	0.0
ALSO4ION	5.52756E-14	0.0	0.0	0.0
BAHCO3ION	4.81370E-18	0.0	0.0	0.0
BAION	9.91162E-10	0.0	0.0	0.0
BAOHION	1.72018E-19	0.0	0.0	0.0
CACLION	1.40432E-10	0.0	0.0	0.0
CAH2PO4ION	5.20651E-08	0.0	0.0	0.0
CAHCO3ION	1.65001E-12	0.0	0.0	0.0
CAHSIO3ION	8.83595E-11	0.0	0.0	0.0
CAION	2.92485E-05	0.0	0.0	0.0
CANO3ION	1.39912E-05	0.0	0.0	0.0
CAOHION	1.94063E-12	0.0	0.0	0.0
CAPO4ION	2.48834E-10	0.0	0.0	0.0
CDCL3ION	2.08986E-09	0.0	0.0	0.0
CDCL4ION	2.90475E-08	0.0	0.0	0.0
CDCLION	2.35214E-10	0.0	0.0	0.0
CDION	8.73990E-12	0.0	0.0	0.0
CDNO3ION	1.39628E-12	0.0	0.0	0.0
CDOH3ION	2.04180E-27	0.0	0.0	0.0
CDOHION	9.17531E-17	0.0	0.0	0.0
CLION	0.00211753	0.0	0.0	0.0
CO3ION	1.05138E-14	0.0	0.0	0.0
CRIIIICL2ION	1.67319E-13	0.0	0.0	0.0
CRIIIICLION	8.31272E-14	0.0	0.0	0.0
CRIIIH2PO4ION	1.43168E-12	0.0	0.0	0.0
CRIIIHPO4ION	7.76109E-08	0.0	0.0	0.0
CRIIIIION	4.23905E-17	0.0	0.0	0.0
CRIIINO3ION	2.38622E-11	0.0	0.0	0.0
CROH2ION	8.51468E-15	0.0	0.0	0.0
CROH4ION	6.59756E-19	0.0	0.0	0.0
CROHION	6.21146E-10	0.0	0.0	0.0
CRSO4ION	5.88567E-10	0.0	0.0	0.0
CUCL3ION	1.43621E-11	0.0	0.0	0.0
CUCLION	1.74490E-09	0.0	0.0	0.0
CUCO32ION	7.26516E-24	0.0	0.0	0.0
CUION	1.43263E-09	0.0	0.0	0.0
CUNO3ION	2.59404E-10	0.0	0.0	0.0
CUOH3ION	1.19580E-18	0.0	0.0	0.0
CUOH4ION	1.08843E-24	0.0	0.0	0.0
CUOHION	6.44320E-12	0.0	0.0	0.0
DODECION	8.12844E-09	0.0	0.0	0.0
FEIICLION	3.43197E-08	0.0	0.0	0.0

FEIICO32ION	2.86284E-22	0.0	0.0	0.0
FEIIH2PO4ION	4.36376E-09	0.0	0.0	0.0
FEIIHCO3ION	1.66038E-14	0.0	0.0	0.0
FEIIION	2.03722E-05	0.0	0.0	0.0
FEIIOH3ION	1.54525E-18	0.0	0.0	0.0
FEIIOH4ION	2.48680E-26	0.0	0.0	0.0
FEIIOHION	3.36708E-09	0.0	0.0	0.0
H2P2O7ION	6.07062E-13	0.0	0.0	0.0
H2PO4ION	1.46630E-07	0.0	0.0	0.0
H2SIO4ION	4.05681E-16	0.0	0.0	0.0
H3P2O7ION	6.34856E-18	0.0	0.0	0.0
H3SIO4ION	2.59215E-10	0.0	0.0	0.0
HCO3ION	1.71260E-11	0.0	0.0	0.0
HION	5.43401E-10	0.0	0.0	0.0
HP2O7ION	1.98726E-12	0.0	0.0	0.0
HPBO2ION	1.17412E-20	0.0	0.0	0.0
HPO4ION	1.37464E-07	0.0	0.0	0.0
HSO4ION	3.02567E-10	0.0	0.0	0.0
KION	2.55338E-04	0.0	0.0	0.0
KSO4ION	8.53211E-06	0.0	0.0	0.0
MGH2PO4ION	1.69219E-06	0.0	0.0	0.0
MGHCO3ION	1.14739E-10	0.0	0.0	0.0
MGHSIO3ION	4.12887E-09	0.0	0.0	0.0
MGION	2.97763E-04	0.0	0.0	0.0
MGOHION	4.70290E-10	0.0	0.0	0.0
MGP2O7ION	6.88864E-10	0.0	0.0	0.0
MGPO4ION	7.04726E-09	0.0	0.0	0.0
NACO3ION	4.51777E-15	0.0	0.0	0.0
NAION	0.00174777	0.0	0.0	0.0
NASO4ION	2.58091E-05	0.0	0.0	0.0
NICLION	4.17817E-08	0.0	0.0	0.0
NIION	9.53400E-07	0.0	0.0	0.0
NINO3ION	2.42911E-07	0.0	0.0	0.0
NIOH3ION	3.68380E-19	0.0	0.0	0.0
NIOHION	2.48334E-11	0.0	0.0	0.0
NO3ION	4.23011E-04	0.0	0.0	0.0
P2O7ION	1.45463E-13	0.0	0.0	0.0
PBCL3ION	4.59495E-08	0.0	0.0	0.0
PBCL4ION	1.00273E-06	0.0	0.0	0.0
PBCLION	4.09665E-09	0.0	0.0	0.0
PBH2PO4ION	3.30580E-13	0.0	0.0	0.0
PBION	2.07394E-10	0.0	0.0	0.0
PBNO33ION	1.39785E-11	0.0	0.0	0.0
PBNO3ION	5.96365E-10	0.0	0.0	0.0
PBOHION	1.62495E-12	0.0	0.0	0.0
PO4ION	1.33828E-12	0.0	0.0	0.0
SO4ION	7.44674E-05	0.0	0.0	0.0
SRION	6.52698E-07	0.0	0.0	0.0
SRNO3ION	1.71556E-07	0.0	0.0	0.0
SROHION	6.06991E-15	0.0	0.0	0.0
SRPO4ION	1.87494E-14	0.0	0.0	0.0
UIVCLION	1.03739E-29	0.0	0.0	0.0
UIVION	0.0	0.0	0.0	0.0
UIVOH2ION	6.07424E-23	0.0	0.0	0.0
UIVOH3ION	2.84388E-18	0.0	0.0	0.0
UIVOH5ION	2.41560E-17	0.0	0.0	0.0
UIVOHION	4.03632E-26	0.0	0.0	0.0
UIVSO4ION	1.29292E-27	0.0	0.0	0.0

ZNCL3ION	3.95724E-06	0.0	0.0	0.0
ZNCLION	1.64694E-06	0.0	0.0	0.0
ZNH2PO4ION	2.14013E-09	0.0	0.0	0.0
ZNHCO3ION	1.50498E-13	0.0	0.0	0.0
ZNION	5.32741E-06	0.0	0.0	0.0
ZNNO3ION	6.03737E-07	0.0	0.0	0.0
ZNOH3ION	2.97727E-17	0.0	0.0	0.0
ZNOH4ION	6.42626E-23	0.0	0.0	0.0
ZNOHION	7.88550E-10	0.0	0.0	0.0
CA3PO42	0.0	8.15343E-05	0.0	0.0
CASO4.2H2O	0.0	5.84266E-04	0.0	0.0
CHAMOSITE7A	0.0	1.09290E-05	0.0	0.0
CU3PO42.2H2O	0.0	1.73090E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.45828E-05	0.0	0.0
PB3PO42	0.0	6.42890E-07	0.0	0.0
UIVO2	0.0	2.89916E-06	0.0	0.0
ZN3PO42.2H2O	0.0	5.30249E-06	0.0	0.0
=====				
Total g/hr	0.983545	0.160852	0.0	0.0
Volume, L/hr	8.61291E-04	5.78477E-05	0.0	0.0
Enthalpy, cal/hr	-3339.9	-463.213	0.0	0.0
Density, g/L	1141.94	2780.62		
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	173.122			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.181849			
E-Con, cm2/ohm-mol	30.95			
Abs Visc, cP	1.39766			
Rel Visc	1.56914			
Ionic Strength	3.94507			

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.51483			
Total mol/hr	55.44257	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4413	0.0	0.0	0.0
CO2	0.00118233	0.0	0.0	0.0
HCL	1.69591E-17	0.0	0.0	0.0
HNO3	2.74765E-13	0.0	0.0	0.0
LAURICACID	2.97366E-05	0.0	0.0	0.0
OHION	3.33640E-10	0.0	0.0	0.0
CLION	9.42924E-07	0.0	0.0	0.0
CO3ION	2.76955E-11	0.0	0.0	0.0
DODECION	1.19234E-05	0.0	0.0	0.0
HCO3ION	1.76739E-05	0.0	0.0	0.0
HION	3.07221E-05	0.0	0.0	0.0
NO3ION	1.81565E-07	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	998.856	0.0	0.0	0.0
Volume, L/hr	1.002	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78750E+06	0.0	0.0	0.0
Density, g/L	996.866			
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	0.0311278			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.22818E-05			
E-Con, cm2/ohm-mol	9.90225			
Abs Visc, cP	0.89074			
Rel Visc	1.00002			
Ionic Strength	3.07595E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.17140D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-6.95779D+01
MIX	CONDENSATE MIXER	-6.17069D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P,V/F
 V/F (molar) 0.999113

Standard Block Information

Duty, cal/hr 617140.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	1.25056E-15
Total Energy cal/hr	-3.79130E+06	-3.17416E+06	0.0

Mix Output

Outlet Temperature, C 103.062
 Outlet Pressure, atm 1.
 Aqueous pH 4.65196
 V/F (molar) 0.999112

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0482028	0.997387	9.30591E-04	-3327.52
Solid	0.00108315	0.147011	4.28148E-05	-406.02
Vapor	55.4426	998.856	1697.57	-3.17043E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4919	1000.	1697.57	-3.17416E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap separator
 BLOCK TYPE: Separate
 =====

Separate Input

 Liquid Outlet Stream Bottoms
 Vapor Outlet Stream Overhead
 Suspended Solids, g solid/g liq solution 0.0
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Pressure Specification, atm
 Outlet Pressure = Min Inlet Pressure
 Equilibrium Type Adiabatic
 Duty, cal/hr 0.0

Standard Block Information

 Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	0.0
Total Energy cal/hr	-3.17416E+06	-3.17416E+06	0.0

Separate Output

 Outlet Temperature, C 103.062
 Outlet Pressure, atm 1.
 Aqueous pH 4.65196
 Suspended Solids, g solid/g liq solution 0.147396
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Liquid Stream	Bottoms			Outlet Enthalpy
	Outlet Flow			
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0482028	0.997387	9.30591E-04	-3327.52
Solid	0.00108315	0.147011	4.28148E-05	-406.02
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.049286	1.1444	9.73405E-04	-3733.54

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4426	998.856	1697.57	-3.17043E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4426	998.856	1697.57	-3.17043E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -69.5779

	In	Out	Rel. Diff.
Total Mass g/hr	1.1444	1.1444	1.94028E-16
Total Energy cal/hr	-3733.54	-3803.11	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 6.10221
 V/F (molar) 0.0

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0469487	0.983545	8.61291E-04	-3339.9
Solid	9.73874E-04	0.160852	5.78477E-05	-463.213
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0479225	1.1444	9.19138E-04	-3803.11

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.17069E+05

	In	Out	Rel. Diff.
Total Mass g/hr	998.856	998.856	-1.13817E-16
Total Energy cal/hr	-3.17043E+06	-3.78750E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.51483
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4426	998.856	1.002	-3.78750E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4426	998.856	1.002	-3.78750E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance      Default Tolerance
Specification Value
  Composition,weight fraction  0.7
  Species
  H2O
Controlled block           Mix: Evap mixer
Control Parameter          Vapor Fraction
Control Parameter Minimum  0.0
Control Parameter Maximum  0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations        20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:      Total
Specification Composition: Solution Species
```

Controller Output

```
-----
Specification Stream      Cooled Bottoms
Controlled Block          Evap mixer
Control Parameter Type:  General Process Variable
Convergence:  Converged
Iterations Completed this Sequence      13.
Total Iterations Completed all Sequences 13.
Last Parameter Value                    0.999113
Last DIFF (Computed-Setpoint)           6.49605E-08
Previous Parameter Value                 0.999113
Previous DIFF (Computed-Setpoint)        -2.69409E-05
Control Parameter Minimum                0.99911
Control Parameter Maximum                 0.999113
Control Parameter Stepsize                0.0
Maximum Iterations                       0.0
```

Influent Limit Composition 80% Target pH=6.5

Awe 6.5-80

=====

```
      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
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  O     O           L           I
    O     O           L L L L L L L L   I I I I
      O   O   O
```

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 September 1, 2002

PROCESS: AWE65_5

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE65_5.LIS

DATE: 12/05/2002

=====

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79108D+06
Total in	1.00000D+03	-3.79108D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	1.50849D+00	-4.98377D+03
CONDENSATE	9.98492D+02	-3.78609D+06
Total out	1.00000D+03	-3.79107D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.17018D+05
EVAP BOTTOMS COOLING MIXER	-9.21552D+01
CONDENSATE MIXER	-6.16924D+05
Total Duty	2.04442D+00

DIFFERENCE	7.95808D-13	-3.49246D-10
REL DIFFERENCE	7.95808D-16	9.21232D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10961D+02	1.10961D+02	2.84217D-14	2.56142D-16
K(+1)	4.12103D-04	4.12103D-04	1.08420D-19	2.63090D-16
NA(+1)	2.80236D-03	2.80236D-03	-4.33681D-18	-1.54756D-15
BA(+2)	6.71533D-07	6.71533D-07	-1.05879D-22	-1.57668D-16
CA(+2)	9.97506D-04	9.97506D-04	0.00000D+00	0.00000D+00
ZN(+2)	3.82263D-05	3.82263D-05	-6.77626D-21	-1.77267D-16
CU(+2)	6.77166D-06	6.77166D-06	-1.69407D-21	-2.50170D-16
FE(+2)	1.02151D-04	1.02151D-04	2.71051D-20	2.65344D-16
MG(+2)	3.78601D-04	3.78601D-04	1.62630D-19	4.29556D-16
PB(+2)	3.42995D-06	3.42995D-06	8.47033D-22	2.46952D-16
AL(+3)	1.03704D-04	1.03704D-04	0.00000D+00	0.00000D+00
NI(+2)	1.49915D-06	1.49915D-06	8.47033D-22	5.65009D-16
O(-2)	5.54912D+01	5.54912D+01	2.13163D-14	3.84138D-16
CL(-1)	2.81690D-03	2.81690D-03	4.00721D-16	1.42256D-13
C(+4)	1.50000D-03	1.50000D-03	7.11237D-16	4.74158D-13
P(+5)	2.63158D-04	2.63158D-04	0.00000D+00	0.00000D+00
S(+6)	9.58333D-04	9.58333D-04	1.08420D-19	1.13134D-16
N(+5)	7.25807D-04	7.25807D-04	3.25261D-19	4.48137D-16
SI(+4)	2.33333D-04	2.33333D-04	2.71051D-20	1.16165D-16
SR(+2)	2.16895D-05	2.16895D-05	0.00000D+00	0.00000D+00

CD (+2)	4.64286D-08	4.64286D-08	1.70730D-21	3.67726D-14
CR (+3)	1.21154D-07	1.21154D-07	-3.57342D-21	-2.94949D-14
U (+4)	4.20168D-06	4.20168D-06	0.00000D+00	0.00000D+00

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DODEC(-1)

5.57619D-05 5.57619D-05 1.45975D-15 2.61783D-11

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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PROCESS:AWE65_5

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.9988			
Total mol/hr	55.49104	1.11635E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4798	0.0	0.0	0.0
CO2	9.94275E-04	0.0	0.0	0.0
H2SO4	2.28637E-24	0.0	0.0	0.0
HCL	1.51879E-15	0.0	0.0	0.0
HNO3	3.27818E-11	0.0	0.0	0.0
LAURICACID	3.86320E-06	0.0	0.0	0.0
SO3	2.95970E-28	0.0	0.0	0.0
CAH2SIO4	9.67582E-14	0.0	0.0	0.0
CASO4	1.53152E-05	0.0	0.0	0.0
CDCL2	2.96900E-10	0.0	0.0	0.0
CDOH2	1.56471E-16	0.0	0.0	0.0
CDSO4	5.30100E-09	0.0	0.0	0.0
CROH3	2.83179E-14	0.0	0.0	0.0
CUCL2	1.29951E-12	0.0	0.0	0.0
CUCO3	9.44961E-09	0.0	0.0	0.0
CUNO32	1.81988E-14	0.0	0.0	0.0
CUOH2	6.84705E-10	0.0	0.0	0.0
FEIICL2	2.27604E-15	0.0	0.0	0.0
FEIICO3	1.90479E-07	0.0	0.0	0.0
FEIIHPO4	2.25097E-08	0.0	0.0	0.0
FEIIOH2	1.72750E-13	0.0	0.0	0.0
ALO2H2CL	2.93833E-28	0.0	0.0	0.0
H3PO4	2.87967E-08	0.0	0.0	0.0
H4P2O7	1.47359E-18	0.0	0.0	0.0
ALOH3	2.40024E-09	1.03700E-04	0.0	0.0
BACO3	1.62720E-12	0.0	0.0	0.0
KCL	7.89160E-09	0.0	0.0	0.0
KHSO4	4.19670E-13	0.0	0.0	0.0
BASO4	2.05711E-10	4.00045E-07	0.0	0.0
MGCO3	4.90253E-09	0.0	0.0	0.0
MGH2SIO4	3.46511E-13	0.0	0.0	0.0
MGHPO4	3.68717E-06	0.0	0.0	0.0
MGSO4	9.88985E-06	0.0	0.0	0.0
NAHCO3	4.76561E-07	0.0	0.0	0.0
NAHSIO3	1.02557E-08	0.0	0.0	0.0
NANO3	9.54597E-08	0.0	0.0	0.0
NIOH2	9.47761E-14	0.0	0.0	0.0
NISO4	1.18401E-07	0.0	0.0	0.0
PBCL2	2.63713E-11	0.0	0.0	0.0
PBHPO4	8.43444E-10	0.0	0.0	0.0
PBNO32	3.37126E-13	0.0	0.0	0.0
PBO	4.08525E-13	0.0	0.0	0.0
CACL2	4.01279E-27	0.0	0.0	0.0
SIO2	2.33285E-04	0.0	0.0	0.0

CACO3	2.93244E-08	0.0	0.0	0.0
SRHPO4	3.13203E-09	0.0	0.0	0.0
SRNO32	4.85785E-11	0.0	0.0	0.0
SRSO4	1.65268E-06	0.0	0.0	0.0
UIVOH4	3.02010E-10	0.0	0.0	0.0
UIVSO42	9.22657E-26	0.0	0.0	0.0
ZNCL2	2.89095E-10	0.0	0.0	0.0
ZNHPO4	5.91446E-07	0.0	0.0	0.0
ZNNO32	7.12330E-12	0.0	0.0	0.0
ZNOH2	1.23190E-10	0.0	0.0	0.0
OHION	1.11413E-08	0.0	0.0	0.0
ALION	2.30536E-11	0.0	0.0	0.0
ALOH2ION	4.85933E-10	0.0	0.0	0.0
ALOH4ION	6.62246E-10	0.0	0.0	0.0
ALOHCLION	8.92162E-13	0.0	0.0	0.0
ALOHION	1.41897E-10	0.0	0.0	0.0
ALSO42ION	3.25520E-13	0.0	0.0	0.0
ALSO4ION	6.72500E-12	0.0	0.0	0.0
BAHCO3ION	9.06643E-10	0.0	0.0	0.0
BAION	2.70374E-07	0.0	0.0	0.0
BAOHION	1.11864E-15	0.0	0.0	0.0
CACLION	4.41589E-11	0.0	0.0	0.0
CAH2PO4ION	5.44440E-06	0.0	0.0	0.0
CAHCO3ION	3.64585E-06	0.0	0.0	0.0
CAHSIO3ION	4.40859E-10	0.0	0.0	0.0
CAION	9.71802E-04	0.0	0.0	0.0
CANO3ION	1.25251E-06	0.0	0.0	0.0
CAOHION	1.24604E-10	0.0	0.0	0.0
CAPO4ION	1.65573E-08	0.0	0.0	0.0
CDCL3ION	4.01421E-14	0.0	0.0	0.0
CDCL4ION	7.54252E-17	0.0	0.0	0.0
CDCLION	6.00609E-09	0.0	0.0	0.0
CDION	3.47769E-08	0.0	0.0	0.0
CDNO3ION	4.55438E-11	0.0	0.0	0.0
CDOH3ION	2.40363E-23	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	2.14596E-12	0.0	0.0	0.0
CLION	0.00281677	0.0	0.0	0.0
CO3ION	3.13496E-08	0.0	0.0	0.0
CRIII2ION	1.59227E-19	0.0	0.0	0.0
CRIIIION	4.48659E-16	0.0	0.0	0.0
CRIIIH2PO4ION	3.65128E-13	0.0	0.0	0.0
CRIIIHPO4ION	1.21078E-07	0.0	0.0	0.0
CRIIIIION	7.21713E-14	0.0	0.0	0.0
CRIIINO3ION	7.03446E-15	0.0	0.0	0.0
CROH2ION	9.22643E-15	0.0	0.0	0.0
CROH4ION	3.59676E-19	0.0	0.0	0.0
CROHION	4.64495E-12	0.0	0.0	0.0
CRSO4ION	7.09260E-11	0.0	0.0	0.0
CUCL3ION	7.61376E-18	0.0	0.0	0.0
CUCLION	1.22969E-09	0.0	0.0	0.0
CUCO32ION	4.44174E-13	0.0	0.0	0.0
CUION	1.19224E-07	0.0	0.0	0.0
CUNO3ION	2.12287E-10	0.0	0.0	0.0
CUOH3ION	4.06743E-16	0.0	0.0	0.0
CUOH4ION	4.06174E-23	0.0	0.0	0.0
CUOHION	4.16023E-09	0.0	0.0	0.0
DODECION	5.18987E-05	0.0	0.0	0.0

FEIICLION	2.66289E-10	0.0	0.0	0.0
FEIICO32ION	1.95343E-13	0.0	0.0	0.0
FEIIH2PO4ION	5.05041E-08	0.0	0.0	0.0
FEIIHCO3ION	5.00781E-09	0.0	0.0	0.0
FEIIION	1.01858E-04	0.0	0.0	0.0
FEIIOH3ION	7.51207E-18	0.0	0.0	0.0
FEIIOH4ION	1.03393E-26	0.0	0.0	0.0
FEIIOHION	2.39324E-08	0.0	0.0	0.0
H2P2O7ION	2.80573E-10	0.0	0.0	0.0
H2PO4ION	2.24860E-04	0.0	0.0	0.0
H2SIO4ION	3.90475E-15	0.0	0.0	0.0
H3P2O7ION	4.62135E-14	0.0	0.0	0.0
H3SIO4ION	3.68495E-08	0.0	0.0	0.0
HCO3ION	4.96482E-04	0.0	0.0	0.0
HION	1.10392E-06	0.0	0.0	0.0
HP2O7ION	1.14411E-10	0.0	0.0	0.0
HPBO2ION	5.03651E-18	0.0	0.0	0.0
HPO4ION	1.88463E-05	0.0	0.0	0.0
HSO4ION	6.46222E-08	0.0	0.0	0.0
KION	4.10184E-04	0.0	0.0	0.0
KSO4ION	1.91159E-06	0.0	0.0	0.0
MGH2PO4ION	2.59224E-06	0.0	0.0	0.0
MGHCO3ION	4.57812E-06	0.0	0.0	0.0
MGHSIO3ION	3.01786E-10	0.0	0.0	0.0
MGION	3.57839E-04	0.0	0.0	0.0
MGOHION	4.42445E-10	0.0	0.0	0.0
MGP2O7ION	1.71030E-10	0.0	0.0	0.0
MGPO4ION	8.74083E-09	0.0	0.0	0.0
NACO3ION	2.07890E-10	0.0	0.0	0.0
NAION	0.00278747	0.0	0.0	0.0
NASO4ION	1.43070E-05	0.0	0.0	0.0
NICLION	2.62616E-10	0.0	0.0	0.0
NIION	1.37839E-06	0.0	0.0	0.0
NINO3ION	1.95034E-09	0.0	0.0	0.0
NIOH3ION	1.06838E-18	0.0	0.0	0.0
NIOHION	1.43035E-10	0.0	0.0	0.0
NO3ION	7.24348E-04	0.0	0.0	0.0
P2O7ION	1.14049E-13	0.0	0.0	0.0
PBCL3ION	3.63611E-14	0.0	0.0	0.0
PBCL4ION	7.83700E-17	0.0	0.0	0.0
PBCLION	3.13830E-09	0.0	0.0	0.0
PBH2PO4ION	3.77135E-10	0.0	0.0	0.0
PBION	6.00540E-08	0.0	0.0	0.0
PBNO33ION	4.17861E-17	0.0	0.0	0.0
PBNO3ION	5.82644E-10	0.0	0.0	0.0
PBOHION	1.13948E-09	0.0	0.0	0.0
PO4ION	1.46616E-11	0.0	0.0	0.0
SO4ION	9.14668E-04	0.0	0.0	0.0
SRION	1.99784E-05	0.0	0.0	0.0
SRNO3ION	5.52144E-08	0.0	0.0	0.0
SROHION	9.59489E-13	0.0	0.0	0.0
SRPO4ION	4.72484E-12	0.0	0.0	0.0
UIVCLION	4.16603E-30	0.0	0.0	0.0
UIVION	6.34374E-29	0.0	0.0	0.0
UIVOH2ION	5.43700E-20	0.0	0.0	0.0
UIVOH3ION	3.75886E-15	0.0	0.0	0.0
UIVOH5ION	1.73392E-14	0.0	0.0	0.0
UIVOHION	1.32793E-23	0.0	0.0	0.0

UIVSO4ION	3.03219E-26	0.0	0.0	0.0
ZNCL3ION	2.76994E-13	0.0	0.0	0.0
ZNCLION	1.11455E-07	0.0	0.0	0.0
ZNH2PO4ION	2.16029E-07	0.0	0.0	0.0
ZNHCO3ION	2.70631E-07	0.0	0.0	0.0
ZNION	3.69507E-05	0.0	0.0	0.0
ZNNO3ION	5.21904E-08	0.0	0.0	0.0
ZNOH3ION	1.33729E-15	0.0	0.0	0.0
ZNOH4ION	2.31408E-22	0.0	0.0	0.0
ZNOHION	3.34288E-08	0.0	0.0	0.0
CU3PO42.2H2O	0.0	2.21223E-06	0.0	0.0
PB3PO42	0.0	1.12126E-06	0.0	0.0
UIVO2	0.0	4.20138E-06	0.0	0.0
=====				
Total g/hr	999.989	0.0111484	0.0	0.0
Volume, L/hr	1.00277	3.56676E-06	0.0	0.0
Enthalpy, cal/hr	-3.79104E+06	-34.0903	0.0	0.0
Density, g/L	997.225	3125.64		
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	0.298695			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	7.03685E-04			
E-Con, cm2/ohm-mol	122.915			
Abs Visc, cP	0.892449			
Rel Visc	1.00194			
Ionic Strength	0.00862614			

ESP V-6.6

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.256	103.256	103.256	103.256
Pressure, atm	1.	1.	1.	1.
pH	4.71402			
Total mol/hr	0.06687044	0.00131716	55.4218	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0601048	0.0	55.42024	0.0
CO2	2.10606E-10	0.0	0.001500001	0.0
H2SO4	1.18359E-23	0.0	1.01684E-20	0.0
HCL	8.79749E-13	0.0	7.92886E-07	0.0
HNO3	8.29445E-10	0.0	1.77234E-07	0.0
LAURICACID	1.11692E-09	0.0	5.57455E-05	0.0
SO3	8.58407E-27	0.0	2.71181E-26	0.0
CAH2SIO4	3.32853E-16	0.0	0.0	0.0
CASO4	6.15209E-07	8.70325E-04	0.0	0.0
CDCL2	1.96705E-08	0.0	0.0	0.0
CDOH2	2.78310E-19	0.0	0.0	0.0
CDSO4	1.34528E-12	0.0	0.0	0.0
CROH3	9.19903E-20	0.0	0.0	0.0
CUCL2	2.40718E-09	0.0	0.0	0.0
CUCO3	1.24312E-17	0.0	0.0	0.0
CUNO32	1.72768E-11	0.0	0.0	0.0
CUOH2	8.46048E-13	0.0	0.0	0.0
FEIICL2	2.84766E-09	0.0	0.0	0.0
FEIICO3	2.58432E-14	0.0	0.0	0.0
FEIIHPO4	1.64717E-09	0.0	0.0	0.0
FEIIOH2	5.59512E-13	0.0	0.0	0.0
ALO2H2CL	3.13307E-27	0.0	0.0	0.0
H3PO4	3.74252E-09	0.0	0.0	0.0
H4P2O7	3.31730E-16	0.0	0.0	0.0
ALOH3	3.53101E-11	0.0	0.0	0.0
BACO3	1.10215E-20	0.0	0.0	0.0
KCL	8.27813E-06	0.0	0.0	0.0
KHSO4	2.58215E-10	0.0	0.0	0.0
BASO4	1.12269E-12	6.68849E-07	0.0	0.0
MGCO3	2.05881E-15	0.0	0.0	0.0
MGH2SIO4	3.19884E-14	0.0	0.0	0.0
MGHPO4	5.82299E-07	0.0	0.0	0.0
MGSO4	4.41953E-06	0.0	0.0	0.0
NAHCO3	1.05426E-11	0.0	0.0	0.0
NAHSIO3	4.77800E-09	0.0	0.0	0.0
NANO3	1.73834E-04	0.0	0.0	0.0
NIOH2	7.88950E-15	0.0	0.0	0.0
NISO4	1.05085E-07	0.0	0.0	0.0
PBCL2	1.41799E-07	0.0	0.0	0.0
PBHPO4	2.00871E-12	0.0	0.0	0.0
PBNO32	4.35673E-09	0.0	0.0	0.0
PBO	5.99092E-15	0.0	0.0	0.0
CACL2	6.07322E-15	0.0	0.0	0.0
SIO2	4.75359E-06	2.08690E-04	0.0	0.0

CACO3	6.45329E-16	0.0	0.0	0.0
SRHPO4	1.04029E-11	0.0	0.0	0.0
SRNO32	1.50391E-07	0.0	0.0	0.0
SRSO4	1.05702E-08	2.09121E-05	0.0	0.0
UIVOH4	1.31334E-12	0.0	0.0	0.0
UIVSO42	4.05264E-24	0.0	0.0	0.0
ZNCL2	8.29540E-06	0.0	0.0	0.0
ZNHPO4	3.66148E-10	0.0	0.0	0.0
ZNNO32	3.64222E-09	0.0	0.0	0.0
ZNOH2	4.12926E-13	0.0	0.0	0.0
OHION	4.99190E-11	0.0	0.0	0.0
ALION	1.03392E-13	0.0	0.0	0.0
ALOH2ION	9.33354E-12	0.0	0.0	0.0
ALOH4ION	1.81641E-11	0.0	0.0	0.0
ALOHCLION	9.04588E-12	0.0	0.0	0.0
ALOHION	2.04309E-12	0.0	0.0	0.0
ALSO42ION	3.45170E-14	0.0	0.0	0.0
ALSO4ION	2.09033E-13	0.0	0.0	0.0
BAHCO3ION	3.81098E-16	0.0	0.0	0.0
BAION	2.68460E-09	0.0	0.0	0.0
BAOHION	6.89548E-17	0.0	0.0	0.0
CACLION	1.29182E-07	0.0	0.0	0.0
CAH2PO4ION	1.03461E-06	0.0	0.0	0.0
CAHCO3ION	6.69060E-13	0.0	0.0	0.0
CAHSIO3ION	6.98229E-11	0.0	0.0	0.0
CAION	2.77226E-05	0.0	0.0	0.0
CANO3ION	1.54121E-05	0.0	0.0	0.0
CAOHION	1.37658E-11	0.0	0.0	0.0
CAPO4ION	2.41417E-11	0.0	0.0	0.0
CDCL3ION	1.99194E-08	0.0	0.0	0.0
CDCL4ION	5.78739E-09	0.0	0.0	0.0
CDCLION	1.02583E-09	0.0	0.0	0.0
CDION	1.83790E-11	0.0	0.0	0.0
CDNO3ION	5.73061E-12	0.0	0.0	0.0
CDOH3ION	1.24505E-25	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	1.16475E-15	0.0	0.0	0.0
CLION	0.00272497	0.0	0.0	0.0
CO3ION	4.69933E-16	0.0	0.0	0.0
CRIIIICL2ION	1.43728E-16	0.0	0.0	0.0
CRIIIICLION	2.11623E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.07656E-16	0.0	0.0	0.0
CRIIIHPO4ION	1.21153E-07	0.0	0.0	0.0
CRIIIIION	3.60973E-20	0.0	0.0	0.0
CRIIINO3ION	5.28570E-14	0.0	0.0	0.0
CROH2ION	6.07950E-19	0.0	0.0	0.0
CROH4ION	6.35217E-25	0.0	0.0	0.0
CROHION	1.16757E-13	0.0	0.0	0.0
CRSO4ION	5.11347E-13	0.0	0.0	0.0
CUCL3ION	4.18404E-11	0.0	0.0	0.0
CUCLION	1.38017E-08	0.0	0.0	0.0
CUCO32ION	2.98570E-26	0.0	0.0	0.0
CUION	3.66502E-09	0.0	0.0	0.0
CUNO3ION	7.06603E-10	0.0	0.0	0.0
CUOH3ION	2.37862E-18	0.0	0.0	0.0
CUOH4ION	1.45844E-23	0.0	0.0	0.0
CUOHION	2.58491E-11	0.0	0.0	0.0
DODECION	1.53321E-08	0.0	0.0	0.0

FEIICLION	5.45085E-07	0.0	0.0	0.0
FEIICO32ION	1.80600E-24	0.0	0.0	0.0
FEIIH2PO4ION	7.12500E-08	0.0	0.0	0.0
FEIIHCO3ION	2.78376E-14	0.0	0.0	0.0
FEIIION	5.80191E-05	0.0	0.0	0.0
FEIIOH3ION	2.95902E-17	0.0	0.0	0.0
FEIIOH4ION	2.19888E-24	0.0	0.0	0.0
FEIIOHION	1.57990E-08	0.0	0.0	0.0
H2P2O7ION	1.14896E-09	0.0	0.0	0.0
H2PO4ION	1.96441E-06	0.0	0.0	0.0
H2SIO4ION	6.98870E-17	0.0	0.0	0.0
H3P2O7ION	5.04659E-13	0.0	0.0	0.0
H3SIO4ION	1.55832E-09	0.0	0.0	0.0
HCO3ION	7.10751E-12	0.0	0.0	0.0
HION	2.70522E-08	0.0	0.0	0.0
HP2O7ION	6.62427E-11	0.0	0.0	0.0
HPBO2ION	1.68978E-19	0.0	0.0	0.0
HPO4ION	5.46451E-08	0.0	0.0	0.0
HSO4ION	4.81311E-08	0.0	0.0	0.0
KION	3.93218E-04	0.0	0.0	0.0
KSO4ION	1.06072E-05	0.0	0.0	0.0
MGH2PO4ION	2.22957E-06	0.0	0.0	0.0
MGHCO3ION	8.61238E-12	0.0	0.0	0.0
MGHSIO3ION	8.78865E-10	0.0	0.0	0.0
MGION	7.86507E-05	0.0	0.0	0.0
MGOHION	7.31861E-10	0.0	0.0	0.0
MGP2O7ION	2.41211E-09	0.0	0.0	0.0
MGPO4ION	1.70079E-10	0.0	0.0	0.0
NACO3ION	7.31736E-17	0.0	0.0	0.0
NAION	0.00262852	0.0	0.0	0.0
NASO4ION	3.79683E-14	0.0	0.0	0.0
NICLION	8.85479E-08	0.0	0.0	0.0
NIION	9.86704E-07	0.0	0.0	0.0
NINO3ION	1.58566E-07	0.0	0.0	0.0
NIOH3ION	5.49030E-20	0.0	0.0	0.0
NIOHION	7.27829E-11	0.0	0.0	0.0
NO3ION	5.35288E-04	0.0	0.0	0.0
P2O7ION	3.24781E-14	0.0	0.0	0.0
PBCL3ION	3.48883E-07	0.0	0.0	0.0
PBCL4ION	2.88616E-06	0.0	0.0	0.0
PBCLION	3.64755E-08	0.0	0.0	0.0
PBH2PO4ION	4.25292E-11	0.0	0.0	0.0
PBION	1.02452E-09	0.0	0.0	0.0
PBNO33ION	1.81187E-10	0.0	0.0	0.0
PBNO3ION	1.09772E-08	0.0	0.0	0.0
PBOHION	5.37440E-11	0.0	0.0	0.0
PO4ION	2.51395E-14	0.0	0.0	0.0
SO4ION	5.06244E-05	0.0	0.0	0.0
SRION	1.22731E-07	0.0	0.0	0.0
SRNO3ION	4.93761E-07	0.0	0.0	0.0
SROHION	1.05148E-13	0.0	0.0	0.0
SRPO4ION	5.55321E-15	0.0	0.0	0.0
UIVCLION	1.03042E-26	0.0	0.0	0.0
UIVION	1.02419E-28	0.0	0.0	0.0
UIVOH2ION	9.75263E-21	0.0	0.0	0.0
UIVOH3ION	7.80741E-18	0.0	0.0	0.0
UIVOH5ION	3.43400E-17	0.0	0.0	0.0
UIVOHION	6.67129E-23	0.0	0.0	0.0

UIVSO4ION	3.05256E-24	0.0	0.0	0.0
ZNCL3ION	1.18240E-05	0.0	0.0	0.0
ZNCLION	1.69740E-05	0.0	0.0	0.0
ZNH2PO4ION	3.76830E-09	0.0	0.0	0.0
ZNHCO3ION	1.22763E-14	0.0	0.0	0.0
ZNION	9.91599E-07	0.0	0.0	0.0
ZNNO3ION	1.13381E-07	0.0	0.0	0.0
ZNOH3ION	4.65286E-17	0.0	0.0	0.0
ZNOH4ION	1.00513E-22	0.0	0.0	0.0
ZNOHION	2.01346E-08	0.0	0.0	0.0
ALOOH	0.0	6.39375E-05	0.0	0.0
CA3PO42	0.0	2.74235E-05	0.0	0.0
CHAMOSITE7A	0.0	1.98833E-05	0.0	0.0
CU3PO42.2H2O	0.0	2.25034E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.24282E-06	0.0	0.0
MG3PO42	0.0	9.75718E-05	0.0	0.0
NI3PO42	0.0	5.33909E-08	0.0	0.0
UIVO2	0.0	4.20169E-06	0.0	0.0
=====				
Total g/hr	1.32597	0.182523	998.492	0.0
Volume, L/hr	0.00123391	5.09465E-05	1697.83	0.0
Enthalpy, cal/hr	-4390.22	-501.396	-3.16917E+06	0.0
Density, g/L	1074.61	3582.64	0.588099	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	185.861			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.48021			
E-Con, cm2/ohm-mol	55.9898			
Abs Visc, cP	0.366185			
Rel Visc	1.3451			
Ionic Strength	3.33609			

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.256	103.256	103.256	103.256
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4218	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.42024	0.0
CO2	0.0	0.0	0.001500001	0.0
H2SO4	0.0	0.0	1.01684E-20	0.0
HCL	0.0	0.0	7.92886E-07	0.0
HNO3	0.0	0.0	1.77234E-07	0.0
LAURICACID	0.0	0.0	5.57455E-05	0.0
SO3	0.0	0.0	2.71181E-26	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	998.492	0.0
Volume, L/hr	0.0	0.0	1697.83	0.0
Enthalpy, cal/hr	0.0	0.0	-3.16917E+06	0.0
Density, g/L			0.588099	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE65_5

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STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.256	103.256	103.256	103.256
Pressure, atm	1.	1.	1.	1.
pH	4.71402			
Total mol/hr	0.06687044	0.00131716	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0601048	0.0	0.0	0.0
CO2	2.10606E-10	0.0	0.0	0.0
H2SO4	1.18359E-23	0.0	0.0	0.0
HCL	8.79749E-13	0.0	0.0	0.0
HNO3	8.29445E-10	0.0	0.0	0.0
LAURICACID	1.11692E-09	0.0	0.0	0.0
SO3	8.58407E-27	0.0	0.0	0.0
CAH2SIO4	3.32853E-16	0.0	0.0	0.0
CASO4	6.15209E-07	8.70325E-04	0.0	0.0
CDCL2	1.96705E-08	0.0	0.0	0.0
CDOH2	2.78310E-19	0.0	0.0	0.0
CDSO4	1.34528E-12	0.0	0.0	0.0
CROH3	9.19903E-20	0.0	0.0	0.0
CUCL2	2.40718E-09	0.0	0.0	0.0
CUCO3	1.24312E-17	0.0	0.0	0.0
CUNO32	1.72768E-11	0.0	0.0	0.0
CUOH2	8.46048E-13	0.0	0.0	0.0
FEIICL2	2.84766E-09	0.0	0.0	0.0
FEIICO3	2.58432E-14	0.0	0.0	0.0
FEIIHPO4	1.64717E-09	0.0	0.0	0.0
FEIIOH2	5.59512E-13	0.0	0.0	0.0
ALO2H2CL	3.13307E-27	0.0	0.0	0.0
H3PO4	3.74252E-09	0.0	0.0	0.0
H4P2O7	3.31730E-16	0.0	0.0	0.0
ALOH3	3.53101E-11	0.0	0.0	0.0
BACO3	1.10215E-20	0.0	0.0	0.0
KCL	8.27813E-06	0.0	0.0	0.0
KHSO4	2.58215E-10	0.0	0.0	0.0
BASO4	1.12269E-12	6.68849E-07	0.0	0.0
MGCO3	2.05881E-15	0.0	0.0	0.0
MGH2SIO4	3.19884E-14	0.0	0.0	0.0
MGHPO4	5.82299E-07	0.0	0.0	0.0
MGSO4	4.41953E-06	0.0	0.0	0.0
NAHCO3	1.05426E-11	0.0	0.0	0.0
NAHSIO3	4.77800E-09	0.0	0.0	0.0
NANO3	1.73834E-04	0.0	0.0	0.0
NIOH2	7.88950E-15	0.0	0.0	0.0
NISO4	1.05085E-07	0.0	0.0	0.0
PBCL2	1.41799E-07	0.0	0.0	0.0
PBHPO4	2.00871E-12	0.0	0.0	0.0
PBNO32	4.35673E-09	0.0	0.0	0.0
PBO	5.99092E-15	0.0	0.0	0.0
CACL2	6.07322E-15	0.0	0.0	0.0
SIO2	4.75359E-06	2.08690E-04	0.0	0.0

CACO3	6.45329E-16	0.0	0.0	0.0
SRHPO4	1.04029E-11	0.0	0.0	0.0
SRNO32	1.50391E-07	0.0	0.0	0.0
SRSO4	1.05702E-08	2.09121E-05	0.0	0.0
UIVOH4	1.31334E-12	0.0	0.0	0.0
UIVSO42	4.05264E-24	0.0	0.0	0.0
ZNCL2	8.29540E-06	0.0	0.0	0.0
ZNHPO4	3.66148E-10	0.0	0.0	0.0
ZNNO32	3.64222E-09	0.0	0.0	0.0
ZNOH2	4.12926E-13	0.0	0.0	0.0
OHION	4.99190E-11	0.0	0.0	0.0
ALION	1.03392E-13	0.0	0.0	0.0
ALOH2ION	9.33354E-12	0.0	0.0	0.0
ALOH4ION	1.81641E-11	0.0	0.0	0.0
ALOHCLION	9.04588E-12	0.0	0.0	0.0
ALOHION	2.04309E-12	0.0	0.0	0.0
ALSO42ION	3.45170E-14	0.0	0.0	0.0
ALSO4ION	2.09033E-13	0.0	0.0	0.0
BAHCO3ION	3.81098E-16	0.0	0.0	0.0
BAION	2.68460E-09	0.0	0.0	0.0
BAOHION	6.89548E-17	0.0	0.0	0.0
CACLION	1.29182E-07	0.0	0.0	0.0
CAH2PO4ION	1.03461E-06	0.0	0.0	0.0
CAHCO3ION	6.69060E-13	0.0	0.0	0.0
CAHSIO3ION	6.98229E-11	0.0	0.0	0.0
CAION	2.77226E-05	0.0	0.0	0.0
CANO3ION	1.54121E-05	0.0	0.0	0.0
CAOHION	1.37658E-11	0.0	0.0	0.0
CAPO4ION	2.41417E-11	0.0	0.0	0.0
CDCL3ION	1.99194E-08	0.0	0.0	0.0
CDCL4ION	5.78739E-09	0.0	0.0	0.0
CDCLION	1.02583E-09	0.0	0.0	0.0
CDION	1.83790E-11	0.0	0.0	0.0
CDNO3ION	5.73061E-12	0.0	0.0	0.0
CDOH3ION	1.24505E-25	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	1.16475E-15	0.0	0.0	0.0
CLION	0.00272497	0.0	0.0	0.0
CO3ION	4.69933E-16	0.0	0.0	0.0
CRIIIICL2ION	1.43728E-16	0.0	0.0	0.0
CRIIIICLION	2.11623E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.07656E-16	0.0	0.0	0.0
CRIIIHPO4ION	1.21153E-07	0.0	0.0	0.0
CRIIIIION	3.60973E-20	0.0	0.0	0.0
CRIIINO3ION	5.28570E-14	0.0	0.0	0.0
CROH2ION	6.07950E-19	0.0	0.0	0.0
CROH4ION	6.35217E-25	0.0	0.0	0.0
CROHION	1.16757E-13	0.0	0.0	0.0
CRSO4ION	5.11347E-13	0.0	0.0	0.0
CUCL3ION	4.18404E-11	0.0	0.0	0.0
CUCLION	1.38017E-08	0.0	0.0	0.0
CUCO32ION	2.98570E-26	0.0	0.0	0.0
CUION	3.66502E-09	0.0	0.0	0.0
CUNO3ION	7.06603E-10	0.0	0.0	0.0
CUOH3ION	2.37862E-18	0.0	0.0	0.0
CUOH4ION	1.45844E-23	0.0	0.0	0.0
CUOHION	2.58491E-11	0.0	0.0	0.0
DODECION	1.53321E-08	0.0	0.0	0.0

FEIICLION	5.45085E-07	0.0	0.0	0.0
FEIICO32ION	1.80600E-24	0.0	0.0	0.0
FEIIH2PO4ION	7.12500E-08	0.0	0.0	0.0
FEIIHCO3ION	2.78376E-14	0.0	0.0	0.0
FEIIION	5.80191E-05	0.0	0.0	0.0
FEIIOH3ION	2.95902E-17	0.0	0.0	0.0
FEIIOH4ION	2.19888E-24	0.0	0.0	0.0
FEIIOHION	1.57990E-08	0.0	0.0	0.0
H2P2O7ION	1.14896E-09	0.0	0.0	0.0
H2PO4ION	1.96441E-06	0.0	0.0	0.0
H2SIO4ION	6.98870E-17	0.0	0.0	0.0
H3P2O7ION	5.04659E-13	0.0	0.0	0.0
H3SIO4ION	1.55832E-09	0.0	0.0	0.0
HCO3ION	7.10751E-12	0.0	0.0	0.0
HION	2.70522E-08	0.0	0.0	0.0
HP2O7ION	6.62427E-11	0.0	0.0	0.0
HPBO2ION	1.68978E-19	0.0	0.0	0.0
HPO4ION	5.46451E-08	0.0	0.0	0.0
HSO4ION	4.81311E-08	0.0	0.0	0.0
KION	3.93218E-04	0.0	0.0	0.0
KSO4ION	1.06072E-05	0.0	0.0	0.0
MGH2PO4ION	2.22957E-06	0.0	0.0	0.0
MGHCO3ION	8.61238E-12	0.0	0.0	0.0
MGHSIO3ION	8.78865E-10	0.0	0.0	0.0
MGION	7.86507E-05	0.0	0.0	0.0
MGOHION	7.31861E-10	0.0	0.0	0.0
MGP2O7ION	2.41211E-09	0.0	0.0	0.0
MGPO4ION	1.70079E-10	0.0	0.0	0.0
NACO3ION	7.31736E-17	0.0	0.0	0.0
NAION	0.00262852	0.0	0.0	0.0
NASO4ION	3.79683E-14	0.0	0.0	0.0
NICLION	8.85479E-08	0.0	0.0	0.0
NIION	9.86704E-07	0.0	0.0	0.0
NINO3ION	1.58566E-07	0.0	0.0	0.0
NIOH3ION	5.49030E-20	0.0	0.0	0.0
NIOHION	7.27829E-11	0.0	0.0	0.0
NO3ION	5.35288E-04	0.0	0.0	0.0
P2O7ION	3.24781E-14	0.0	0.0	0.0
PBCL3ION	3.48883E-07	0.0	0.0	0.0
PBCL4ION	2.88616E-06	0.0	0.0	0.0
PBCLION	3.64755E-08	0.0	0.0	0.0
PBH2PO4ION	4.25292E-11	0.0	0.0	0.0
PBION	1.02452E-09	0.0	0.0	0.0
PBNO33ION	1.81187E-10	0.0	0.0	0.0
PBNO3ION	1.09772E-08	0.0	0.0	0.0
PBOHION	5.37440E-11	0.0	0.0	0.0
PO4ION	2.51395E-14	0.0	0.0	0.0
SO4ION	5.06244E-05	0.0	0.0	0.0
SRION	1.22731E-07	0.0	0.0	0.0
SRNO3ION	4.93761E-07	0.0	0.0	0.0
SROHION	1.05148E-13	0.0	0.0	0.0
SRPO4ION	5.55321E-15	0.0	0.0	0.0
UIVCLION	1.03042E-26	0.0	0.0	0.0
UIVION	1.02419E-28	0.0	0.0	0.0
UIVOH2ION	9.75263E-21	0.0	0.0	0.0
UIVOH3ION	7.80741E-18	0.0	0.0	0.0
UIVOH5ION	3.43400E-17	0.0	0.0	0.0
UIVOHION	6.67129E-23	0.0	0.0	0.0

UIVSO4ION	3.05256E-24	0.0	0.0	0.0
ZNCL3ION	1.18240E-05	0.0	0.0	0.0
ZNCLION	1.69740E-05	0.0	0.0	0.0
ZNH2PO4ION	3.76830E-09	0.0	0.0	0.0
ZNHCO3ION	1.22763E-14	0.0	0.0	0.0
ZNION	9.91599E-07	0.0	0.0	0.0
ZNNO3ION	1.13381E-07	0.0	0.0	0.0
ZNOH3ION	4.65286E-17	0.0	0.0	0.0
ZNOH4ION	1.00513E-22	0.0	0.0	0.0
ZNOHION	2.01346E-08	0.0	0.0	0.0
ALOOH	0.0	6.39375E-05	0.0	0.0
CA3PO42	0.0	2.74235E-05	0.0	0.0
CHAMOSITE7A	0.0	1.98833E-05	0.0	0.0
CU3PO42.2H2O	0.0	2.25034E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.24282E-06	0.0	0.0
MG3PO42	0.0	9.75718E-05	0.0	0.0
NI3PO42	0.0	5.33909E-08	0.0	0.0
UIVO2	0.0	4.20169E-06	0.0	0.0
=====				
Total g/hr	1.32597	0.182523	0.0	0.0
Volume, L/hr	0.00123391	5.09465E-05	0.0	0.0
Enthalpy, cal/hr	-4390.22	-501.396	0.0	0.0
Density, g/L	1074.61	3582.64		
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	185.861			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.48021			
E-Con, cm2/ohm-mol	55.9898			
Abs Visc, cP	0.366185			
Rel Visc	1.3451			
Ionic Strength	3.33609			

ESP V-6.6

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.18305			
Total mol/hr	0.06589666	0.00110204	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0586138	0.0	0.0	0.0
CO2	1.39387E-11	0.0	0.0	0.0
H2SO4	5.95966E-27	0.0	0.0	0.0
HCL	5.12840E-16	0.0	0.0	0.0
HNO3	5.77627E-12	0.0	0.0	0.0
LAURICACID	2.06176E-10	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	7.22215E-15	0.0	0.0	0.0
CASO4	8.67539E-07	0.0	0.0	0.0
CDCL2	5.54428E-09	0.0	0.0	0.0
CDOH2	5.92319E-21	0.0	0.0	0.0
CDSO4	1.24249E-12	0.0	0.0	0.0
CROH3	2.10290E-14	0.0	0.0	0.0
CUCL2	5.87315E-10	0.0	0.0	0.0
CUCO3	2.52343E-16	0.0	0.0	0.0
CUNO32	3.65493E-12	0.0	0.0	0.0
CUOH2	6.27310E-13	0.0	0.0	0.0
FEIICL2	9.53236E-11	0.0	0.0	0.0
FEIICO3	4.71363E-13	0.0	0.0	0.0
FEIIHPO4	8.86542E-10	0.0	0.0	0.0
FEIIOH2	1.46665E-14	0.0	0.0	0.0
ALO2H2CL	1.13305E-28	0.0	0.0	0.0
H3PO4	5.62376E-12	0.0	0.0	0.0
H4P2O7	1.16900E-22	0.0	0.0	0.0
ALOH3	1.31780E-12	6.60577E-05	0.0	0.0
BACO3	4.20554E-21	0.0	0.0	0.0
KCL	1.84692E-06	0.0	0.0	0.0
KHSO4	7.58197E-13	0.0	0.0	0.0
BASO4	1.12941E-13	6.69029E-07	0.0	0.0
MGCO3	1.13080E-13	0.0	0.0	0.0
MGH2SIO4	2.23722E-12	0.0	0.0	0.0
MGHPO4	1.35357E-06	0.0	0.0	0.0
MGSO4	4.84583E-05	0.0	0.0	0.0
NAHCO3	6.24794E-12	0.0	0.0	0.0
NAHSIO3	4.29808E-08	0.0	0.0	0.0
NANO3	5.66149E-05	0.0	0.0	0.0
NIOH2	1.18972E-14	0.0	0.0	0.0
NISO4	9.20264E-08	0.0	0.0	0.0
PBCL2	1.09088E-08	0.0	0.0	0.0
PBHPO4	3.28106E-13	0.0	0.0	0.0
PBNO32	6.19703E-11	0.0	0.0	0.0
PBO	3.91219E-16	0.0	0.0	0.0
CACL2	1.81097E-23	0.0	0.0	0.0
SIO2	1.22134E-06	2.13239E-04	0.0	0.0

CACO3	7.81954E-15	0.0	0.0	0.0
SRHPO4	3.36000E-12	0.0	0.0	0.0
SRNO32	2.46259E-08	0.0	0.0	0.0
SRSO4	2.36642E-08	2.05392E-05	0.0	0.0
UIVOH4	1.27140E-13	0.0	0.0	0.0
UIVSO42	1.48911E-27	0.0	0.0	0.0
ZNCL2	1.36063E-06	0.0	0.0	0.0
ZNHPO4	2.61773E-09	0.0	0.0	0.0
ZNNO32	1.48979E-08	0.0	0.0	0.0
ZNOH2	1.17534E-12	0.0	0.0	0.0
OHION	1.55002E-11	0.0	0.0	0.0
ALION	2.45792E-14	0.0	0.0	0.0
ALOH2ION	4.78362E-13	0.0	0.0	0.0
ALOH4ION	1.50919E-12	0.0	0.0	0.0
ALOHCLION	9.86227E-13	0.0	0.0	0.0
ALOHION	1.22483E-13	0.0	0.0	0.0
ALSO42ION	3.33693E-14	0.0	0.0	0.0
ALSO4ION	6.54061E-14	0.0	0.0	0.0
BAHCO3ION	5.88321E-18	0.0	0.0	0.0
BAION	2.50090E-09	0.0	0.0	0.0
BAOHION	1.77894E-19	0.0	0.0	0.0
CACLION	1.17480E-10	0.0	0.0	0.0
CAH2PO4ION	5.80052E-08	0.0	0.0	0.0
CAHCO3ION	2.15102E-12	0.0	0.0	0.0
CAHSIO3ION	9.43325E-11	0.0	0.0	0.0
CAION	2.69377E-05	0.0	0.0	0.0
CANO3ION	1.40854E-05	0.0	0.0	0.0
CAOHION	2.04979E-12	0.0	0.0	0.0
CAPO4ION	4.05531E-10	0.0	0.0	0.0
CDCL3ION	2.70360E-09	0.0	0.0	0.0
CDCL4ION	3.78520E-08	0.0	0.0	0.0
CDCLION	3.13448E-10	0.0	0.0	0.0
CDION	1.19232E-11	0.0	0.0	0.0
CDNO3ION	2.11797E-12	0.0	0.0	0.0
CDOH3ION	4.67242E-27	0.0	0.0	0.0
CDOHION	1.46064E-16	0.0	0.0	0.0
CLION	0.00279642	0.0	0.0	0.0
CO3ION	2.40253E-14	0.0	0.0	0.0
CRIIIICL2ION	1.67213E-13	0.0	0.0	0.0
CRIIIICLION	4.45015E-14	0.0	0.0	0.0
CRIIIH2PO4ION	1.87038E-12	0.0	0.0	0.0
CRIIIHPO4ION	1.19578E-07	0.0	0.0	0.0
CRIIIIION	1.44402E-17	0.0	0.0	0.0
CRIIINO3ION	2.68686E-11	0.0	0.0	0.0
CROH2ION	1.23102E-14	0.0	0.0	0.0
CROH4ION	1.37155E-18	0.0	0.0	0.0
CROHION	6.44237E-10	0.0	0.0	0.0
CRSO4ION	9.02751E-10	0.0	0.0	0.0
CUCL3ION	1.24107E-11	0.0	0.0	0.0
CUCLION	1.55320E-09	0.0	0.0	0.0
CUCO32ION	1.88451E-23	0.0	0.0	0.0
CUION	1.30502E-09	0.0	0.0	0.0
CUNO3ION	2.67022E-10	0.0	0.0	0.0
CUOH3ION	1.81489E-18	0.0	0.0	0.0
CUOH4ION	2.02842E-24	0.0	0.0	0.0
CUOHION	6.84939E-12	0.0	0.0	0.0
DODECION	1.62429E-08	0.0	0.0	0.0
FEIICLION	3.11682E-08	0.0	0.0	0.0

FEIICO32ION	7.64410E-22	0.0	0.0	0.0
FEIIH2PO4ION	4.99343E-09	0.0	0.0	0.0
FEIIHCO3ION	2.13002E-14	0.0	0.0	0.0
FEIIION	1.87435E-05	0.0	0.0	0.0
FEIIOH3ION	2.56169E-18	0.0	0.0	0.0
FEIIOH4ION	4.74410E-26	0.0	0.0	0.0
FEIIOHION	3.65291E-09	0.0	0.0	0.0
H2P2O7ION	1.36237E-12	0.0	0.0	0.0
H2PO4ION	2.68405E-07	0.0	0.0	0.0
H2SIO4ION	8.21600E-16	0.0	0.0	0.0
H3P2O7ION	1.09993E-17	0.0	0.0	0.0
H3SIO4ION	4.08405E-10	0.0	0.0	0.0
HCO3ION	3.27842E-11	0.0	0.0	0.0
HION	6.00687E-10	0.0	0.0	0.0
HP2O7ION	4.41398E-12	0.0	0.0	0.0
HPBO2ION	1.71514E-20	0.0	0.0	0.0
HPO4ION	3.08162E-07	0.0	0.0	0.0
HSO4ION	5.07030E-10	0.0	0.0	0.0
KION	3.91059E-04	0.0	0.0	0.0
KSO4ION	1.91970E-05	0.0	0.0	0.0
MGH2PO4ION	2.38894E-06	0.0	0.0	0.0
MGHCO3ION	1.81648E-10	0.0	0.0	0.0
MGHSIO3ION	5.58566E-09	0.0	0.0	0.0
MGION	3.26377E-04	0.0	0.0	0.0
MGOHION	6.29460E-10	0.0	0.0	0.0
MGP2O7ION	1.81206E-09	0.0	0.0	0.0
MGPO4ION	1.51367E-08	0.0	0.0	0.0
NACO3ION	1.11061E-14	0.0	0.0	0.0
NAION	0.0026881	0.0	0.0	0.0
NASO4ION	5.75934E-05	0.0	0.0	0.0
NICLION	4.54483E-08	0.0	0.0	0.0
NIION	1.06088E-06	0.0	0.0	0.0
NINO3ION	3.00761E-07	0.0	0.0	0.0
NIOH3ION	6.88200E-19	0.0	0.0	0.0
NIOHION	3.22598E-11	0.0	0.0	0.0
NO3ION	6.53765E-04	0.0	0.0	0.0
P2O7ION	4.47011E-13	0.0	0.0	0.0
PBCL3ION	3.75671E-08	0.0	0.0	0.0
PBCL4ION	8.72776E-07	0.0	0.0	0.0
PBCLION	3.62438E-09	0.0	0.0	0.0
PBH2PO4ION	3.68296E-13	0.0	0.0	0.0
PBION	2.24985E-10	0.0	0.0	0.0
PBNO33ION	1.84673E-11	0.0	0.0	0.0
PBNO3ION	6.00214E-10	0.0	0.0	0.0
PBOHION	1.71634E-12	0.0	0.0	0.0
PO4ION	3.16170E-12	0.0	0.0	0.0
SO4ION	1.61693E-04	0.0	0.0	0.0
SRION	9.30505E-07	0.0	0.0	0.0
SRNO3ION	1.71378E-07	0.0	0.0	0.0
SROHION	6.34465E-15	0.0	0.0	0.0
SRPO4ION	2.97074E-14	0.0	0.0	0.0
UIVCLION	7.52358E-30	0.0	0.0	0.0
UIVION	0.0	0.0	0.0	0.0
UIVOH2ION	5.63893E-23	0.0	0.0	0.0
UIVOH3ION	3.10876E-18	0.0	0.0	0.0
UIVOH5ION	3.74837E-17	0.0	0.0	0.0
UIVOHION	3.62100E-26	0.0	0.0	0.0
UIVSO4ION	1.25260E-27	0.0	0.0	0.0

ZNCL3ION	3.25672E-06	0.0	0.0	0.0
ZNCLION	1.46601E-06	0.0	0.0	0.0
ZNH2PO4ION	2.40029E-09	0.0	0.0	0.0
ZNHCO3ION	1.88922E-13	0.0	0.0	0.0
ZNION	4.91505E-06	0.0	0.0	0.0
ZNNO3ION	6.11711E-07	0.0	0.0	0.0
ZNOH3ION	4.30359E-17	0.0	0.0	0.0
ZNOH4ION	1.20560E-22	0.0	0.0	0.0
ZNOHION	8.36895E-10	0.0	0.0	0.0
CA3PO42	0.0	1.02120E-04	0.0	0.0
CASO4.2H2O	0.0	6.49195E-04	0.0	0.0
CHAMOSITE7A	0.0	1.88227E-05	0.0	0.0
CU3PO42.2H2O	0.0	2.25596E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.52401E-05	0.0	0.0
PB3PO42	0.0	8.34719E-07	0.0	0.0
UIVO2	0.0	4.20166E-06	0.0	0.0
ZN3PO42.2H2O	0.0	8.86510E-06	0.0	0.0
=====				
Total g/hr	1.32258	0.185915	0.0	0.0
Volume, L/hr	0.00114539	6.52136E-05	0.0	0.0
Enthalpy, cal/hr	-4450.91	-532.863	0.0	0.0
Density, g/L	1154.7	2850.86		
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	187.21			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.188655			
E-Con, cm2/ohm-mol	30.7208			
Abs Visc, cP	1.43936			
Rel Visc	1.61595			
Ionic Strength	4.16529			

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.45875			
Total mol/hr	55.42179	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4202	0.0	0.0	0.0
CO2	0.00148054	0.0	0.0	0.0
HCL	1.62195E-17	0.0	0.0	0.0
HNO3	3.05057E-13	0.0	0.0	0.0
LAURICACID	4.12154E-05	0.0	0.0	0.0
OHION	2.93231E-10	0.0	0.0	0.0
CLION	7.92885E-07	0.0	0.0	0.0
CO3ION	2.68327E-11	0.0	0.0	0.0
DODECION	1.45300E-05	0.0	0.0	0.0
HCO3ION	1.94587E-05	0.0	0.0	0.0
HION	3.49592E-05	0.0	0.0	0.0
NO3ION	1.77234E-07	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	998.492	0.0	0.0	0.0
Volume, L/hr	1.00163	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78609E+06	0.0	0.0	0.0
Density, g/L	996.872			
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	0.038908			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.39848E-05			
E-Con, cm2/ohm-mol	8.99814			
Abs Visc, cP	0.890742			
Rel Visc	1.00003			
Ionic Strength	3.50150E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.17018D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-9.21552D+01
MIX	CONDENSATE MIXER	-6.16924D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.998831

Standard Block Information

Duty, cal/hr 617018.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	3.41060E-16
Total Energy cal/hr	-3.79108E+06	-3.17406E+06	0.0

Mix Output

Outlet Temperature, C 103.256
 Outlet Pressure, atm 1.
 Aqueous pH 4.71402
 V/F (molar) 0.998831

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0635662	1.32597	0.00123391	-4390.22
Solid	0.00131716	0.182523	5.09465E-05	-501.396
Vapor	55.4218	998.492	1697.83	-3.16917E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4867	1000.	1697.83	-3.17406E+06

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

=====

Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification,atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type Adiabatic

Duty,cal/hr 0.0

Standard Block Information

Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	0.0
Total Energy cal/hr	-3.17406E+06	-3.17406E+06	0.0

Separate Output

Outlet Temperature, C	103.256
Outlet Pressure, atm	1.
Aqueous pH	4.71402
Suspended Solids, g solid/g liq solution	0.137652
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0635662	1.32597	0.00123391	-4390.22
Solid	0.00131716	0.182523	5.09465E-05	-501.396
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0648834	1.50849	0.00128486	-4891.62

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4218	998.492	1697.83	-3.16917E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4218	998.492	1697.83	-3.16917E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -92.1552

	In	Out	Rel. Diff.
Total Mass g/hr	1.50849	1.50849	1.47196E-16
Total Energy cal/hr	-4891.62	-4983.77	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 6.18305
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0622878	1.32258	0.00114539	-4450.91
Solid	0.00110204	0.185915	6.52136E-05	-532.863
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0633899	1.50849	0.00121061	-4983.77

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===== BLOCK REPORT =====

BLOCK NAME: Condensate mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type T, P

Temp, C 25.

Standard Block Information

Duty, cal/hr -6.16924E+05

	In	Out	Rel. Diff.
Total Mass g/hr	998.492	998.492	4.55434E-16
Total Energy cal/hr	-3.16917E+06	-3.78609E+06	0.0

Mix Output

Outlet Temperature, C 25.

Outlet Pressure, atm 1.

Aqueous pH 4.45875

V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4218	998.492	1.00163	-3.78609E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4218	998.492	1.00163	-3.78609E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block               Mix: Evap mixer
Control Parameter              Vapor Fraction
Control Parameter Minimum      0.0
Control Parameter Maximum      0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations             20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:     Solution Species
```

Controller Output

```
-----
Specification Stream          Cooled Bottoms
Controlled Block              Evap mixer
Control Parameter Type:      General Process Variable
Convergence:                  Converged
Iterations Completed this Sequence      13.
Total Iterations Completed all Sequences 13.
Last Parameter Value           0.998831
Last DIFF (Computed-Setpoint)  2.24271E-07
Previous Parameter Value       0.998832
Previous DIFF (Computed-Setpoint) -5.09771E-05
Control Parameter Minimum      0.998825
Control Parameter Maximum      0.998832
Control Parameter Stepsize     0.0
Maximum Iterations             0.0
```

Influent Limit Composition 90% Target pH=6.5
6.5-90

=====

```
      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
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  O     O           L           I
    O     O           L L L L L L L L   I I I I
      O   O   O
```

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 September 1, 2002

PROCESS: AWE65_6

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE65_6.LIS

DATE: 12/05/2002

=====

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	5.00385D+02	-1.89616D+06
Total in	5.00385D+02	-1.89616D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	2.25695D+00	-7.44406D+03
CONDENSATE	4.98128D+02	-1.88871D+06
Total out	5.00385D+02	-1.89616D+06

Block Heat Duties	cal/hr
EVAP MIXER	3.07915D+05
EVAP BOTTOMS COOLING MIXER	-1.36716D+02
CONDENSATE MIXER	-3.07779D+05
Total Duty	-2.59294D-01

DIFFERENCE	6.93490D-12	1.74623D-10
REL DIFFERENCE	1.38591D-14	-9.20932D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	5.54695D+01	5.54695D+01	5.68434D-14	1.02477D-15
K(+1)	6.74678D-04	6.74678D-04	9.75782D-19	1.44629D-15
NA(+1)	4.58790D-03	4.58790D-03	-8.67362D-19	-1.89054D-16
BA(+2)	7.29927D-07	7.29927D-07	-1.05879D-22	-1.45054D-16
CA(+2)	1.24688D-03	1.24688D-03	-2.16840D-19	-1.73906D-16
ZN(+2)	5.04587D-05	5.04587D-05	2.03288D-20	4.02880D-16
CU(+2)	9.44882D-06	9.44882D-06	0.00000D+00	0.00000D+00
FE(+2)	1.30824D-04	1.30824D-04	5.42101D-20	4.14373D-16
MG(+2)	5.34979D-04	5.34979D-04	0.00000D+00	0.00000D+00
PB(+2)	6.28019D-06	6.28019D-06	-3.38813D-21	-5.39495D-16
AL(+3)	1.18519D-04	1.18519D-04	1.35525D-20	1.14349D-16
NI(+2)	2.04429D-06	2.04429D-06	0.00000D+00	0.00000D+00
O(-2)	2.77505D+01	2.77505D+01	3.16192D-13	1.13941D-14
CL(-1)	3.94366D-03	3.94366D-03	-6.07153D-18	-1.53957D-15
C(+4)	1.66667D-03	1.66667D-03	1.43639D-13	8.61831D-11
P(+5)	8.42105D-04	8.42105D-04	-3.25261D-19	-3.86247D-16
S(+6)	1.25000D-03	1.25000D-03	-2.16840D-19	-1.73472D-16
N(+5)	1.27419D-03	1.27419D-03	2.16840D-19	1.70179D-16
SI(+4)	2.50000D-04	2.50000D-04	0.00000D+00	0.00000D+00
SR(+2)	2.96804D-05	2.96804D-05	-3.38813D-21	-1.14154D-16

CD (+2)	5.89286D-08	5.89286D-08	5.16161D-22	8.75909D-15
CR (+3)	1.84615D-07	1.84615D-07	4.15576D-21	2.25103D-14
U (+4)	7.98319D-06	7.98319D-06	0.00000D+00	0.00000D+00

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DODEC (-1)

7.96598D-05 7.96598D-05 2.01662D-17 2.53153D-13

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
 TO : Evap mixer
 FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.94788			
Total mol/hr	27.74985	1.32366E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	27.7335	0.0	0.0	0.0
CO2	0.00112051	0.0	0.0	0.0
H2SO4	2.88170E-24	0.0	0.0	0.0
HCL	2.26781E-15	0.0	0.0	0.0
HNO3	6.10091E-11	0.0	0.0	0.0
LAURICACID	5.82007E-06	0.0	0.0	0.0
SO3	3.73181E-28	0.0	0.0	0.0
CAH2SIO4	1.59262E-13	0.0	0.0	0.0
CASO4	2.96963E-05	0.0	0.0	0.0
CDCL2	1.69235E-09	0.0	0.0	0.0
CDOH2	9.94750E-17	0.0	0.0	0.0
CDSO4	8.52119E-09	0.0	0.0	0.0
CROH3	5.48566E-15	0.0	0.0	0.0
CUCL2	1.65340E-12	0.0	0.0	0.0
CUCO3	3.03056E-09	0.0	0.0	0.0
CUNO32	3.60171E-14	0.0	0.0	0.0
CUOH2	9.71640E-11	0.0	0.0	0.0
FEIICL2	1.65928E-14	0.0	0.0	0.0
FEIICO3	3.50025E-07	0.0	0.0	0.0
FEIIHPO4	1.20637E-07	0.0	0.0	0.0
FEIIOH2	1.40463E-13	0.0	0.0	0.0
ALO2H2CL	4.38913E-28	0.0	0.0	0.0
H3PO4	9.46126E-08	0.0	0.0	0.0
H4P2O7	3.18991E-17	0.0	0.0	0.0
ALOH3	1.19739E-09	1.18516E-04	0.0	0.0
BACO3	7.25548E-13	0.0	0.0	0.0
KCL	3.22694E-08	0.0	0.0	0.0
KHSO4	1.44853E-12	0.0	0.0	0.0
BASO4	1.02621E-10	6.39811E-07	0.0	0.0
MGCO3	9.23119E-09	0.0	0.0	0.0
MGH2SIO4	6.19663E-13	0.0	0.0	0.0
MGHPO4	2.02484E-05	0.0	0.0	0.0
MGSO4	2.08344E-05	0.0	0.0	0.0
NAHCO3	1.47379E-06	0.0	0.0	0.0
NAHSIO3	3.01337E-08	0.0	0.0	0.0
NANO3	4.89201E-07	0.0	0.0	0.0
NIOH2	7.78821E-14	0.0	0.0	0.0
NISO4	2.46011E-07	0.0	0.0	0.0
PBCL2	3.35442E-11	0.0	0.0	0.0
PBHPO4	7.88699E-10	0.0	0.0	0.0
PBNO32	6.67029E-13	0.0	0.0	0.0
PBO	5.79799E-14	0.0	0.0	0.0
CACL2	2.75905E-26	0.0	0.0	0.0
SIO2	2.49931E-04	0.0	0.0	0.0

CACO3	5.08222E-08	0.0	0.0	0.0
SRHPO4	1.71395E-08	0.0	0.0	0.0
SRNO32	5.62488E-10	0.0	0.0	0.0
SRSO4	3.46941E-06	0.0	0.0	0.0
UIVOH4	1.50544E-10	0.0	0.0	0.0
UIVSO42	2.94038E-25	0.0	0.0	0.0
ZNCL2	1.99687E-09	0.0	0.0	0.0
ZNHPO4	3.00326E-06	0.0	0.0	0.0
ZNNO32	7.65347E-11	0.0	0.0	0.0
ZNOH2	9.49051E-11	0.0	0.0	0.0
OHION	5.21995E-09	0.0	0.0	0.0
ALION	2.64010E-11	0.0	0.0	0.0
ALOH2ION	2.88648E-10	0.0	0.0	0.0
ALOH4ION	3.11384E-10	0.0	0.0	0.0
ALOHCLION	1.59181E-12	0.0	0.0	0.0
ALOHION	1.10988E-10	0.0	0.0	0.0
ALSO42ION	9.79762E-13	0.0	0.0	0.0
ALSO4ION	1.01253E-11	0.0	0.0	0.0
BAHCO3ION	4.82590E-10	0.0	0.0	0.0
BAION	8.95259E-08	0.0	0.0	0.0
BAOHION	2.62622E-16	0.0	0.0	0.0
CACLION	1.18361E-10	0.0	0.0	0.0
CAH2PO4ION	3.28421E-05	0.0	0.0	0.0
CAHCO3ION	7.51178E-06	0.0	0.0	0.0
CAHSIO3ION	8.66755E-10	0.0	0.0	0.0
CAION	0.00117242	0.0	0.0	0.0
CANO3ION	4.27883E-06	0.0	0.0	0.0
CAOHION	1.13704E-10	0.0	0.0	0.0
CAPO4ION	7.88193E-08	0.0	0.0	0.0
CDCL3ION	6.46786E-13	0.0	0.0	0.0
CDCL4ION	3.84984E-15	0.0	0.0	0.0
CDCLION	1.36321E-08	0.0	0.0	0.0
CDION	3.49516E-08	0.0	0.0	0.0
CDNO3ION	1.29072E-10	0.0	0.0	0.0
CDOH3ION	1.44256E-23	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	1.62418E-12	0.0	0.0	0.0
CLION	0.0039433	0.0	0.0	0.0
CO3ION	3.50359E-08	0.0	0.0	0.0
CRIIIICL2ION	3.30334E-19	0.0	0.0	0.0
CRIIIICLION	4.26623E-16	0.0	0.0	0.0
CRIIIH2PO4ION	7.43213E-13	0.0	0.0	0.0
CRIIIHPO4ION	1.84572E-07	0.0	0.0	0.0
CRIIIIION	3.34489E-14	0.0	0.0	0.0
CRIIINO3ION	8.10740E-15	0.0	0.0	0.0
CROH2ION	2.12867E-15	0.0	0.0	0.0
CROH4ION	6.57753E-20	0.0	0.0	0.0
CROHION	1.44830E-12	0.0	0.0	0.0
CRSO4ION	4.14398E-11	0.0	0.0	0.0
CUCL3ION	2.73829E-17	0.0	0.0	0.0
CUCLION	6.22999E-10	0.0	0.0	0.0
CUCO32ION	3.21380E-13	0.0	0.0	0.0
CUION	2.67706E-08	0.0	0.0	0.0
CUNO3ION	1.34365E-10	0.0	0.0	0.0
CUOH3ION	5.44707E-17	0.0	0.0	0.0
CUOH4ION	5.75392E-24	0.0	0.0	0.0
CUOHION	7.02978E-10	0.0	0.0	0.0
DODECION	7.38398E-05	0.0	0.0	0.0

FEIICLION	7.73012E-10	0.0	0.0	0.0
FEIICO32ION	8.07377E-13	0.0	0.0	0.0
FEIIH2PO4ION	3.23024E-07	0.0	0.0	0.0
FEIIHCO3ION	1.09678E-08	0.0	0.0	0.0
FEIIION	1.29996E-04	0.0	0.0	0.0
FEIIOH3ION	5.74206E-18	0.0	0.0	0.0
FEIIOH4ION	8.39315E-27	0.0	0.0	0.0
FEIIOHION	2.31601E-08	0.0	0.0	0.0
H2P2O7ION	6.01752E-09	0.0	0.0	0.0
H2PO4ION	6.94911E-04	0.0	0.0	0.0
H2SIO4ION	4.14344E-15	0.0	0.0	0.0
H3P2O7ION	9.38202E-13	0.0	0.0	0.0
H3SIO4ION	3.70066E-08	0.0	0.0	0.0
HCO3ION	5.25881E-04	0.0	0.0	0.0
HION	6.52978E-07	0.0	0.0	0.0
HP2O7ION	2.87004E-09	0.0	0.0	0.0
HPBO2ION	6.73217E-19	0.0	0.0	0.0
HPO4ION	6.14529E-05	0.0	0.0	0.0
HSO4ION	7.63920E-08	0.0	0.0	0.0
KION	6.68417E-04	0.0	0.0	0.0
KSO4ION	6.22869E-06	0.0	0.0	0.0
MGH2PO4ION	1.69891E-05	0.0	0.0	0.0
MGHCO3ION	1.02651E-05	0.0	0.0	0.0
MGHSIO3ION	6.44628E-10	0.0	0.0	0.0
MGION	4.66581E-04	0.0	0.0	0.0
MGOHION	4.38733E-10	0.0	0.0	0.0
MGP2O7ION	6.18522E-09	0.0	0.0	0.0
MGPO4ION	4.52793E-08	0.0	0.0	0.0
NACO3ION	6.05804E-10	0.0	0.0	0.0
NAION	0.00453932	0.0	0.0	0.0
NASO4ION	4.65888E-05	0.0	0.0	0.0
NICLION	7.70459E-10	0.0	0.0	0.0
NIION	1.79023E-06	0.0	0.0	0.0
NINO3ION	7.14450E-09	0.0	0.0	0.0
NIOH3ION	8.28794E-19	0.0	0.0	0.0
NIOHION	1.39987E-10	0.0	0.0	0.0
NO3ION	0.00126903	0.0	0.0	0.0
P2O7ION	3.77584E-12	0.0	0.0	0.0
PBCL3ION	1.30433E-13	0.0	0.0	0.0
PBCL4ION	8.89736E-16	0.0	0.0	0.0
PBCLION	1.58954E-09	0.0	0.0	0.0
PB2PO4ION	4.20872E-10	0.0	0.0	0.0
PBION	1.35457E-08	0.0	0.0	0.0
PBNO33ION	2.91475E-16	0.0	0.0	0.0
PBNO3ION	3.68481E-10	0.0	0.0	0.0
PBOHION	1.92494E-10	0.0	0.0	0.0
PO4ION	5.61029E-11	0.0	0.0	0.0
SO4ION	0.00114221	0.0	0.0	0.0
SRION	2.59888E-05	0.0	0.0	0.0
SRNO3ION	2.04485E-07	0.0	0.0	0.0
SROHION	9.51067E-13	0.0	0.0	0.0
SRPO4ION	2.44165E-11	0.0	0.0	0.0
UIVCLION	1.45767E-29	0.0	0.0	0.0
UIVION	1.19430E-28	0.0	0.0	0.0
UIVOH2ION	4.26020E-20	0.0	0.0	0.0
UIVOH3ION	2.23102E-15	0.0	0.0	0.0
UIVOH5ION	8.15932E-15	0.0	0.0	0.0
UIVOHION	1.54259E-23	0.0	0.0	0.0

UIVSO4ION	6.09081E-26	0.0	0.0	0.0
ZNCL3ION	5.39568E-12	0.0	0.0	0.0
ZNCLION	3.06549E-07	0.0	0.0	0.0
ZNH2PO4ION	1.30915E-06	0.0	0.0	0.0
ZNHCO3ION	5.62600E-07	0.0	0.0	0.0
ZNION	4.50650E-05	0.0	0.0	0.0
ZNNO3ION	1.79237E-07	0.0	0.0	0.0
ZNOH3ION	9.69977E-16	0.0	0.0	0.0
ZNOH4ION	1.77385E-22	0.0	0.0	0.0
ZNOHION	3.07271E-08	0.0	0.0	0.0
CU3PO42.2H2O	0.0	3.13913E-06	0.0	0.0
PB3PO42	0.0	2.08774E-06	0.0	0.0
UIVO2	0.0	7.98299E-06	0.0	0.0
=====				
Total g/hr	500.37	0.0145518	0.0	0.0
Volume, L/hr	0.501393	4.25643E-06	0.0	0.0
Enthalpy, cal/hr	-1.89612E+06	-39.7604	0.0	0.0
Density, g/L	997.96	3418.77		
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	0.826227			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.00189918			
E-Con, cm2/ohm-mol	114.997			
Abs Visc, cP	0.894789			
Rel Visc	1.00457			
Ionic Strength	0.0240444			

ESP V-6.6

PROCESS:AWE65_6

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.4	103.4	103.4	103.4
Pressure, atm	1.	1.	1.	1.
pH	4.08595			
Total mol/hr	0.09985618	0.00173775	27.647	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0891015	0.0	27.64525	0.0
CO2	6.70508E-10	0.0	0.001666673	0.0
H2SO4	1.03407E-21	0.0	3.11436E-19	0.0
HCL	5.11925E-12	0.0	1.60046E-06	0.0
HNO3	5.85839E-09	0.0	4.52111E-07	0.0
LAURICACID	4.56879E-09	0.0	7.96399E-05	0.0
SO3	7.56757E-25	0.0	8.40353E-25	0.0
CAH2SIO4	7.88343E-18	0.0	0.0	0.0
CASO4	8.86821E-07	8.64282E-04	0.0	0.0
CDCL2	2.50847E-08	0.0	0.0	0.0
CDOH2	2.21160E-20	0.0	0.0	0.0
CDSO4	6.42756E-12	0.0	0.0	0.0
CROH3	4.24480E-22	0.0	0.0	0.0
CUCL2	3.20108E-09	0.0	0.0	0.0
CUCO3	2.26970E-18	0.0	0.0	0.0
CUNO32	3.66028E-11	0.0	0.0	0.0
CUOH2	6.97365E-14	0.0	0.0	0.0
FEIICL2	3.83364E-09	0.0	0.0	0.0
FEIICO3	4.76989E-15	0.0	0.0	0.0
FEIIHPO4	1.00550E-08	0.0	0.0	0.0
FEIIOH2	4.68431E-14	0.0	0.0	0.0
ALO2H2CL	3.87515E-28	0.0	0.0	0.0
H3PO4	3.95547E-07	0.0	0.0	0.0
H4P2O7	2.58829E-12	0.0	0.0	0.0
ALOH3	1.08804E-12	0.0	0.0	0.0
BACO3	5.85827E-22	0.0	0.0	0.0
KCL	1.13364E-05	0.0	0.0	0.0
KHSO4	5.33996E-09	0.0	0.0	0.0
BASO4	1.62959E-12	7.28401E-07	0.0	0.0
MGCO3	3.73103E-16	0.0	0.0	0.0
MGH2SIO4	2.59998E-15	0.0	0.0	0.0
MGHPO4	3.49151E-06	0.0	0.0	0.0
MGSO4	2.17541E-05	0.0	0.0	0.0
NAHCO3	8.26853E-12	0.0	0.0	0.0
NAHSIO3	1.68519E-09	0.0	0.0	0.0
NANO3	3.27049E-04	0.0	0.0	0.0
NIOH2	5.29172E-16	0.0	0.0	0.0
NISO4	4.26738E-07	0.0	0.0	0.0
PBCL2	2.65582E-07	0.0	0.0	0.0
PBHPO4	1.70999E-11	0.0	0.0	0.0
PBNO32	1.30313E-08	0.0	0.0	0.0
PBO	7.00420E-16	0.0	0.0	0.0
CACL2	2.39027E-15	0.0	0.0	0.0
SIO2	7.09961E-06	2.42897E-04	0.0	0.0

CACO3	3.41121E-17	0.0	0.0	0.0
SRHPO4	1.81800E-11	0.0	0.0	0.0
SRNO32	9.21197E-08	0.0	0.0	0.0
SRSO4	1.52740E-08	2.93034E-05	0.0	0.0
UIVOH4	1.88149E-12	0.0	0.0	0.0
UIVSO42	2.13687E-20	0.0	0.0	0.0
ZNCL2	1.03844E-05	0.0	0.0	0.0
ZNHPO4	2.07261E-09	0.0	0.0	0.0
ZNNO32	7.22648E-09	0.0	0.0	0.0
ZNOH2	3.19463E-14	0.0	0.0	0.0
OHION	1.72144E-11	0.0	0.0	0.0
ALION	2.69032E-13	0.0	0.0	0.0
ALOH2ION	1.26850E-12	0.0	0.0	0.0
ALOH4ION	1.39245E-13	0.0	0.0	0.0
ALOHCLION	4.95935E-12	0.0	0.0	0.0
ALOHION	1.17526E-12	0.0	0.0	0.0
ALSO42ION	9.49590E-13	0.0	0.0	0.0
ALSO4ION	1.68883E-12	0.0	0.0	0.0
BAHCO3ION	8.99682E-17	0.0	0.0	0.0
BAION	1.52218E-09	0.0	0.0	0.0
BAOHION	7.28299E-18	0.0	0.0	0.0
CACLION	6.28296E-08	0.0	0.0	0.0
CAH2PO4ION	7.98424E-06	0.0	0.0	0.0
CAHCO3ION	1.54236E-13	0.0	0.0	0.0
CAHSIO3ION	7.38842E-12	0.0	0.0	0.0
CAION	1.48866E-05	0.0	0.0	0.0
CANO3ION	8.02786E-06	0.0	0.0	0.0
CAOHION	1.44971E-12	0.0	0.0	0.0
CAPO4ION	1.04974E-11	0.0	0.0	0.0
CDCL3ION	2.50957E-08	0.0	0.0	0.0
CDCL4ION	7.21990E-09	0.0	0.0	0.0
CDCLION	1.48420E-09	0.0	0.0	0.0
CDION	2.76673E-11	0.0	0.0	0.0
CDNO3ION	1.00774E-11	0.0	0.0	0.0
CDOH3ION	2.42960E-27	0.0	0.0	0.0
CDOHION	4.08397E-16	0.0	0.0	0.0
CLION	0.00381846	0.0	0.0	0.0
CO3ION	9.22617E-17	0.0	0.0	0.0
CRIIIICL2ION	4.78075E-17	0.0	0.0	0.0
CRIIIICLION	3.15242E-17	0.0	0.0	0.0
CRIIIH2PO4ION	7.06716E-16	0.0	0.0	0.0
CRIIIHPO4ION	1.84615E-07	0.0	0.0	0.0
CRIIIIION	3.65941E-21	0.0	0.0	0.0
CRIIINO3ION	2.33889E-14	0.0	0.0	0.0
CROH2ION	1.26271E-20	0.0	0.0	0.0
CROH4ION	7.17095E-28	0.0	0.0	0.0
CROHION	6.12060E-15	0.0	0.0	0.0
CRSO4ION	6.09648E-13	0.0	0.0	0.0
CUCL3ION	5.49053E-11	0.0	0.0	0.0
CUCLION	2.08433E-08	0.0	0.0	0.0
CUCO32ION	7.35570E-28	0.0	0.0	0.0
CUION	5.55397E-09	0.0	0.0	0.0
CUNO3ION	1.31083E-09	0.0	0.0	0.0
CUOH3ION	4.81485E-20	0.0	0.0	0.0
CUOH4ION	7.34884E-26	0.0	0.0	0.0
CUOHION	9.56266E-12	0.0	0.0	0.0
DODECION	1.55084E-08	0.0	0.0	0.0
FEIICLION	8.32029E-07	0.0	0.0	0.0

FEIICO32ION	4.47789E-26	0.0	0.0	0.0
FEIIH2PO4ION	1.91992E-06	0.0	0.0	0.0
FEIIHCO3ION	2.34076E-14	0.0	0.0	0.0
FEIIION	9.25722E-05	0.0	0.0	0.0
FEIIOH3ION	6.12930E-19	0.0	0.0	0.0
FEIIOH4ION	1.11984E-26	0.0	0.0	0.0
FEIIOHION	5.80707E-09	0.0	0.0	0.0
H2P2O7ION	5.50178E-07	0.0	0.0	0.0
H2PO4ION	5.16807E-05	0.0	0.0	0.0
H2SIO4ION	6.19077E-18	0.0	0.0	0.0
H3P2O7ION	9.42576E-10	0.0	0.0	0.0
H3SIO4ION	5.41970E-10	0.0	0.0	0.0
HCO3ION	5.69292E-12	0.0	0.0	0.0
HION	1.79451E-07	0.0	0.0	0.0
HP2O7ION	7.43066E-09	0.0	0.0	0.0
HPBO2ION	4.72370E-21	0.0	0.0	0.0
HPO4ION	3.61131E-07	0.0	0.0	0.0
HSO4ION	1.01540E-06	0.0	0.0	0.0
KION	6.09730E-04	0.0	0.0	0.0
KSO4ION	5.36063E-05	0.0	0.0	0.0
MGH2PO4ION	5.88870E-05	0.0	0.0	0.0
MGHCO3ION	6.96892E-12	0.0	0.0	0.0
MGHSIO3ION	3.18947E-10	0.0	0.0	0.0
MGION	1.25816E-04	0.0	0.0	0.0
MGOHION	2.64269E-10	0.0	0.0	0.0
MGP2O7ION	6.50020E-08	0.0	0.0	0.0
MGPO4ION	2.48473E-10	0.0	0.0	0.0
NACO3ION	1.36915E-17	0.0	0.0	0.0
NAION	0.00426085	0.0	0.0	0.0
NASO4ION	6.00174E-13	0.0	0.0	0.0
NICLION	1.08776E-07	0.0	0.0	0.0
NIION	1.27239E-06	0.0	0.0	0.0
NINO3ION	2.36365E-07	0.0	0.0	0.0
NIOH3ION	9.01706E-22	0.0	0.0	0.0
NIOHION	2.19231E-11	0.0	0.0	0.0
NO3ION	9.37706E-04	0.0	0.0	0.0
P2O7ION	8.97135E-13	0.0	0.0	0.0
PBCL3ION	6.27270E-07	0.0	0.0	0.0
PBCL4ION	5.26273E-06	0.0	0.0	0.0
PBCLION	7.75122E-08	0.0	0.0	0.0
PBH2PO4ION	1.60020E-09	0.0	0.0	0.0
PBION	3.35690E-09	0.0	0.0	0.0
PBNO33ION	6.72975E-10	0.0	0.0	0.0
PBNO3ION	2.83887E-08	0.0	0.0	0.0
PBOHION	2.80620E-11	0.0	0.0	0.0
PO4ION	4.00498E-14	0.0	0.0	0.0
SO4ION	2.77975E-04	0.0	0.0	0.0
SRION	4.67426E-09	0.0	0.0	0.0
SRNO3ION	2.64805E-07	0.0	0.0	0.0
SROHION	1.10750E-14	0.0	0.0	0.0
SRPO4ION	2.38762E-15	0.0	0.0	0.0
UIVCLION	8.82688E-24	0.0	0.0	0.0
UIVION	5.75421E-26	0.0	0.0	0.0
UIVOH2ION	2.82580E-19	0.0	0.0	0.0
UIVOH3ION	4.96490E-17	0.0	0.0	0.0
UIVOH5ION	1.20152E-17	0.0	0.0	0.0
UIVOHION	1.20057E-20	0.0	0.0	0.0
UIVSO4ION	4.67507E-21	0.0	0.0	0.0

ZNCL3ION	1.42096E-05	0.0	0.0	0.0
ZNCLION	2.41301E-05	0.0	0.0	0.0
ZNH2PO4ION	9.42148E-08	0.0	0.0	0.0
ZNHCO3ION	9.32521E-15	0.0	0.0	0.0
ZNION	1.42948E-06	0.0	0.0	0.0
ZNNO3ION	1.94757E-07	0.0	0.0	0.0
ZNOH3ION	8.61473E-19	0.0	0.0	0.0
ZNOH4ION	4.72357E-25	0.0	0.0	0.0
ZNOHION	6.84841E-09	0.0	0.0	0.0
CAHPO4	0.0	3.50750E-04	0.0	0.0
ALPO4	0.0	1.18518E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.13926E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.18268E-05	0.0	0.0
MG3PO42	0.0	1.08322E-04	0.0	0.0
UIVO2	0.0	7.98317E-06	0.0	0.0
=====				
Total g/hr	2.01909	0.237857	498.128	0.0
Volume, L/hr	0.00185263	5.57389E-05	847.29	0.0
Enthalpy, cal/hr	-6633.04	-674.306	-1.58093E+06	0.0
Density, g/L	1089.85	4267.34	0.587907	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	193.315			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.483806			
E-Con, cm2/ohm-mol	59.901			
Abs Visc, cP	0.275692			
Rel Visc	1.01419			
Ionic Strength	3.71675			

ESP V-6.6

PROCESS:AWE65_6

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.4	103.4	103.4	103.4
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	27.647	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	27.64525	0.0
CO2	0.0	0.0	0.001666673	0.0
H2SO4	0.0	0.0	3.11436E-19	0.0
HCL	0.0	0.0	1.60046E-06	0.0
HNO3	0.0	0.0	4.52111E-07	0.0
LAURICACID	0.0	0.0	7.96399E-05	0.0
SO3	0.0	0.0	8.40353E-25	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	498.128	0.0
Volume, L/hr	0.0	0.0	847.29	0.0
Enthalpy, cal/hr	0.0	0.0	-1.58093E+06	0.0
Density, g/L			0.587907	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE65_6

12/05/2002 PAGE 7

STREAM: Bottoms
TO : Evap Bottoms Cooling mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.4	103.4	103.4	103.4
Pressure, atm	1.	1.	1.	1.
pH	4.08595			
Total mol/hr	0.09985618	0.00173775	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0891015	0.0	0.0	0.0
CO2	6.70508E-10	0.0	0.0	0.0
H2SO4	1.03407E-21	0.0	0.0	0.0
HCL	5.11925E-12	0.0	0.0	0.0
HNO3	5.85839E-09	0.0	0.0	0.0
LAURICACID	4.56879E-09	0.0	0.0	0.0
SO3	7.56757E-25	0.0	0.0	0.0
CAH2SIO4	7.88343E-18	0.0	0.0	0.0
CASO4	8.86821E-07	8.64282E-04	0.0	0.0
CDCL2	2.50847E-08	0.0	0.0	0.0
CDOH2	2.21160E-20	0.0	0.0	0.0
CDSO4	6.42756E-12	0.0	0.0	0.0
CROH3	4.24480E-22	0.0	0.0	0.0
CUCL2	3.20108E-09	0.0	0.0	0.0
CUCO3	2.26970E-18	0.0	0.0	0.0
CUNO32	3.66028E-11	0.0	0.0	0.0
CUOH2	6.97365E-14	0.0	0.0	0.0
FEIICL2	3.83364E-09	0.0	0.0	0.0
FEIICO3	4.76989E-15	0.0	0.0	0.0
FEIIHPO4	1.00550E-08	0.0	0.0	0.0
FEIIOH2	4.68431E-14	0.0	0.0	0.0
ALO2H2CL	3.87515E-28	0.0	0.0	0.0
H3PO4	3.95547E-07	0.0	0.0	0.0
H4P2O7	2.58829E-12	0.0	0.0	0.0
ALOH3	1.08804E-12	0.0	0.0	0.0
BACO3	5.85827E-22	0.0	0.0	0.0
KCL	1.13364E-05	0.0	0.0	0.0
KHSO4	5.33996E-09	0.0	0.0	0.0
BASO4	1.62959E-12	7.28401E-07	0.0	0.0
MGCO3	3.73103E-16	0.0	0.0	0.0
MGH2SIO4	2.59998E-15	0.0	0.0	0.0
MGHPO4	3.49151E-06	0.0	0.0	0.0
MGSO4	2.17541E-05	0.0	0.0	0.0
NAHCO3	8.26853E-12	0.0	0.0	0.0
NAHSIO3	1.68519E-09	0.0	0.0	0.0
NANO3	3.27049E-04	0.0	0.0	0.0
NIOH2	5.29172E-16	0.0	0.0	0.0
NISO4	4.26738E-07	0.0	0.0	0.0
PBCL2	2.65582E-07	0.0	0.0	0.0
PBHPO4	1.70999E-11	0.0	0.0	0.0
PBNO32	1.30313E-08	0.0	0.0	0.0
PBO	7.00420E-16	0.0	0.0	0.0
CACL2	2.39027E-15	0.0	0.0	0.0
SIO2	7.09961E-06	2.42897E-04	0.0	0.0

CACO3	3.41121E-17	0.0	0.0	0.0
SRHPO4	1.81800E-11	0.0	0.0	0.0
SRNO32	9.21197E-08	0.0	0.0	0.0
SRSO4	1.52740E-08	2.93034E-05	0.0	0.0
UIVOH4	1.88149E-12	0.0	0.0	0.0
UIVSO42	2.13687E-20	0.0	0.0	0.0
ZNCL2	1.03844E-05	0.0	0.0	0.0
ZNHPO4	2.07261E-09	0.0	0.0	0.0
ZNNO32	7.22648E-09	0.0	0.0	0.0
ZNOH2	3.19463E-14	0.0	0.0	0.0
OHION	1.72144E-11	0.0	0.0	0.0
ALION	2.69032E-13	0.0	0.0	0.0
ALOH2ION	1.26850E-12	0.0	0.0	0.0
ALOH4ION	1.39245E-13	0.0	0.0	0.0
ALOHCLION	4.95935E-12	0.0	0.0	0.0
ALOHION	1.17526E-12	0.0	0.0	0.0
ALSO42ION	9.49590E-13	0.0	0.0	0.0
ALSO4ION	1.68883E-12	0.0	0.0	0.0
BAHCO3ION	8.99682E-17	0.0	0.0	0.0
BAION	1.52218E-09	0.0	0.0	0.0
BAOHION	7.28299E-18	0.0	0.0	0.0
CACLION	6.28296E-08	0.0	0.0	0.0
CAH2PO4ION	7.98424E-06	0.0	0.0	0.0
CAHCO3ION	1.54236E-13	0.0	0.0	0.0
CAHSIO3ION	7.38842E-12	0.0	0.0	0.0
CAION	1.48866E-05	0.0	0.0	0.0
CANO3ION	8.02786E-06	0.0	0.0	0.0
CAOHION	1.44971E-12	0.0	0.0	0.0
CAPO4ION	1.04974E-11	0.0	0.0	0.0
CDCL3ION	2.50957E-08	0.0	0.0	0.0
CDCL4ION	7.21990E-09	0.0	0.0	0.0
CDCLION	1.48420E-09	0.0	0.0	0.0
CDION	2.76673E-11	0.0	0.0	0.0
CDNO3ION	1.00774E-11	0.0	0.0	0.0
CDOH3ION	2.42960E-27	0.0	0.0	0.0
CDOHION	4.08397E-16	0.0	0.0	0.0
CLION	0.00381846	0.0	0.0	0.0
CO3ION	9.22617E-17	0.0	0.0	0.0
CRIIIICL2ION	4.78075E-17	0.0	0.0	0.0
CRIIIICLION	3.15242E-17	0.0	0.0	0.0
CRIIIH2PO4ION	7.06716E-16	0.0	0.0	0.0
CRIIIHPO4ION	1.84615E-07	0.0	0.0	0.0
CRIIIIION	3.65941E-21	0.0	0.0	0.0
CRIIINO3ION	2.33889E-14	0.0	0.0	0.0
CROH2ION	1.26271E-20	0.0	0.0	0.0
CROH4ION	7.17095E-28	0.0	0.0	0.0
CROHION	6.12060E-15	0.0	0.0	0.0
CRSO4ION	6.09648E-13	0.0	0.0	0.0
CUCL3ION	5.49053E-11	0.0	0.0	0.0
CUCLION	2.08433E-08	0.0	0.0	0.0
CUCO32ION	7.35570E-28	0.0	0.0	0.0
CUION	5.55397E-09	0.0	0.0	0.0
CUNO3ION	1.31083E-09	0.0	0.0	0.0
CUOH3ION	4.81485E-20	0.0	0.0	0.0
CUOH4ION	7.34884E-26	0.0	0.0	0.0
CUOHION	9.56266E-12	0.0	0.0	0.0
DODECION	1.55084E-08	0.0	0.0	0.0
FEIICLION	8.32029E-07	0.0	0.0	0.0

FEIICO32ION	4.47789E-26	0.0	0.0	0.0
FEIIH2PO4ION	1.91992E-06	0.0	0.0	0.0
FEIIHCO3ION	2.34076E-14	0.0	0.0	0.0
FEIIION	9.25722E-05	0.0	0.0	0.0
FEIIOH3ION	6.12930E-19	0.0	0.0	0.0
FEIIOH4ION	1.11984E-26	0.0	0.0	0.0
FEIIOHION	5.80707E-09	0.0	0.0	0.0
H2P2O7ION	5.50178E-07	0.0	0.0	0.0
H2PO4ION	5.16807E-05	0.0	0.0	0.0
H2SIO4ION	6.19077E-18	0.0	0.0	0.0
H3P2O7ION	9.42576E-10	0.0	0.0	0.0
H3SIO4ION	5.41970E-10	0.0	0.0	0.0
HCO3ION	5.69292E-12	0.0	0.0	0.0
HION	1.79451E-07	0.0	0.0	0.0
HP2O7ION	7.43066E-09	0.0	0.0	0.0
HPBO2ION	4.72370E-21	0.0	0.0	0.0
HPO4ION	3.61131E-07	0.0	0.0	0.0
HSO4ION	1.01540E-06	0.0	0.0	0.0
KION	6.09730E-04	0.0	0.0	0.0
KSO4ION	5.36063E-05	0.0	0.0	0.0
MGH2PO4ION	5.88870E-05	0.0	0.0	0.0
MGHCO3ION	6.96892E-12	0.0	0.0	0.0
MGHSIO3ION	3.18947E-10	0.0	0.0	0.0
MGION	1.25816E-04	0.0	0.0	0.0
MGOHION	2.64269E-10	0.0	0.0	0.0
MGP2O7ION	6.50020E-08	0.0	0.0	0.0
MGPO4ION	2.48473E-10	0.0	0.0	0.0
NACO3ION	1.36915E-17	0.0	0.0	0.0
NAION	0.00426085	0.0	0.0	0.0
NASO4ION	6.00174E-13	0.0	0.0	0.0
NICLION	1.08776E-07	0.0	0.0	0.0
NIION	1.27239E-06	0.0	0.0	0.0
NINO3ION	2.36365E-07	0.0	0.0	0.0
NIOH3ION	9.01706E-22	0.0	0.0	0.0
NIOHION	2.19231E-11	0.0	0.0	0.0
NO3ION	9.37706E-04	0.0	0.0	0.0
P2O7ION	8.97135E-13	0.0	0.0	0.0
PBCL3ION	6.27270E-07	0.0	0.0	0.0
PBCL4ION	5.26273E-06	0.0	0.0	0.0
PBCLION	7.75122E-08	0.0	0.0	0.0
PBH2PO4ION	1.60020E-09	0.0	0.0	0.0
PBION	3.35690E-09	0.0	0.0	0.0
PBNO33ION	6.72975E-10	0.0	0.0	0.0
PBNO3ION	2.83887E-08	0.0	0.0	0.0
PBOHION	2.80620E-11	0.0	0.0	0.0
PO4ION	4.00498E-14	0.0	0.0	0.0
SO4ION	2.77975E-04	0.0	0.0	0.0
SRION	4.67426E-09	0.0	0.0	0.0
SRNO3ION	2.64805E-07	0.0	0.0	0.0
SROHION	1.10750E-14	0.0	0.0	0.0
SRPO4ION	2.38762E-15	0.0	0.0	0.0
UIVCLION	8.82688E-24	0.0	0.0	0.0
UIVION	5.75421E-26	0.0	0.0	0.0
UIVOH2ION	2.82580E-19	0.0	0.0	0.0
UIVOH3ION	4.96490E-17	0.0	0.0	0.0
UIVOH5ION	1.20152E-17	0.0	0.0	0.0
UIVOHION	1.20057E-20	0.0	0.0	0.0
UIVSO4ION	4.67507E-21	0.0	0.0	0.0

ZNCL3ION	1.42096E-05	0.0	0.0	0.0
ZNCLION	2.41301E-05	0.0	0.0	0.0
ZNH2PO4ION	9.42148E-08	0.0	0.0	0.0
ZNHCO3ION	9.32521E-15	0.0	0.0	0.0
ZNION	1.42948E-06	0.0	0.0	0.0
ZNNO3ION	1.94757E-07	0.0	0.0	0.0
ZNOH3ION	8.61473E-19	0.0	0.0	0.0
ZNOH4ION	4.72357E-25	0.0	0.0	0.0
ZNOHION	6.84841E-09	0.0	0.0	0.0
CAHPO4	0.0	3.50750E-04	0.0	0.0
ALPO4	0.0	1.18518E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.13926E-06	0.0	0.0
FEII3PO42.8H2O	0.0	1.18268E-05	0.0	0.0
MG3PO42	0.0	1.08322E-04	0.0	0.0
UIVO2	0.0	7.98317E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	2.01909	0.237857	0.0	0.0
Volume, L/hr	0.00185263	5.57389E-05	0.0	0.0
Enthalpy, cal/hr	-6633.04	-674.306	0.0	0.0
Density, g/L	1089.85	4267.34		
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	193.315			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.483806			
E-Con, cm2/ohm-mol	59.901			
Abs Visc, cP	0.275692			
Rel Visc	1.01419			
Ionic Strength	3.71675			

STREAM: Cooled Bottoms
 TO :
 FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.27139			
Total mol/hr	0.09910126	0.00163326	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0876956	0.0	0.0	0.0
CO2	2.70317E-10	0.0	0.0	0.0
H2SO4	8.93632E-25	0.0	0.0	0.0
HCL	5.74263E-15	0.0	0.0	0.0
HNO3	7.87510E-11	0.0	0.0	0.0
LAURICACID	1.86689E-09	0.0	0.0	0.0
SO3	1.32525E-28	0.0	0.0	0.0
CAH2SIO4	1.07168E-16	0.0	0.0	0.0
CASO4	1.30228E-06	0.0	0.0	0.0
CDCL2	7.87176E-09	0.0	0.0	0.0
CDOH2	1.48289E-22	0.0	0.0	0.0
CDSO4	3.14677E-12	0.0	0.0	0.0
CROH3	1.97772E-17	0.0	0.0	0.0
CUCL2	1.46312E-09	0.0	0.0	0.0
CUCO3	1.44578E-16	0.0	0.0	0.0
CUNO32	1.42582E-11	0.0	0.0	0.0
CUOH2	2.75563E-14	0.0	0.0	0.0
FEIICL2	2.38978E-10	0.0	0.0	0.0
FEIICO3	2.71777E-13	0.0	0.0	0.0
FEIIHPO4	7.75494E-09	0.0	0.0	0.0
FEIIOH2	6.48355E-16	0.0	0.0	0.0
ALO2H2CL	1.27278E-27	0.0	0.0	0.0
H3PO4	1.64945E-09	0.0	0.0	0.0
H4P2O7	6.76313E-18	0.0	0.0	0.0
ALOH3	1.96569E-12	6.54469E-05	0.0	0.0
BACO3	8.08801E-22	0.0	0.0	0.0
KCL	2.59912E-06	0.0	0.0	0.0
KHSO4	1.42879E-11	0.0	0.0	0.0
BASO4	1.68468E-13	7.15728E-07	0.0	0.0
MGCO3	2.36585E-14	0.0	0.0	0.0
MGH2SIO4	3.58873E-14	0.0	0.0	0.0
MGHPO4	4.29641E-06	0.0	0.0	0.0
MGSO4	7.86353E-05	0.0	0.0	0.0
NAHCO3	1.55097E-11	0.0	0.0	0.0
NAHSIO3	8.20623E-09	0.0	0.0	0.0
NANO3	1.07656E-04	0.0	0.0	0.0
NIOH2	2.17773E-16	0.0	0.0	0.0
NISO4	1.70408E-07	0.0	0.0	0.0
PBCL2	2.71190E-08	0.0	0.0	0.0
PBHPO4	2.84596E-12	0.0	0.0	0.0
PBNO32	2.41242E-10	0.0	0.0	0.0
PBO	1.72035E-17	0.0	0.0	0.0
CACL2	1.52398E-23	0.0	0.0	0.0
SIO2	1.85167E-06	2.48139E-04	0.0	0.0

CACO3	1.51338E-15	0.0	0.0	0.0
SRHPO4	9.80352E-12	0.0	0.0	0.0
SRNO32	3.22470E-08	0.0	0.0	0.0
SRSO4	3.52988E-08	2.77081E-05	0.0	0.0
UIVOH4	1.88453E-13	0.0	0.0	0.0
UIVSO42	2.25882E-23	0.0	0.0	0.0
ZNCL2	3.38962E-06	0.0	0.0	0.0
ZNHPO4	2.27539E-08	0.0	0.0	0.0
ZNNO32	5.81182E-08	0.0	0.0	0.0
ZNOH2	5.16301E-14	0.0	0.0	0.0
OHION	2.63497E-12	0.0	0.0	0.0
ALION	2.35079E-11	0.0	0.0	0.0
ALOH2ION	5.97578E-12	0.0	0.0	0.0
ALOH4ION	2.73359E-13	0.0	0.0	0.0
ALOHCLION	9.16105E-11	0.0	0.0	0.0
ALOHION	1.29831E-11	0.0	0.0	0.0
ALSO42ION	6.26516E-11	0.0	0.0	0.0
ALSO4ION	8.15523E-11	0.0	0.0	0.0
BAHCO3ION	9.32665E-18	0.0	0.0	0.0
BAION	1.41980E-08	0.0	0.0	0.0
BAOHION	2.19481E-20	0.0	0.0	0.0
CACLION	1.23166E-10	0.0	0.0	0.0
CAH2PO4ION	1.40270E-06	0.0	0.0	0.0
CAHCO3ION	3.61528E-12	0.0	0.0	0.0
CAHSIO3ION	1.15751E-11	0.0	0.0	0.0
CAION	3.12320E-05	0.0	0.0	0.0
CANO3ION	1.60605E-05	0.0	0.0	0.0
CAOHION	2.54865E-13	0.0	0.0	0.0
CAPO4ION	1.48035E-10	0.0	0.0	0.0
CDCL3ION	3.56781E-09	0.0	0.0	0.0
CDCL4ION	4.69582E-08	0.0	0.0	0.0
CDCLION	5.02619E-10	0.0	0.0	0.0
CDION	2.09822E-11	0.0	0.0	0.0
CDNO3ION	4.07175E-12	0.0	0.0	0.0
CDOH3ION	1.44375E-29	0.0	0.0	0.0
CDOHION	3.06679E-17	0.0	0.0	0.0
CLION	0.00389829	0.0	0.0	0.0
CO3ION	7.31983E-15	0.0	0.0	0.0
CRIIIICL2ION	7.37486E-14	0.0	0.0	0.0
CRIIIICLION	1.54006E-14	0.0	0.0	0.0
CRIIIH2PO4ION	2.38865E-11	0.0	0.0	0.0
CRIIIHPO4ION	1.83854E-07	0.0	0.0	0.0
CRIIIIION	6.02501E-18	0.0	0.0	0.0
CRIIINO3ION	1.53655E-11	0.0	0.0	0.0
CROH2ION	9.69462E-17	0.0	0.0	0.0
CROH4ION	1.59205E-22	0.0	0.0	0.0
CROHION	2.75950E-11	0.0	0.0	0.0
CRSO4ION	6.94713E-10	0.0	0.0	0.0
CUCL3ION	2.87370E-11	0.0	0.0	0.0
CUCLION	4.37003E-09	0.0	0.0	0.0
CUCO32ION	2.17169E-24	0.0	0.0	0.0
CUION	3.94840E-09	0.0	0.0	0.0
CUNO3ION	9.17491E-10	0.0	0.0	0.0
CUOH3ION	9.80548E-21	0.0	0.0	0.0
CUOH4ION	1.37410E-27	0.0	0.0	0.0
CUOHION	2.51947E-12	0.0	0.0	0.0
DODECION	1.82103E-08	0.0	0.0	0.0
FEIICLION	8.82506E-08	0.0	0.0	0.0

FEIICO32ION	8.83087E-23	0.0	0.0	0.0
FEIIH2PO4ION	3.59738E-07	0.0	0.0	0.0
FEIIHCO3ION	1.04124E-13	0.0	0.0	0.0
FEIIION	6.24479E-05	0.0	0.0	0.0
FEIIOH3ION	1.44793E-20	0.0	0.0	0.0
FEIIOH4ION	3.20145E-29	0.0	0.0	0.0
FEIIOHION	1.35309E-09	0.0	0.0	0.0
H2P2O7ION	1.26446E-09	0.0	0.0	0.0
H2PO4ION	1.02143E-05	0.0	0.0	0.0
H2SIO4ION	1.97268E-17	0.0	0.0	0.0
H3P2O7ION	7.85336E-14	0.0	0.0	0.0
H3SIO4ION	7.67951E-11	0.0	0.0	0.0
HCO3ION	7.84616E-11	0.0	0.0	0.0
HION	7.88379E-09	0.0	0.0	0.0
HP2O7ION	4.59027E-10	0.0	0.0	0.0
HPBO2ION	9.03740E-23	0.0	0.0	0.0
HPO4ION	1.48016E-06	0.0	0.0	0.0
HSO4ION	9.46041E-09	0.0	0.0	0.0
KION	6.27450E-04	0.0	0.0	0.0
KSO4ION	4.46287E-05	0.0	0.0	0.0
MGH2PO4ION	6.24508E-05	0.0	0.0	0.0
MGHCO3ION	3.22423E-10	0.0	0.0	0.0
MGHSIO3ION	7.40919E-10	0.0	0.0	0.0
MGION	3.89572E-04	0.0	0.0	0.0
MGOHION	8.46065E-11	0.0	0.0	0.0
MGP2O7ION	1.75909E-08	0.0	0.0	0.0
MGPO4ION	6.19684E-09	0.0	0.0	0.0
NACO3ION	3.32561E-15	0.0	0.0	0.0
NAION	0.00433628	0.0	0.0	0.0
NASO4ION	1.43961E-04	0.0	0.0	0.0
NICLION	5.32841E-08	0.0	0.0	0.0
NIION	1.39784E-06	0.0	0.0	0.0
NINO3ION	4.22757E-07	0.0	0.0	0.0
NIOH3ION	1.55494E-21	0.0	0.0	0.0
NIOHION	4.94471E-12	0.0	0.0	0.0
NO3ION	0.00114716	0.0	0.0	0.0
P2O7ION	5.60383E-12	0.0	0.0	0.0
PBCL3ION	8.42728E-08	0.0	0.0	0.0
PBCL4ION	1.90395E-06	0.0	0.0	0.0
PBCLION	1.01711E-08	0.0	0.0	0.0
PBH2PO4ION	2.63099E-11	0.0	0.0	0.0
PBION	9.89244E-10	0.0	0.0	0.0
PBNO33ION	8.36169E-11	0.0	0.0	0.0
PBNO3ION	2.02039E-09	0.0	0.0	0.0
PBOHION	6.29869E-13	0.0	0.0	0.0
PO4ION	1.75301E-12	0.0	0.0	0.0
SO4ION	3.97719E-04	0.0	0.0	0.0
SRION	1.70769E-06	0.0	0.0	0.0
SRNO3ION	1.96922E-07	0.0	0.0	0.0
SROHION	7.71831E-16	0.0	0.0	0.0
SRPO4ION	1.07305E-14	0.0	0.0	0.0
UIVCLION	7.08904E-26	0.0	0.0	0.0
UIVION	1.01234E-27	0.0	0.0	0.0
UIVOH2ION	6.41008E-21	0.0	0.0	0.0
UIVOH3ION	3.91823E-17	0.0	0.0	0.0
UIVOH5ION	6.85739E-18	0.0	0.0	0.0
UIVOHION	4.69288E-23	0.0	0.0	0.0
UIVSO4ION	1.24768E-23	0.0	0.0	0.0

ZNCL3ION	7.32237E-06	0.0	0.0	0.0
ZNCLION	4.12472E-06	0.0	0.0	0.0
ZNH2PO4ION	1.71832E-07	0.0	0.0	0.0
ZNHCO3ION	8.92244E-13	0.0	0.0	0.0
ZNION	1.49761E-05	0.0	0.0	0.0
ZNNO3ION	2.06344E-06	0.0	0.0	0.0
ZNOH3ION	2.25749E-19	0.0	0.0	0.0
ZNOH4ION	8.20215E-26	0.0	0.0	0.0
ZNOHION	2.99302E-10	0.0	0.0	0.0
CAHPO4	0.0	6.41771E-04	0.0	0.0
ALPO4	0.0	5.30712E-05	0.0	0.0
CASO4.2H2O	0.0	5.55113E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.14601E-06	0.0	0.0
FEII3PO42.8H2O	0.0	2.26397E-05	0.0	0.0
PB3PO42	0.0	1.41711E-06	0.0	0.0
UIVO2	0.0	7.98318E-06	0.0	0.0
ZN3PO42.2H2O	0.0	6.10980E-06	0.0	0.0
=====				
Total g/hr	2.02376	0.233188	0.0	0.0
Volume, L/hr	0.00172725	5.43246E-05	0.0	0.0
Enthalpy, cal/hr	-6755.25	-688.811	0.0	0.0
Density, g/L	1171.67	4292.49		
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	191.141			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.187155			
E-Con, cm2/ohm-mol	29.0748			
Abs Visc, cP	1.51758			
Rel Visc	1.70377			
Ionic Strength	4.4033			

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STREAM: Condensate
TO :
FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.23752			
Total mol/hr	27.64698	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	27.6452	0.0	0.0	0.0
CO2	0.00165358	0.0	0.0	0.0
HCL	5.43799E-17	0.0	0.0	0.0
HNO3	1.29256E-12	0.0	0.0	0.0
LAURICACID	6.56959E-05	0.0	0.0	0.0
OHION	8.80619E-11	0.0	0.0	0.0
CLION	1.60046E-06	0.0	0.0	0.0
CO3ION	1.09062E-11	0.0	0.0	0.0
DODECION	1.39438E-05	0.0	0.0	0.0
HCO3ION	1.30842E-05	0.0	0.0	0.0
HION	2.90807E-05	0.0	0.0	0.0
NO3ION	4.52108E-07	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	498.128	0.0	0.0	0.0
Volume, L/hr	0.499672	0.0	0.0	0.0
Enthalpy, cal/hr	-1.88871E+06	0.0	0.0	0.0
Density, g/L	996.909			
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	0.0871231			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	2.34399E-05			
E-Con, cm2/ohm-mol	6.699			
Abs Visc, cP	0.890749			
Rel Visc	1.00003			
Ionic Strength	5.83911E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	3.07915D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-1.36716D+02
MIX	CONDENSATE MIXER	-3.07779D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P,V/F
 V/F (molar) 0.996518

Standard Block Information

Duty, cal/hr 307915.

	In	Out	Rel. Diff.
Total Mass g/hr	500.385	500.385	1.13599E-15
Total Energy cal/hr	-1.89616E+06	-1.58824E+06	0.0

Mix Output

Outlet Temperature, C 103.4
 Outlet Pressure, atm 1.
 Aqueous pH 4.08595
 V/F (molar) 0.996517

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0948971	2.01909	0.00185263	-6633.04
Solid	0.00173775	0.237857	5.57389E-05	-674.306
Vapor	27.647	498.128	847.29	-1.58093E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	27.7436	500.385	847.291	-1.58824E+06

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

=====

Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification, atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type Adiabatic

Duty, cal/hr 0.0

Standard Block Information

Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	500.385	500.385	0.0
Total Energy cal/hr	-1.58824E+06	-1.58824E+06	0.0

Separate Output

Outlet Temperature, C	103.4
Outlet Pressure, atm	1.
Aqueous pH	4.08595
Suspended Solids, g solid/g liq solution	0.117804
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0948971	2.01909	0.00185263	-6633.04
Solid	0.00173775	0.237857	5.57389E-05	-674.306
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0966349	2.25695	0.00190837	-7307.34

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	27.647	498.128	847.29	-1.58093E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	27.647	498.128	847.29	-1.58093E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -136.716

	In	Out	Rel. Diff.
Total Mass g/hr	2.25695	2.25695	-5.90296E-16
Total Energy cal/hr	-7307.34	-7444.06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 5.27139
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.093723	2.02376	0.00172725	-6755.25
Solid	0.00163326	0.233188	5.43246E-05	-688.811
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0953562	2.25695	0.00178157	-7444.06

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -3.07779E+05

	In	Out	Rel. Diff.
Total Mass g/hr	498.128	498.128	1.27808E-14
Total Energy cal/hr	-1.58093E+06	-1.88871E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.23752
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	27.647	498.128	0.499672	-1.88871E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	27.647	498.128	0.499672	-1.88871E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block               Mix: Evap mixer
Control Parameter              Vapor Fraction
Control Parameter Minimum      0.0
Control Parameter Maximum      0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations             20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:     Solution Species
```

Controller Output

```
-----
Specification Stream          Cooled Bottoms
Controlled Block              Evap mixer
Control Parameter Type:      General Process Variable
Convergence:                  Converged
Iterations Completed this Sequence      12.
Total Iterations Completed all Sequences 12.
Last Parameter Value           0.996518
Last DIFF (Computed-Setpoint)  2.64683E-07
Previous Parameter Value       0.996519
Previous DIFF (Computed-Setpoint) -6.32880E-05
Control Parameter Minimum      0.996499
Control Parameter Maximum      0.996519
Control Parameter Stepsize     0.0
Maximum Iterations             0.0
```


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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	5.00483D+02	-1.89619D+06
Total in	5.00483D+02	-1.89619D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	2.83132D+00	-9.32613D+03
CONDENSATE	4.97651D+02	-1.88686D+06
Total out	5.00483D+02	-1.89619D+06

Block Heat Duties	cal/hr
EVAP MIXER	3.07635D+05
EVAP BOTTOMS COOLING MIXER	-1.67682D+02
CONDENSATE MIXER	-3.07468D+05
Total Duty	-7.54791D-01

DIFFERENCE	7.38964D-13	2.32831D-10
REL DIFFERENCE	1.47650D-15	-1.22789D-16

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	5.54595D+01	5.54595D+01	8.52651D-14	1.53743D-15
K(+1)	8.63895D-04	8.63895D-04	3.14419D-18	3.63955D-15
NA(+1)	5.87460D-03	5.87460D-03	6.07153D-18	1.03352D-15
BA(+2)	8.02920D-07	8.02920D-07	-1.05879D-22	-1.31868D-16
CA(+2)	1.44638D-03	1.44638D-03	-2.16840D-19	-1.49919D-16
ZN(+2)	5.65749D-05	5.65749D-05	0.00000D+00	0.00000D+00
CU(+2)	1.16535D-05	1.16535D-05	1.69407D-21	1.45369D-16
FE(+2)	1.46953D-04	1.46953D-04	5.42101D-20	3.68893D-16
MG(+2)	5.76132D-04	5.76132D-04	-7.58942D-19	-1.31731D-15
PB(+2)	1.01449D-05	1.01449D-05	-5.08220D-21	-5.00959D-16
AL(+3)	2.25926D-04	2.25926D-04	0.00000D+00	0.00000D+00
NI(+2)	2.55537D-06	2.55537D-06	-3.38813D-21	-1.32589D-15
O(-2)	2.77500D+01	2.77500D+01	3.19744D-14	1.15223D-15
CL(-1)	4.50704D-03	4.50704D-03	2.60209D-18	5.77338D-16
C(+4)	1.83333D-03	1.83333D-03	3.68629D-18	2.01070D-15
P(+5)	1.15789D-03	1.15789D-03	-4.33681D-19	-3.74543D-16
S(+6)	1.66667D-03	1.66667D-03	-4.33681D-19	-2.60209D-16
N(+5)	1.77419D-03	1.77419D-03	6.50521D-19	3.66657D-16
SI(+4)	2.66667D-04	2.66667D-04	0.00000D+00	0.00000D+00
SR(+2)	3.08219D-05	3.08219D-05	-1.35525D-20	-4.39704D-16

CD (+2)	6.96429D-08	6.96429D-08	-8.33798D-22	-1.19725D-14
CR (+3)	2.50000D-06	2.50000D-06	-8.04681D-21	-3.21873D-15
U (+4)	1.17647D-05	1.17647D-05	0.00000D+00	0.00000D+00

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DODEC(-1)

1.34809D-04 1.34809D-04 4.20128D-18 3.11647D-14

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
 TO : Evap mixer
 FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	5.60368			
Total mol/hr	27.74815	2.45642E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	27.7281	0.0	0.0	0.0
CO2	0.00149784	0.0	0.0	0.0
H2SO4	1.76379E-23	0.0	0.0	0.0
HCL	5.65729E-15	0.0	0.0	0.0
HNO3	1.85094E-10	0.0	0.0	0.0
LAURICACID	1.97534E-05	0.0	0.0	0.0
SO3	2.28440E-27	0.0	0.0	0.0
CAH2SIO4	3.79299E-14	0.0	0.0	0.0
CASO4	4.05967E-05	0.0	0.0	0.0
CDCL2	2.29997E-09	0.0	0.0	0.0
CDOH2	2.16848E-17	0.0	0.0	0.0
CDSO4	1.13812E-08	0.0	0.0	0.0
CROH3	1.05212E-14	0.0	0.0	0.0
CUCL2	4.79192E-12	0.0	0.0	0.0
CUCO3	1.88499E-09	0.0	0.0	0.0
CUNO32	1.54486E-13	0.0	0.0	0.0
CUOH2	4.51695E-11	0.0	0.0	0.0
FEIICL2	2.26952E-14	0.0	0.0	0.0
FEIICO3	1.02746E-07	0.0	0.0	0.0
FEIIHPO4	8.34029E-08	0.0	0.0	0.0
FEIIOH2	3.08165E-14	0.0	0.0	0.0
ALO2H2CL	1.09505E-27	0.0	0.0	0.0
H3PO4	2.97840E-07	0.0	0.0	0.0
H4P2O7	3.16403E-16	0.0	0.0	0.0
ALOH3	1.19645E-09	2.25923E-04	0.0	0.0
BACO3	1.58317E-13	0.0	0.0	0.0
KCL	4.59431E-08	0.0	0.0	0.0
KHSO4	5.06003E-12	0.0	0.0	0.0
BASO4	1.02541E-10	7.25183E-07	0.0	0.0
MGCO3	2.60519E-09	0.0	0.0	0.0
MGH2SIO4	1.39514E-13	0.0	0.0	0.0
MGHPO4	1.34588E-05	0.0	0.0	0.0
MGSO4	2.69254E-05	0.0	0.0	0.0
NAHCO3	1.12537E-06	0.0	0.0	0.0
NAHSIO3	1.83588E-08	0.0	0.0	0.0
NANO3	8.48980E-07	0.0	0.0	0.0
NIOH2	1.85161E-14	0.0	0.0	0.0
NISO4	3.58354E-07	0.0	0.0	0.0
PBCL2	9.72104E-11	0.0	0.0	0.0
PBHPO4	1.15530E-09	0.0	0.0	0.0
PBNO32	2.86081E-12	0.0	0.0	0.0
PBO	2.69547E-14	0.0	0.0	0.0
CACL2	3.83791E-26	0.0	0.0	0.0
SIO2	2.66629E-04	0.0	0.0	0.0

CACO3	1.51720E-08	0.0	0.0	0.0
SRHPO4	1.06902E-08	0.0	0.0	0.0
SRNO32	1.02722E-09	0.0	0.0	0.0
SRSO4	4.20736E-06	0.0	0.0	0.0
UIVOH4	1.50389E-10	0.0	0.0	0.0
UIVSO42	1.10268E-23	0.0	0.0	0.0
ZNCL2	2.76132E-09	0.0	0.0	0.0
ZNHPO4	2.09918E-06	0.0	0.0	0.0
ZNNO32	1.56630E-10	0.0	0.0	0.0
ZNOH2	2.10506E-11	0.0	0.0	0.0
OHION	2.39004E-09	0.0	0.0	0.0
ALION	3.16038E-10	0.0	0.0	0.0
ALOH2ION	6.45509E-10	0.0	0.0	0.0
ALOH4ION	1.42738E-10	0.0	0.0	0.0
ALOHCLION	8.89805E-12	0.0	0.0	0.0
ALOHION	5.67566E-10	0.0	0.0	0.0
ALSO42ION	1.68682E-11	0.0	0.0	0.0
ALSO4ION	1.38836E-10	0.0	0.0	0.0
BAHCO3ION	2.35937E-10	0.0	0.0	0.0
BAION	7.73966E-08	0.0	0.0	0.0
BAOHION	9.58513E-17	0.0	0.0	0.0
CACLION	1.46462E-10	0.0	0.0	0.0
CAH2PO4ION	5.17204E-05	0.0	0.0	0.0
CAHCO3ION	5.01896E-06	0.0	0.0	0.0
CAHSIO3ION	4.62499E-10	0.0	0.0	0.0
CAION	0.00134251	0.0	0.0	0.0
CANO3ION	6.49272E-06	0.0	0.0	0.0
CAOHION	5.67770E-11	0.0	0.0	0.0
CAPO4ION	2.54255E-08	0.0	0.0	0.0
CDCL3ION	1.00749E-12	0.0	0.0	0.0
CDCL4ION	7.05667E-15	0.0	0.0	0.0
CDCLION	1.66181E-08	0.0	0.0	0.0
CDION	3.91504E-08	0.0	0.0	0.0
CDNO3ION	1.91421E-10	0.0	0.0	0.0
CDOH3ION	1.44353E-24	0.0	0.0	0.0
CDOHION	7.92526E-13	0.0	0.0	0.0
CLION	0.00450658	0.0	0.0	0.0
CO3ION	1.01100E-08	0.0	0.0	0.0
CRIIIICL2ION	8.84968E-18	0.0	0.0	0.0
CRIIIICLION	1.05862E-14	0.0	0.0	0.0
CRIIIH2PO4ION	2.31212E-11	0.0	0.0	0.0
CRIIIHPO4ION	2.49887E-06	0.0	0.0	0.0
CRIIIIION	7.78494E-13	0.0	0.0	0.0
CRIIINO3ION	2.42945E-13	0.0	0.0	0.0
CROH2ION	9.13881E-15	0.0	0.0	0.0
CROH4ION	5.79094E-20	0.0	0.0	0.0
CROHION	1.42971E-11	0.0	0.0	0.0
CRSO4ION	1.09027E-09	0.0	0.0	0.0
CUCL3ION	9.09616E-17	0.0	0.0	0.0
CUCLION	1.61959E-09	0.0	0.0	0.0
CUCO32ION	5.78504E-14	0.0	0.0	0.0
CUION	6.39602E-08	0.0	0.0	0.0
CUNO3ION	4.25079E-10	0.0	0.0	0.0
CUOH3ION	1.16224E-17	0.0	0.0	0.0
CUOH4ION	5.78570E-25	0.0	0.0	0.0
CUOHION	7.31630E-10	0.0	0.0	0.0
DODECION	1.15056E-04	0.0	0.0	0.0
FEIICLION	9.48384E-10	0.0	0.0	0.0

FEIICO32ION	6.85106E-14	0.0	0.0	0.0
FEIIH2PO4ION	5.00200E-07	0.0	0.0	0.0
FEIIHCO3ION	7.20968E-09	0.0	0.0	0.0
FEIIION	1.46248E-04	0.0	0.0	0.0
FEIIOH3ION	5.77783E-19	0.0	0.0	0.0
FEIIOH4ION	3.98331E-28	0.0	0.0	0.0
FEIIOHION	1.13698E-08	0.0	0.0	0.0
H2P2O7ION	1.28836E-08	0.0	0.0	0.0
H2PO4ION	0.00100356	0.0	0.0	0.0
H2SIO4ION	9.53958E-16	0.0	0.0	0.0
H3P2O7ION	4.26414E-12	0.0	0.0	0.0
H3SIO4ION	1.80858E-08	0.0	0.0	0.0
HCO3ION	3.22344E-04	0.0	0.0	0.0
HION	1.45839E-06	0.0	0.0	0.0
HP2O7ION	2.95633E-09	0.0	0.0	0.0
HPBO2ION	1.43540E-19	0.0	0.0	0.0
HPO4ION	4.17859E-05	0.0	0.0	0.0
HSO4ION	2.14258E-07	0.0	0.0	0.0
KION	8.53861E-04	0.0	0.0	0.0
KSO4ION	9.98780E-06	0.0	0.0	0.0
MGH2PO4ION	2.52926E-05	0.0	0.0	0.0
MGHCO3ION	6.48610E-06	0.0	0.0	0.0
MGHSIO3ION	3.25174E-10	0.0	0.0	0.0
MGION	5.03949E-04	0.0	0.0	0.0
MGOHION	2.07074E-10	0.0	0.0	0.0
MGP2O7ION	2.80310E-09	0.0	0.0	0.0
MGPO4ION	1.38152E-08	0.0	0.0	0.0
NACO3ION	2.12187E-10	0.0	0.0	0.0
NAION	0.00579786	0.0	0.0	0.0
NASO4ION	7.47469E-05	0.0	0.0	0.0
NICLION	1.02433E-09	0.0	0.0	0.0
NIION	2.18436E-06	0.0	0.0	0.0
NINO3ION	1.15558E-08	0.0	0.0	0.0
NIOH3ION	9.04497E-20	0.0	0.0	0.0
NIOHION	7.44978E-11	0.0	0.0	0.0
NO3ION	0.00176629	0.0	0.0	0.0
P2O7ION	1.92795E-12	0.0	0.0	0.0
PBCL3ION	4.32853E-13	0.0	0.0	0.0
PBCL4ION	3.47324E-15	0.0	0.0	0.0
PBCLION	4.13194E-09	0.0	0.0	0.0
PBH2PO4ION	1.38084E-09	0.0	0.0	0.0
PBION	3.24520E-08	0.0	0.0	0.0
PBNO33ION	1.74308E-15	0.0	0.0	0.0
PBNO3ION	1.16529E-09	0.0	0.0	0.0
PBOHION	2.00323E-10	0.0	0.0	0.0
PO4ION	1.83768E-11	0.0	0.0	0.0
SO4ION	0.00150889	0.0	0.0	0.0
SRION	2.63274E-05	0.0	0.0	0.0
SRNO3ION	2.75445E-07	0.0	0.0	0.0
SROHION	4.21676E-13	0.0	0.0	0.0
SRPO4ION	6.99162E-12	0.0	0.0	0.0
UIVCLION	4.40388E-28	0.0	0.0	0.0
UIVION	3.45804E-27	0.0	0.0	0.0
UIVOH2ION	2.18413E-19	0.0	0.0	0.0
UIVOH3ION	4.98954E-15	0.0	0.0	0.0
UIVOH5ION	3.74159E-15	0.0	0.0	0.0
UIVOHION	1.86675E-22	0.0	0.0	0.0
UIVSO4ION	1.91800E-24	0.0	0.0	0.0

ZNCL3ION	8.54419E-12	0.0	0.0	0.0
ZNCLION	3.80237E-07	0.0	0.0	0.0
ZNH2PO4ION	2.04952E-06	0.0	0.0	0.0
ZNHCO3ION	3.74037E-07	0.0	0.0	0.0
ZNION	5.13833E-05	0.0	0.0	0.0
ZNNO3ION	2.70469E-07	0.0	0.0	0.0
ZNOH3ION	9.86603E-17	0.0	0.0	0.0
ZNOH4ION	8.49963E-24	0.0	0.0	0.0
ZNOHION	1.52618E-08	0.0	0.0	0.0
CU3PO42.2H2O	0.0	3.86161E-06	0.0	0.0
PB3PO42	0.0	3.36810E-06	0.0	0.0
UIVO2	0.0	1.17645E-05	0.0	0.0
	=====	=====	=====	=====
Total g/hr	500.457	0.0253109	0.0	0.0
Volume, L/hr	0.501348	7.93309E-06	0.0	0.0
Enthalpy, cal/hr	-1.89611E+06	-73.6652	0.0	0.0
Density, g/L	998.223	3190.55		
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	0.99467			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.00228296			
E-Con, cm2/ohm-mol	114.309			
Abs Visc, cP	0.895376			
Rel Visc	1.00523			
Ionic Strength	0.029075			

ESP V-6.6

PROCESS:AWE65_7

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.368	103.368	103.368	103.368
Pressure, atm	1.	1.	1.	1.
pH	3.92509			
Total mol/hr	0.1250164	0.00201467	27.6197	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.11131	0.0	27.61773	0.0
CO2	9.09648E-10	0.0	0.001833325	0.0
H2SO4	3.96088E-21	0.0	9.51677E-19	0.0
HCL	8.39440E-12	0.0	2.09860E-06	0.0
HNO3	1.17320E-08	0.0	7.32824E-07	0.0
LAURICACID	9.68366E-09	0.0	1.34776E-04	0.0
SO3	2.89289E-24	0.0	2.56128E-24	0.0
CAH2SIO4	3.21177E-18	0.0	0.0	0.0
CASO4	1.10733E-06	9.66224E-04	0.0	0.0
CDCL2	3.11986E-08	0.0	0.0	0.0
CDOH2	1.58946E-20	0.0	0.0	0.0
CDSO4	1.41964E-11	0.0	0.0	0.0
CROH3	1.29411E-21	0.0	0.0	0.0
CUCL2	3.27035E-09	0.0	0.0	0.0
CUCO3	1.47896E-18	0.0	0.0	0.0
CUNO32	5.71729E-11	0.0	0.0	0.0
CUOH2	4.12182E-14	0.0	0.0	0.0
FEIICL2	3.90602E-09	0.0	0.0	0.0
FEIICO3	3.10073E-15	0.0	0.0	0.0
FEIIHPO4	1.81981E-08	0.0	0.0	0.0
FEIIOH2	2.75919E-14	0.0	0.0	0.0
ALO2H2CL	2.07646E-28	0.0	0.0	0.0
H3PO4	1.51556E-06	0.0	0.0	0.0
H4P2O7	3.03888E-11	0.0	0.0	0.0
ALOH3	4.43385E-13	0.0	0.0	0.0
BACO3	2.62359E-22	0.0	0.0	0.0
KCL	1.23097E-05	0.0	0.0	0.0
KHSO4	1.35271E-08	0.0	0.0	0.0
BASO4	2.03164E-12	8.01317E-07	0.0	0.0
MGCO3	2.43520E-16	0.0	0.0	0.0
MGH2SIO4	1.54152E-15	0.0	0.0	0.0
MGHPO4	6.34409E-06	0.0	0.0	0.0
MGSO4	3.95741E-05	0.0	0.0	0.0
NAHCO3	7.69648E-12	0.0	0.0	0.0
NAHSIO3	1.42408E-09	0.0	0.0	0.0
NANO3	4.48373E-04	0.0	0.0	0.0
NIOH2	2.78050E-16	0.0	0.0	0.0
NISO4	6.88027E-07	0.0	0.0	0.0
PBCL2	4.88626E-07	0.0	0.0	0.0
PBHPO4	5.58551E-11	0.0	0.0	0.0
PBNO32	3.66364E-08	0.0	0.0	0.0
PBO	7.44376E-16	0.0	0.0	0.0
CACL2	1.67220E-15	0.0	0.0	0.0
SIO2	9.00498E-06	2.57660E-04	0.0	0.0

CACO3	1.52957E-17	0.0	0.0	0.0
SRHPO4	2.26977E-11	0.0	0.0	0.0
SRNO32	9.90447E-08	0.0	0.0	0.0
SRSO4	1.90615E-08	3.04456E-05	0.0	0.0
UIVOH4	2.35248E-12	0.0	0.0	0.0
UIVSO42	2.51329E-19	0.0	0.0	0.0
ZNCL2	1.10286E-05	0.0	0.0	0.0
ZNHPO4	3.91239E-09	0.0	0.0	0.0
ZNNO32	1.17474E-08	0.0	0.0	0.0
ZNOH2	1.96413E-14	0.0	0.0	0.0
OHION	1.48263E-11	0.0	0.0	0.0
ALION	3.75563E-13	0.0	0.0	0.0
ALOH2ION	7.62188E-13	0.0	0.0	0.0
ALOH4ION	3.97417E-14	0.0	0.0	0.0
ALOHCLION	3.88439E-12	0.0	0.0	0.0
ALOHION	1.04993E-12	0.0	0.0	0.0
ALSO42ION	2.54508E-12	0.0	0.0	0.0
ALSO4ION	3.04857E-12	0.0	0.0	0.0
BAHCO3ION	5.88681E-17	0.0	0.0	0.0
BAION	1.60165E-09	0.0	0.0	0.0
BAOHION	4.33691E-18	0.0	0.0	0.0
CACLION	5.24329E-08	0.0	0.0	0.0
CAH2PO4ION	1.44914E-05	0.0	0.0	0.0
CAHCO3ION	1.02705E-13	0.0	0.0	0.0
CAHSIO3ION	4.39217E-12	0.0	0.0	0.0
CAION	1.48086E-05	0.0	0.0	0.0
CANO3ION	7.59966E-06	0.0	0.0	0.0
CAOHION	8.66165E-13	0.0	0.0	0.0
CAPO4ION	9.14515E-12	0.0	0.0	0.0
CDCL3ION	2.85905E-08	0.0	0.0	0.0
CDCL4ION	7.66240E-09	0.0	0.0	0.0
CDCLION	2.11758E-09	0.0	0.0	0.0
CDION	4.25223E-11	0.0	0.0	0.0
CDNO3ION	1.70587E-11	0.0	0.0	0.0
CDOH3ION	1.21701E-27	0.0	0.0	0.0
CDOHION	4.33904E-16	0.0	0.0	0.0
CLION	0.00436098	0.0	0.0	0.0
CO3ION	6.32999E-17	0.0	0.0	0.0
CRIIIICL2ION	3.67597E-16	0.0	0.0	0.0
CRIIIICLION	2.14865E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.39309E-14	0.0	0.0	0.0
CRIIIHPO4ION	2.49999E-06	0.0	0.0	0.0
CRIIIIION	3.16420E-20	0.0	0.0	0.0
CRIIINO3ION	2.38770E-13	0.0	0.0	0.0
CROH2ION	5.71496E-20	0.0	0.0	0.0
CROH4ION	1.52475E-27	0.0	0.0	0.0
CROHION	2.48288E-14	0.0	0.0	0.0
CRSO4ION	8.05380E-12	0.0	0.0	0.0
CUCL3ION	5.13947E-11	0.0	0.0	0.0
CUCLION	2.44226E-08	0.0	0.0	0.0
CUCO32ION	2.61241E-28	0.0	0.0	0.0
CUION	6.75839E-09	0.0	0.0	0.0
CUNO3ION	1.84028E-09	0.0	0.0	0.0
CUOH3ION	1.98431E-20	0.0	0.0	0.0
CUOH4ION	2.14572E-26	0.0	0.0	0.0
CUOHION	8.39765E-12	0.0	0.0	0.0
DODECION	2.28748E-08	0.0	0.0	0.0
FEIICLION	9.72624E-07	0.0	0.0	0.0

FEIICO32ION	1.59405E-26	0.0	0.0	0.0
FEIIH2PO4ION	5.05189E-06	0.0	0.0	0.0
FEIIHCO3ION	2.29503E-14	0.0	0.0	0.0
FEIIION	1.17022E-04	0.0	0.0	0.0
FEIIOH3ION	2.50945E-19	0.0	0.0	0.0
FEIIOH4ION	3.25817E-27	0.0	0.0	0.0
FEIIOHION	5.03053E-09	0.0	0.0	0.0
H2P2O7ION	3.19441E-06	0.0	0.0	0.0
H2PO4ION	1.37043E-04	0.0	0.0	0.0
H2SIO4ION	3.83273E-18	0.0	0.0	0.0
H3P2O7ION	7.61574E-09	0.0	0.0	0.0
H3SIO4ION	4.68407E-10	0.0	0.0	0.0
HCO3ION	5.64052E-12	0.0	0.0	0.0
HION	3.41141E-07	0.0	0.0	0.0
HP2O7ION	3.07735E-08	0.0	0.0	0.0
HPBO2ION	3.48379E-21	0.0	0.0	0.0
HPO4ION	6.86330E-07	0.0	0.0	0.0
HSO4ION	2.69338E-06	0.0	0.0	0.0
KION	7.56780E-04	0.0	0.0	0.0
KSO4ION	9.47923E-05	0.0	0.0	0.0
MGH2PO4ION	1.55635E-04	0.0	0.0	0.0
MGHCO3ION	6.78901E-12	0.0	0.0	0.0
MGHSIO3ION	2.75967E-10	0.0	0.0	0.0
MGION	1.70664E-04	0.0	0.0	0.0
MGOHION	2.29827E-10	0.0	0.0	0.0
MGP2O7ION	1.78507E-07	0.0	0.0	0.0
MGPO4ION	3.11503E-10	0.0	0.0	0.0
NACO3ION	8.84772E-18	0.0	0.0	0.0
NAION	0.00542622	0.0	0.0	0.0
NASO4ION	6.06949E-12	0.0	0.0	0.0
NICLION	1.13316E-07	0.0	0.0	0.0
NIION	1.46176E-06	0.0	0.0	0.0
NINO3ION	2.92246E-07	0.0	0.0	0.0
NIOH3ION	3.30462E-22	0.0	0.0	0.0
NIOHION	1.71099E-11	0.0	0.0	0.0
NO3ION	0.00131627	0.0	0.0	0.0
P2O7ION	2.49268E-12	0.0	0.0	0.0
PBCL3ION	1.05305E-06	0.0	0.0	0.0
PBCL4ION	8.31174E-06	0.0	0.0	0.0
PBCLION	1.63531E-07	0.0	0.0	0.0
PBH2PO4ION	7.59706E-09	0.0	0.0	0.0
PBION	1.04292E-08	0.0	0.0	0.0
PBNO33ION	2.14491E-09	0.0	0.0	0.0
PBNO3ION	7.10665E-08	0.0	0.0	0.0
PBOHION	4.43667E-11	0.0	0.0	0.0
PO4ION	5.42931E-14	0.0	0.0	0.0
SO4ION	5.30310E-04	0.0	0.0	0.0
SRION	2.36081E-09	0.0	0.0	0.0
SRNO3ION	2.55923E-07	0.0	0.0	0.0
SROHION	6.53161E-15	0.0	0.0	0.0
SRPO4ION	2.07684E-15	0.0	0.0	0.0
UIVCLION	7.61161E-23	0.0	0.0	0.0
UIVION	4.33936E-25	0.0	0.0	0.0
UIVOH2ION	8.21567E-19	0.0	0.0	0.0
UIVOH3ION	9.21960E-17	0.0	0.0	0.0
UIVOH5ION	1.04833E-17	0.0	0.0	0.0
UIVOHION	6.95426E-20	0.0	0.0	0.0
UIVSO4ION	3.57697E-20	0.0	0.0	0.0

ZNCL3ION	1.37685E-05	0.0	0.0	0.0
ZNCLION	2.93880E-05	0.0	0.0	0.0
ZNH2PO4ION	2.58531E-07	0.0	0.0	0.0
ZNHCO3ION	9.23907E-15	0.0	0.0	0.0
ZNION	1.82777E-06	0.0	0.0	0.0
ZNNO3ION	2.81824E-07	0.0	0.0	0.0
ZNOH3ION	3.67602E-19	0.0	0.0	0.0
ZNOH4ION	1.44375E-25	0.0	0.0	0.0
ZNOHION	6.05182E-09	0.0	0.0	0.0
CAHPO4	0.0	4.42104E-04	0.0	0.0
ALPO4	0.0	2.25926E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.87239E-06	0.0	0.0
FEII3PO42.8H2O	0.0	7.95982E-06	0.0	0.0
MG3PO42	0.0	6.79118E-05	0.0	0.0
UIVO2	0.0	1.17647E-05	0.0	0.0
=====				
Total g/hr	2.56418	0.267141	497.651	0.0
Volume, L/hr	0.00232949	6.52255E-05	846.381	0.0
Enthalpy, cal/hr	-8401.44	-757.007	-1.57939E+06	0.0
Density, g/L	1100.75	4095.66	0.587976	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	190.63			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.47726			
E-Con, cm2/ohm-mol	61.0231			
Abs Visc, cP	0.275989			
Rel Visc	1.01495			
Ionic Strength	3.92003			

ESP V-6.6

PROCESS:AWE65_7

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STREAM: Overhead
 TO : Condensate mixer
 FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.368	103.368	103.368	103.368
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	27.6197	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	27.61773	0.0
CO2	0.0	0.0	0.001833325	0.0
H2SO4	0.0	0.0	9.51677E-19	0.0
HCL	0.0	0.0	2.09860E-06	0.0
HNO3	0.0	0.0	7.32824E-07	0.0
LAURICACID	0.0	0.0	1.34776E-04	0.0
SO3	0.0	0.0	2.56128E-24	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	497.651	0.0
Volume, L/hr	0.0	0.0	846.381	0.0
Enthalpy, cal/hr	0.0	0.0	-1.57939E+06	0.0
Density, g/L			0.587976	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE65_7

12/05/2002 PAGE 7

STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.368	103.368	103.368	103.368
Pressure, atm	1.	1.	1.	1.
pH	3.92509			
Total mol/hr	0.1250164	0.00201467	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.11131	0.0	0.0	0.0
CO2	9.09648E-10	0.0	0.0	0.0
H2SO4	3.96088E-21	0.0	0.0	0.0
HCL	8.39440E-12	0.0	0.0	0.0
HNO3	1.17320E-08	0.0	0.0	0.0
LAURICACID	9.68366E-09	0.0	0.0	0.0
SO3	2.89289E-24	0.0	0.0	0.0
CAH2SIO4	3.21177E-18	0.0	0.0	0.0
CASO4	1.10733E-06	9.66224E-04	0.0	0.0
CDCL2	3.11986E-08	0.0	0.0	0.0
CDOH2	1.58946E-20	0.0	0.0	0.0
CDSO4	1.41964E-11	0.0	0.0	0.0
CROH3	1.29411E-21	0.0	0.0	0.0
CUCL2	3.27035E-09	0.0	0.0	0.0
CUCO3	1.47896E-18	0.0	0.0	0.0
CUNO32	5.71729E-11	0.0	0.0	0.0
CUOH2	4.12182E-14	0.0	0.0	0.0
FEIICL2	3.90602E-09	0.0	0.0	0.0
FEIICO3	3.10073E-15	0.0	0.0	0.0
FEIIHPO4	1.81981E-08	0.0	0.0	0.0
FEIIOH2	2.75919E-14	0.0	0.0	0.0
ALO2H2CL	2.07646E-28	0.0	0.0	0.0
H3PO4	1.51556E-06	0.0	0.0	0.0
H4P2O7	3.03888E-11	0.0	0.0	0.0
ALOH3	4.43385E-13	0.0	0.0	0.0
BACO3	2.62359E-22	0.0	0.0	0.0
KCL	1.23097E-05	0.0	0.0	0.0
KHSO4	1.35271E-08	0.0	0.0	0.0
BASO4	2.03164E-12	8.01317E-07	0.0	0.0
MGCO3	2.43520E-16	0.0	0.0	0.0
MGH2SIO4	1.54152E-15	0.0	0.0	0.0
MGHPO4	6.34409E-06	0.0	0.0	0.0
MGSO4	3.95741E-05	0.0	0.0	0.0
NAHCO3	7.69648E-12	0.0	0.0	0.0
NAHSIO3	1.42408E-09	0.0	0.0	0.0
NANO3	4.48373E-04	0.0	0.0	0.0
NIOH2	2.78050E-16	0.0	0.0	0.0
NISO4	6.88027E-07	0.0	0.0	0.0
PBCL2	4.88626E-07	0.0	0.0	0.0
PBHPO4	5.58551E-11	0.0	0.0	0.0
PBNO32	3.66364E-08	0.0	0.0	0.0
PBO	7.44376E-16	0.0	0.0	0.0
CACL2	1.67220E-15	0.0	0.0	0.0
SIO2	9.00498E-06	2.57660E-04	0.0	0.0

CACO3	1.52957E-17	0.0	0.0	0.0
SRHPO4	2.26977E-11	0.0	0.0	0.0
SRNO32	9.90447E-08	0.0	0.0	0.0
SRSO4	1.90615E-08	3.04456E-05	0.0	0.0
UIVOH4	2.35248E-12	0.0	0.0	0.0
UIVSO42	2.51329E-19	0.0	0.0	0.0
ZNCL2	1.10286E-05	0.0	0.0	0.0
ZNHPO4	3.91239E-09	0.0	0.0	0.0
ZNNO32	1.17474E-08	0.0	0.0	0.0
ZNOH2	1.96413E-14	0.0	0.0	0.0
OHION	1.48263E-11	0.0	0.0	0.0
ALION	3.75563E-13	0.0	0.0	0.0
ALOH2ION	7.62188E-13	0.0	0.0	0.0
ALOH4ION	3.97417E-14	0.0	0.0	0.0
ALOHCLION	3.88439E-12	0.0	0.0	0.0
ALOHION	1.04993E-12	0.0	0.0	0.0
ALSO42ION	2.54508E-12	0.0	0.0	0.0
ALSO4ION	3.04857E-12	0.0	0.0	0.0
BAHCO3ION	5.88681E-17	0.0	0.0	0.0
BAION	1.60165E-09	0.0	0.0	0.0
BAOHION	4.33691E-18	0.0	0.0	0.0
CACLION	5.24329E-08	0.0	0.0	0.0
CAH2PO4ION	1.44914E-05	0.0	0.0	0.0
CAHCO3ION	1.02705E-13	0.0	0.0	0.0
CAHSIO3ION	4.39217E-12	0.0	0.0	0.0
CAION	1.48086E-05	0.0	0.0	0.0
CANO3ION	7.59966E-06	0.0	0.0	0.0
CAOHION	8.66165E-13	0.0	0.0	0.0
CAPO4ION	9.14515E-12	0.0	0.0	0.0
CDCL3ION	2.85905E-08	0.0	0.0	0.0
CDCL4ION	7.66240E-09	0.0	0.0	0.0
CDCLION	2.11758E-09	0.0	0.0	0.0
CDION	4.25223E-11	0.0	0.0	0.0
CDNO3ION	1.70587E-11	0.0	0.0	0.0
CDOH3ION	1.21701E-27	0.0	0.0	0.0
CDOHION	4.33904E-16	0.0	0.0	0.0
CLION	0.00436098	0.0	0.0	0.0
CO3ION	6.32999E-17	0.0	0.0	0.0
CRIIIICL2ION	3.67597E-16	0.0	0.0	0.0
CRIIIICLION	2.14865E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.39309E-14	0.0	0.0	0.0
CRIIIHPO4ION	2.49999E-06	0.0	0.0	0.0
CRIIIIION	3.16420E-20	0.0	0.0	0.0
CRIIINO3ION	2.38770E-13	0.0	0.0	0.0
CROH2ION	5.71496E-20	0.0	0.0	0.0
CROH4ION	1.52475E-27	0.0	0.0	0.0
CROHION	2.48288E-14	0.0	0.0	0.0
CRSO4ION	8.05380E-12	0.0	0.0	0.0
CUCL3ION	5.13947E-11	0.0	0.0	0.0
CUCLION	2.44226E-08	0.0	0.0	0.0
CUCO32ION	2.61241E-28	0.0	0.0	0.0
CUION	6.75839E-09	0.0	0.0	0.0
CUNO3ION	1.84028E-09	0.0	0.0	0.0
CUOH3ION	1.98431E-20	0.0	0.0	0.0
CUOH4ION	2.14572E-26	0.0	0.0	0.0
CUOHION	8.39765E-12	0.0	0.0	0.0
DODECION	2.28748E-08	0.0	0.0	0.0
FEIICLION	9.72624E-07	0.0	0.0	0.0

FEIICO32ION	1.59405E-26	0.0	0.0	0.0
FEIIH2PO4ION	5.05189E-06	0.0	0.0	0.0
FEIIHCO3ION	2.29503E-14	0.0	0.0	0.0
FEIIION	1.17022E-04	0.0	0.0	0.0
FEIIOH3ION	2.50945E-19	0.0	0.0	0.0
FEIIOH4ION	3.25817E-27	0.0	0.0	0.0
FEIIOHION	5.03053E-09	0.0	0.0	0.0
H2P2O7ION	3.19441E-06	0.0	0.0	0.0
H2PO4ION	1.37043E-04	0.0	0.0	0.0
H2SIO4ION	3.83273E-18	0.0	0.0	0.0
H3P2O7ION	7.61574E-09	0.0	0.0	0.0
H3SIO4ION	4.68407E-10	0.0	0.0	0.0
HCO3ION	5.64052E-12	0.0	0.0	0.0
HION	3.41141E-07	0.0	0.0	0.0
HP2O7ION	3.07735E-08	0.0	0.0	0.0
HPBO2ION	3.48379E-21	0.0	0.0	0.0
HPO4ION	6.86330E-07	0.0	0.0	0.0
HSO4ION	2.69338E-06	0.0	0.0	0.0
KION	7.56780E-04	0.0	0.0	0.0
KSO4ION	9.47923E-05	0.0	0.0	0.0
MGH2PO4ION	1.55635E-04	0.0	0.0	0.0
MGHCO3ION	6.78901E-12	0.0	0.0	0.0
MGHSIO3ION	2.75967E-10	0.0	0.0	0.0
MGION	1.70664E-04	0.0	0.0	0.0
MGOHION	2.29827E-10	0.0	0.0	0.0
MGP2O7ION	1.78507E-07	0.0	0.0	0.0
MGPO4ION	3.11503E-10	0.0	0.0	0.0
NACO3ION	8.84772E-18	0.0	0.0	0.0
NAION	0.00542622	0.0	0.0	0.0
NASO4ION	6.06949E-12	0.0	0.0	0.0
NICLION	1.13316E-07	0.0	0.0	0.0
NIION	1.46176E-06	0.0	0.0	0.0
NINO3ION	2.92246E-07	0.0	0.0	0.0
NIOH3ION	3.30462E-22	0.0	0.0	0.0
NIOHION	1.71099E-11	0.0	0.0	0.0
NO3ION	0.00131627	0.0	0.0	0.0
P2O7ION	2.49268E-12	0.0	0.0	0.0
PBCL3ION	1.05305E-06	0.0	0.0	0.0
PBCL4ION	8.31174E-06	0.0	0.0	0.0
PBCLION	1.63531E-07	0.0	0.0	0.0
PBH2PO4ION	7.59706E-09	0.0	0.0	0.0
PBION	1.04292E-08	0.0	0.0	0.0
PBNO33ION	2.14491E-09	0.0	0.0	0.0
PBNO3ION	7.10665E-08	0.0	0.0	0.0
PBOHION	4.43667E-11	0.0	0.0	0.0
PO4ION	5.42931E-14	0.0	0.0	0.0
SO4ION	5.30310E-04	0.0	0.0	0.0
SRION	2.36081E-09	0.0	0.0	0.0
SRNO3ION	2.55923E-07	0.0	0.0	0.0
SROHION	6.53161E-15	0.0	0.0	0.0
SRPO4ION	2.07684E-15	0.0	0.0	0.0
UIVCLION	7.61161E-23	0.0	0.0	0.0
UIVION	4.33936E-25	0.0	0.0	0.0
UIVOH2ION	8.21567E-19	0.0	0.0	0.0
UIVOH3ION	9.21960E-17	0.0	0.0	0.0
UIVOH5ION	1.04833E-17	0.0	0.0	0.0
UIVOHION	6.95426E-20	0.0	0.0	0.0
UIVSO4ION	3.57697E-20	0.0	0.0	0.0

ZNCL3ION	1.37685E-05	0.0	0.0	0.0
ZNCLION	2.93880E-05	0.0	0.0	0.0
ZNH2PO4ION	2.58531E-07	0.0	0.0	0.0
ZNHCO3ION	9.23907E-15	0.0	0.0	0.0
ZNION	1.82777E-06	0.0	0.0	0.0
ZNNO3ION	2.81824E-07	0.0	0.0	0.0
ZNOH3ION	3.67602E-19	0.0	0.0	0.0
ZNOH4ION	1.44375E-25	0.0	0.0	0.0
ZNOHION	6.05182E-09	0.0	0.0	0.0
CAHPO4	0.0	4.42104E-04	0.0	0.0
ALPO4	0.0	2.25926E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.87239E-06	0.0	0.0
FEII3PO42.8H2O	0.0	7.95982E-06	0.0	0.0
MG3PO42	0.0	6.79118E-05	0.0	0.0
UIVO2	0.0	1.17647E-05	0.0	0.0
=====				
Total g/hr	2.56418	0.267141	0.0	0.0
Volume, L/hr	0.00232949	6.52255E-05	0.0	0.0
Enthalpy, cal/hr	-8401.44	-757.007	0.0	0.0
Density, g/L	1100.75	4095.66		
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	190.63			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.47726			
E-Con, cm2/ohm-mol	61.0231			
Abs Visc, cP	0.275989			
Rel Visc	1.01495			
Ionic Strength	3.92003			

STREAM: Cooled Bottoms
 TO :
 FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.89593			
Total mol/hr	0.1242833	0.00192398	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.110013	0.0	0.0	0.0
CO2	6.28225E-10	0.0	0.0	0.0
H2SO4	7.53700E-24	0.0	0.0	0.0
HCL	1.54986E-14	0.0	0.0	0.0
HNO3	2.58579E-10	0.0	0.0	0.0
LAURICACID	6.49094E-09	0.0	0.0	0.0
SO3	1.11325E-27	0.0	0.0	0.0
CAH2SIO4	2.09579E-17	0.0	0.0	0.0
CASO4	1.65911E-06	0.0	0.0	0.0
CDCL2	1.15181E-08	0.0	0.0	0.0
CDOH2	4.95300E-23	0.0	0.0	0.0
CDSO4	6.84714E-12	0.0	0.0	0.0
CROH3	1.76784E-17	0.0	0.0	0.0
CUCL2	2.34733E-09	0.0	0.0	0.0
CUCO3	9.54320E-17	0.0	0.0	0.0
CUNO32	3.47700E-11	0.0	0.0	0.0
CUOH2	1.00917E-14	0.0	0.0	0.0
FEIICL2	3.80330E-10	0.0	0.0	0.0
FEIICO3	1.77956E-13	0.0	0.0	0.0
FEIIHPO4	1.85015E-08	0.0	0.0	0.0
FEIIOH2	2.35540E-16	0.0	0.0	0.0
ALO2H2CL	5.23069E-28	0.0	0.0	0.0
H3PO4	1.40239E-08	0.0	0.0	0.0
H4P2O7	3.79142E-16	0.0	0.0	0.0
ALOH3	3.85963E-13	0.0	0.0	0.0
BACO3	2.87387E-22	0.0	0.0	0.0
KCL	2.89893E-06	0.0	0.0	0.0
KHSO4	4.98007E-11	0.0	0.0	0.0
BASO4	2.16361E-13	7.62798E-07	0.0	0.0
MGCO3	6.33796E-15	0.0	0.0	0.0
MGH2SIO4	5.33400E-15	0.0	0.0	0.0
MGHPO4	4.19368E-06	0.0	0.0	0.0
MGSO4	7.61404E-05	0.0	0.0	0.0
NAHCO3	1.50023E-11	0.0	0.0	0.0
NAHSIO3	4.38634E-09	0.0	0.0	0.0
NANO3	1.48626E-04	0.0	0.0	0.0
NIOH2	4.66403E-17	0.0	0.0	0.0
NISO4	2.37757E-07	0.0	0.0	0.0
PBCL2	4.36245E-08	0.0	0.0	0.0
PBHPO4	6.86300E-12	0.0	0.0	0.0
PBNO32	5.89873E-10	0.0	0.0	0.0
PBO	6.29184E-18	0.0	0.0	0.0
CACL2	1.30561E-23	0.0	0.0	0.0
SIO2	2.38460E-06	2.64277E-04	0.0	0.0

CACO3	5.33437E-16	0.0	0.0	0.0
SRHPO4	1.26922E-11	0.0	0.0	0.0
SRNO32	4.23314E-08	0.0	0.0	0.0
SRSO4	4.53337E-08	2.75425E-05	0.0	0.0
UIVOH4	2.43981E-13	0.0	0.0	0.0
UIVSO42	1.24110E-21	0.0	0.0	0.0
ZNCL2	5.24629E-06	0.0	0.0	0.0
ZNHPO4	5.27941E-08	0.0	0.0	0.0
ZNNO32	1.36729E-07	0.0	0.0	0.0
ZNOH2	1.82412E-14	0.0	0.0	0.0
OHION	1.34120E-12	0.0	0.0	0.0
ALION	6.94105E-11	0.0	0.0	0.0
ALOH2ION	2.76686E-12	0.0	0.0	0.0
ALOH4ION	2.21315E-14	0.0	0.0	0.0
ALOHCLION	8.69985E-11	0.0	0.0	0.0
ALOHION	1.49355E-11	0.0	0.0	0.0
ALSO42ION	2.15664E-10	0.0	0.0	0.0
ALSO4ION	2.40967E-10	0.0	0.0	0.0
BAHCO3ION	7.68880E-18	0.0	0.0	0.0
BAION	4.01207E-08	0.0	0.0	0.0
BAOHION	1.01858E-20	0.0	0.0	0.0
CACLION	1.21514E-10	0.0	0.0	0.0
CAH2PO4ION	4.17247E-06	0.0	0.0	0.0
CAHCO3ION	3.06383E-12	0.0	0.0	0.0
CAHSIO3ION	5.23081E-12	0.0	0.0	0.0
CAION	3.80323E-05	0.0	0.0	0.0
CANO3ION	1.85169E-05	0.0	0.0	0.0
CAOHION	1.17399E-13	0.0	0.0	0.0
CAPO4ION	7.82940E-11	0.0	0.0	0.0
CDCL3ION	4.51675E-09	0.0	0.0	0.0
CDCL4ION	5.27157E-08	0.0	0.0	0.0
CDCLION	8.38530E-10	0.0	0.0	0.0
CDION	3.89193E-11	0.0	0.0	0.0
CDNO3ION	8.01626E-12	0.0	0.0	0.0
CDOH3ION	1.99339E-30	0.0	0.0	0.0
CDOHION	2.41687E-17	0.0	0.0	0.0
CLION	0.00444476	0.0	0.0	0.0
CO3ION	3.00699E-15	0.0	0.0	0.0
CRIIIICL2ION	6.67336E-13	0.0	0.0	0.0
CRIIIICLION	2.33184E-13	0.0	0.0	0.0
CRIIIH2PO4ION	7.64026E-10	0.0	0.0	0.0
CRIIIHPO4ION	2.48972E-06	0.0	0.0	0.0
CRIIIIION	1.94550E-16	0.0	0.0	0.0
CRIIINO3ION	1.83336E-10	0.0	0.0	0.0
CROH2ION	2.04074E-16	0.0	0.0	0.0
CROH4ION	5.88172E-23	0.0	0.0	0.0
CROHION	9.68123E-11	0.0	0.0	0.0
CRSO4ION	9.23817E-09	0.0	0.0	0.0
CUCL3ION	3.98886E-11	0.0	0.0	0.0
CUCLION	7.99373E-09	0.0	0.0	0.0
CUCO32ION	4.52531E-25	0.0	0.0	0.0
CUION	7.85875E-09	0.0	0.0	0.0
CUNO3ION	2.00949E-09	0.0	0.0	0.0
CUOH3ION	1.48339E-21	0.0	0.0	0.0
CUOH4ION	8.81388E-29	0.0	0.0	0.0
CUOHION	2.17285E-12	0.0	0.0	0.0
DODECION	2.60675E-08	0.0	0.0	0.0
FEIICLION	1.60137E-07	0.0	0.0	0.0

FEIICO32ION	1.80357E-23	0.0	0.0	0.0
FEIIH2PO4ION	1.98784E-06	0.0	0.0	0.0
FEIIHCO3ION	1.63360E-13	0.0	0.0	0.0
FEIIION	1.34910E-04	0.0	0.0	0.0
FEIIOH3ION	2.23557E-21	0.0	0.0	0.0
FEIIOH4ION	2.01157E-30	0.0	0.0	0.0
FEIIOHION	1.15784E-09	0.0	0.0	0.0
H2P2O7ION	1.25198E-08	0.0	0.0	0.0
H2PO4ION	3.65593E-05	0.0	0.0	0.0
H2SIO4ION	4.57708E-18	0.0	0.0	0.0
H3P2O7ION	1.83889E-12	0.0	0.0	0.0
H3SIO4ION	4.27670E-11	0.0	0.0	0.0
HCO3ION	7.49496E-11	0.0	0.0	0.0
HION	2.52279E-08	0.0	0.0	0.0
HP2O7ION	1.83586E-09	0.0	0.0	0.0
HPBO2ION	1.35596E-23	0.0	0.0	0.0
HPO4ION	2.22969E-06	0.0	0.0	0.0
HSO4ION	3.35763E-08	0.0	0.0	0.0
KION	7.97015E-04	0.0	0.0	0.0
KSO4ION	6.39812E-05	0.0	0.0	0.0
MGH2PO4ION	1.41187E-04	0.0	0.0	0.0
MGHCO3ION	2.07001E-10	0.0	0.0	0.0
MGHSIO3ION	2.54475E-10	0.0	0.0	0.0
MGION	3.54588E-04	0.0	0.0	0.0
MGOHION	2.96201E-11	0.0	0.0	0.0
MGP2O7ION	1.96689E-08	0.0	0.0	0.0
MGPO4ION	2.59916E-09	0.0	0.0	0.0
NACO3ION	1.31925E-15	0.0	0.0	0.0
NAION	0.00549675	0.0	0.0	0.0
NASO4ION	2.29223E-04	0.0	0.0	0.0
NICLION	5.70001E-08	0.0	0.0	0.0
NIION	1.72693E-06	0.0	0.0	0.0
NINO3ION	5.33678E-07	0.0	0.0	0.0
NIOH3ION	1.37662E-22	0.0	0.0	0.0
NIOHION	2.49388E-12	0.0	0.0	0.0
NO3ION	0.00160089	0.0	0.0	0.0
P2O7ION	8.85182E-12	0.0	0.0	0.0
PBCL3ION	1.16402E-07	0.0	0.0	0.0
PBCL4ION	2.34588E-06	0.0	0.0	0.0
PBCLION	1.86546E-08	0.0	0.0	0.0
PBH2PO4ION	1.46951E-10	0.0	0.0	0.0
PBION	2.61237E-09	0.0	0.0	0.0
PBNO33ION	2.18091E-10	0.0	0.0	0.0
PBNO3ION	4.37296E-09	0.0	0.0	0.0
PBOHION	5.44651E-13	0.0	0.0	0.0
PO4ION	1.07128E-12	0.0	0.0	0.0
SO4ION	6.01684E-04	0.0	0.0	0.0
SRION	2.96025E-06	0.0	0.0	0.0
SRNO3ION	2.31489E-07	0.0	0.0	0.0
SROHION	3.50809E-16	0.0	0.0	0.0
SRPO4ION	5.71801E-15	0.0	0.0	0.0
UIVCLION	3.55354E-24	0.0	0.0	0.0
UIVION	5.89233E-26	0.0	0.0	0.0
UIVOH2ION	5.15857E-20	0.0	0.0	0.0
UIVOH3ION	1.20877E-16	0.0	0.0	0.0
UIVOH5ION	3.66989E-18	0.0	0.0	0.0
UIVOHION	1.13899E-21	0.0	0.0	0.0
UIVSO4ION	5.63131E-22	0.0	0.0	0.0

ZNCL3ION	9.73271E-06	0.0	0.0	0.0
ZNCLION	7.27891E-06	0.0	0.0	0.0
ZNH2PO4ION	9.23419E-07	0.0	0.0	0.0
ZNHCO3ION	1.31823E-12	0.0	0.0	0.0
ZNION	2.89067E-05	0.0	0.0	0.0
ZNNO3ION	4.29710E-06	0.0	0.0	0.0
ZNOH3ION	3.26972E-20	0.0	0.0	0.0
ZNOH4ION	5.06712E-27	0.0	0.0	0.0
ZNOHION	2.41132E-10	0.0	0.0	0.0
CAHPO4	0.0	7.18655E-04	0.0	0.0
ALPO4	0.0	2.25925E-04	0.0	0.0
CASO4.2H2O	0.0	6.65346E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.87775E-06	0.0	0.0
FEII3PO42.8H2O	0.0	3.29170E-06	0.0	0.0
PB3PO42	0.0	2.53747E-06	0.0	0.0
UIVO2	0.0	1.17647E-05	0.0	0.0
=====				
Total g/hr	2.56182	0.269504	0.0	0.0
Volume, L/hr	0.00217405	6.45095E-05	0.0	0.0
Enthalpy, cal/hr	-8524.04	-802.089	0.0	0.0
Density, g/L	1178.36	4177.74		
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	184.824			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.182736			
E-Con, cm2/ohm-mol	27.8429			
Abs Visc, cP	1.53973			
Rel Visc	1.72864			
Ionic Strength	4.42278			

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STREAM: Condensate
TO :
FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.15678			
Total mol/hr	27.61981	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	27.6178	0.0	0.0	0.0
CO2	0.00182135	0.0	0.0	0.0
HCL	8.58003E-17	0.0	0.0	0.0
HNO3	2.52103E-12	0.0	0.0	0.0
LAURICACID	1.14568E-04	0.0	0.0	0.0
OHION	7.31126E-11	0.0	0.0	0.0
CLION	2.09861E-06	0.0	0.0	0.0
CO3ION	8.31125E-12	0.0	0.0	0.0
DODECION	2.02089E-05	0.0	0.0	0.0
HCO3ION	1.19771E-05	0.0	0.0	0.0
HION	3.50175E-05	0.0	0.0	0.0
NO3ION	7.32823E-07	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	497.651	0.0	0.0	0.0
Volume, L/hr	0.499184	0.0	0.0	0.0
Enthalpy, cal/hr	-1.88686E+06	0.0	0.0	0.0
Density, g/L	996.93			
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	0.0984103			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	2.83734E-05			
E-Con, cm2/ohm-mol	7.1862			
Abs Visc, cP	0.89075			
Rel Visc	1.00003			
Ionic Strength	7.03814E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	3.07635D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-1.67682D+02
MIX	CONDENSATE MIXER	-3.07468D+05

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PROCESS:AWE65_7

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.995644

Standard Block Information

Duty, cal/hr 307635.

	In	Out	Rel. Diff.
Total Mass g/hr	500.483	500.483	1.24935E-15
Total Energy cal/hr	-1.89619E+06	-1.58855E+06	0.0

Mix Output

Outlet Temperature, C 103.368
 Outlet Pressure, atm 1.
 Aqueous pH 3.92509
 V/F (molar) 0.995638

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.118995	2.56418	0.00232949	-8401.44
Solid	0.00201467	0.267141	6.52255E-05	-757.007
Vapor	27.6197	497.651	846.381	-1.57939E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	27.7407	500.483	846.383	-1.58855E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap separator
 BLOCK TYPE: Separate
 =====

Separate Input

 Liquid Outlet Stream Bottoms
 Vapor Outlet Stream Overhead
 Suspended Solids, g solid/g liq solution 0.0
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Pressure Specification, atm
 Outlet Pressure = Min Inlet Pressure
 Equilibrium Type Adiabatic
 Duty, cal/hr 0.0

Standard Block Information

 Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	500.483	500.483	0.0
Total Energy cal/hr	-1.58855E+06	-1.58855E+06	0.0

Separate Output

 Outlet Temperature, C 103.368
 Outlet Pressure, atm 1.
 Aqueous pH 3.92509
 Suspended Solids, g solid/g liq solution 0.104182
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Liquid Stream	Bottoms			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.118995	2.56418	0.00232949	-8401.44
Solid	0.00201467	0.267141	6.52255E-05	-757.007
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.121009	2.83132	0.00239472	-9158.44

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	27.6197	497.651	846.381	-1.57939E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	27.6197	497.651	846.381	-1.57939E+06

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PROCESS:AWE65_7

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -167.682

	In	Out	Rel. Diff.
Total Mass g/hr	2.83132	2.83132	6.27395E-16
Total Energy cal/hr	-9158.44	-9326.13	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.89593
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.117785	2.56182	0.00217405	-8524.04
Solid	0.00192398	0.269504	6.45095E-05	-802.089
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.119709	2.83132	0.00223856	-9326.13

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PROCESS:AWE65_7

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -3.07468E+05

	In	Out	Rel. Diff.
Total Mass g/hr	497.651	497.651	2.28447E-16
Total Energy cal/hr	-1.57939E+06	-1.88686E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.15678
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	27.6197	497.651	0.499184	-1.88686E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	27.6197	497.651	0.499184	-1.88686E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block               Mix: Evap mixer
Control Parameter              Vapor Fraction
Control Parameter Minimum      0.49
Control Parameter Maximum      0.999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations             20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:     Solution Species
```

Controller Output

```
-----
Specification Stream          Cooled Bottoms
Controlled Block              Evap mixer
Control Parameter Type:       General Process Variable
Convergence:                  Converged
Iterations Completed this Sequence      13.
Total Iterations Completed all Sequences 13.
Last Parameter Value           0.995644
Last DIFF (Computed-Setpoint) -3.57037E-07
Previous Parameter Value        0.995643
Previous DIFF (Computed-Setpoint) 7.88850E-05
Control Parameter Minimum       0.995643
Control Parameter Maximum       0.995964
Control Parameter Stepsize       0.0
Maximum Iterations              0.0
```

Influent Limit Composition 50% Target pH=8.5
8.5-50

=====

```
      O   O   O           L           I I I I
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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 September 1, 2002

PROCESS: AWE85_2

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE85_2.LIS

DATE: 12/05/2002

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79149D+06
Total in	1.00000D+03	-3.79149D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	8.43793D-01	-2.82377D+03
CONDENSATE	9.99156D+02	-3.78866D+06
Total out	1.00000D+03	-3.79149D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.17178D+05
EVAP BOTTOMS COOLING MIXER	-5.00133D+01
CONDENSATE MIXER	-6.17120D+05
Total Duty	7.85689D+00

DIFFERENCE	5.68434D-13	0.00000D+00
REL DIFFERENCE	5.68434D-16	0.00000D+00

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10985D+02	1.10985D+02	5.68434D-14	5.12170D-16
K(+1)	2.06789D-04	2.06789D-04	-1.08420D-19	-5.24303D-16
NA(+1)	1.40619D-03	1.40619D-03	2.60209D-18	1.85045D-15
BA(+2)	4.08759D-07	4.08759D-07	1.32349D-21	3.23782D-15
CA(+2)	7.23192D-04	7.23192D-04	1.08420D-19	1.49919D-16
ZN(+2)	2.14067D-05	2.14067D-05	0.00000D+00	0.00000D+00
CU(+2)	3.14961D-06	3.14961D-06	-4.23516D-22	-1.34467D-16
FE(+2)	5.55556D-05	5.55556D-05	0.00000D+00	0.00000D+00
MG(+2)	2.46914D-04	2.46914D-04	0.00000D+00	0.00000D+00
PB(+2)	2.12560D-06	2.12560D-06	4.23516D-22	1.99245D-16
AL(+3)	6.29630D-05	6.29630D-05	0.00000D+00	0.00000D+00
NI(+2)	9.36968D-07	9.36968D-07	0.00000D+00	0.00000D+00
O(-2)	5.54990D+01	5.54990D+01	4.97380D-14	8.96196D-16
CL(-1)	1.32394D-03	1.32394D-03	4.98733D-18	3.76703D-15
C(+4)	1.00000D-03	1.00000D-03	4.77049D-18	4.77049D-15
P(+5)	1.47368D-04	1.47368D-04	2.71051D-20	1.83927D-16
S(+6)	4.89583D-04	4.89583D-04	1.08420D-19	2.21454D-16
N(+5)	3.38710D-04	3.38710D-04	-1.08420D-19	-3.20098D-16
SI(+4)	1.65000D-04	1.65000D-04	2.71051D-20	1.64273D-16
SR(+2)	1.13014D-05	1.13014D-05	0.00000D+00	0.00000D+00

CD (+2)	8.92857D-09	8.92857D-09	-1.27386D-21	-1.42672D-13
CR (+3)	5.38461D-08	5.38461D-08	6.61744D-24	1.22895D-16
U (+4)	2.01681D-06	2.01681D-06	4.23516D-22	2.09994D-16

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DODEC (-1)

3.37022D-05 3.37022D-05 1.52656D-16 4.52954D-12

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PROCESS:AWE85_2

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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PROCESS:AWE85_2

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	7.01951			
Total mol/hr	55.49823	6.67142E-05	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4921	0.0	0.0	0.0
CO2	1.60822E-04	0.0	0.0	0.0
H2SO4	1.16750E-26	0.0	0.0	0.0
HCL	6.94021E-17	0.0	0.0	0.0
HNO3	1.48942E-12	0.0	0.0	0.0
LAURICACID	2.42548E-07	0.0	0.0	0.0
SO3	1.51118E-30	0.0	0.0	0.0
CAH2SIO4	5.93555E-12	0.0	0.0	0.0
CASO4	6.79310E-06	0.0	0.0	0.0
CDCL2	1.60191E-11	0.0	0.0	0.0
CDOH2	4.04938E-15	0.0	0.0	0.0
CDSO4	6.99908E-10	0.0	0.0	0.0
CROH3	4.34229E-12	0.0	0.0	0.0
CUCL2	2.74364E-14	0.0	0.0	0.0
CUCO3	1.54663E-08	0.0	0.0	0.0
CUNO32	3.79737E-16	0.0	0.0	0.0
CUOH2	6.93396E-09	0.0	0.0	0.0
FEIICL2	2.96558E-16	0.0	0.0	0.0
FEIICO3	1.92399E-06	0.0	0.0	0.0
FEIIHPO4	4.36978E-08	0.0	0.0	0.0
FEIIOH2	1.07964E-11	0.0	0.0	0.0
ALO2H2CL	1.34256E-29	0.0	0.0	0.0
H3PO4	8.95271E-10	0.0	0.0	0.0
H4P2O7	1.42318E-21	0.0	0.0	0.0
ALOH3	2.40189E-09	6.29537E-05	0.0	0.0
BACO3	4.80173E-11	0.0	0.0	0.0
KCL	1.94045E-09	0.0	0.0	0.0
KHSO4	1.15313E-14	0.0	0.0	0.0
BASO4	1.91622E-10	0.0	0.0	0.0
MGCO3	6.01490E-08	0.0	0.0	0.0
MGH2SIO4	1.85604E-11	0.0	0.0	0.0
MGHPO4	8.69434E-06	0.0	0.0	0.0
MGSO4	3.83028E-06	0.0	0.0	0.0
NAHCO3	4.14547E-07	0.0	0.0	0.0
NAHSIO3	3.89439E-08	0.0	0.0	0.0
NANO3	2.33070E-08	0.0	0.0	0.0
NIOH2	7.28371E-12	0.0	0.0	0.0
NISO4	4.64233E-08	0.0	0.0	0.0
PBCL2	5.56810E-13	0.0	0.0	0.0
PBHPO4	2.65334E-10	0.0	0.0	0.0
PBNO32	7.03494E-15	0.0	0.0	0.0
PBO	4.13698E-12	0.0	0.0	0.0
CACL2	7.27332E-28	0.0	0.0	0.0
SIO2	1.64689E-04	0.0	0.0	0.0

CACO3	4.12042E-07	0.0	0.0	0.0
SRHPO4	6.22300E-09	0.0	0.0	0.0
SRNO32	6.40250E-12	0.0	0.0	0.0
SRSO4	5.39336E-07	0.0	0.0	0.0
UIVOH4	3.02276E-10	0.0	0.0	0.0
UIVSO42	2.40368E-30	0.0	0.0	0.0
ZNCL2	3.83470E-11	0.0	0.0	0.0
ZNHPO4	1.16887E-06	0.0	0.0	0.0
ZNNO32	9.33824E-13	0.0	0.0	0.0
ZNOH2	7.83788E-09	0.0	0.0	0.0
OHION	1.14631E-07	0.0	0.0	0.0
ALION	1.67844E-14	0.0	0.0	0.0
ALOH2ION	4.54292E-11	0.0	0.0	0.0
ALOH4ION	6.80821E-09	0.0	0.0	0.0
ALOHCLION	3.80486E-15	0.0	0.0	0.0
ALOHION	1.19353E-12	0.0	0.0	0.0
ALSO42ION	8.70803E-17	0.0	0.0	0.0
ALSO4ION	3.20537E-15	0.0	0.0	0.0
BAHCO3ION	2.49714E-09	0.0	0.0	0.0
BAION	4.06022E-07	0.0	0.0	0.0
BAOHION	1.90798E-14	0.0	0.0	0.0
CACLION	1.64496E-11	0.0	0.0	0.0
CAH2PO4ION	1.37251E-06	0.0	0.0	0.0
CAHCO3ION	4.78673E-06	0.0	0.0	0.0
CAHSIO3ION	2.52426E-09	0.0	0.0	0.0
CAION	7.08903E-04	0.0	0.0	0.0
CANO3ION	4.61531E-07	0.0	0.0	0.0
CAOHION	1.01198E-09	0.0	0.0	0.0
CAPO4ION	4.59393E-07	0.0	0.0	0.0
CDCL3ION	1.01559E-15	0.0	0.0	0.0
CDCL4ION	8.58918E-19	0.0	0.0	0.0
CDCLION	6.62801E-10	0.0	0.0	0.0
CDION	7.53965E-09	0.0	0.0	0.0
CDNO3ION	4.99448E-12	0.0	0.0	0.0
CDOH3ION	6.38825E-21	0.0	0.0	0.0
CDOH4ION	4.08745E-28	0.0	0.0	0.0
CDOHION	5.18782E-12	0.0	0.0	0.0
CLION	0.00132391	0.0	0.0	0.0
CO3ION	5.14136E-07	0.0	0.0	0.0
CRIIIICL2ION	4.75123E-21	0.0	0.0	0.0
CRIIIICLION	2.60737E-17	0.0	0.0	0.0
CRIIIH2PO4ION	1.45484E-14	0.0	0.0	0.0
CRIIIHPO4ION	5.38305E-08	0.0	0.0	0.0
CRIIIIION	7.93557E-15	0.0	0.0	0.0
CRIIINO3ION	4.09787E-16	0.0	0.0	0.0
CROH2ION	1.32150E-13	0.0	0.0	0.0
CROH4ION	5.66404E-16	0.0	0.0	0.0
CROHION	5.94007E-12	0.0	0.0	0.0
CRSO4ION	5.18139E-12	0.0	0.0	0.0
CUCL3ION	7.53770E-20	0.0	0.0	0.0
CUCLION	5.31018E-11	0.0	0.0	0.0
CUCO32ION	1.18961E-11	0.0	0.0	0.0
CUION	1.01120E-08	0.0	0.0	0.0
CUNO3ION	9.10866E-12	0.0	0.0	0.0
CUOH3ION	4.23046E-14	0.0	0.0	0.0
CUOH4ION	4.16462E-20	0.0	0.0	0.0
CUOHION	3.93477E-09	0.0	0.0	0.0
DODECION	3.34597E-05	0.0	0.0	0.0

FEIICLION	7.09656E-11	0.0	0.0	0.0
FEIICO32ION	3.23108E-11	0.0	0.0	0.0
FEIIH2PO4ION	9.15242E-09	0.0	0.0	0.0
FEIIHCO3ION	4.72439E-09	0.0	0.0	0.0
FEIIION	5.34341E-05	0.0	0.0	0.0
FEIIOH3ION	4.82576E-15	0.0	0.0	0.0
FEIIOH4ION	6.54248E-23	0.0	0.0	0.0
FEIIOHION	1.39741E-07	0.0	0.0	0.0
H2P2O7ION	2.74806E-11	0.0	0.0	0.0
H2PO4ION	7.18485E-05	0.0	0.0	0.0
H2SIO4ION	2.79580E-13	0.0	0.0	0.0
H3P2O7ION	4.59024E-16	0.0	0.0	0.0
H3SIO4ION	2.67579E-07	0.0	0.0	0.0
HCO3ION	8.25535E-04	0.0	0.0	0.0
HION	1.03270E-07	0.0	0.0	0.0
HP2O7ION	1.06353E-10	0.0	0.0	0.0
HPBO2ION	5.24068E-16	0.0	0.0	0.0
HPO4ION	5.93972E-05	0.0	0.0	0.0
HSO4ION	3.39362E-09	0.0	0.0	0.0
KION	2.06248E-04	0.0	0.0	0.0
KSO4ION	5.39414E-07	0.0	0.0	0.0
MGH2PO4ION	5.70608E-07	0.0	0.0	0.0
MGHCO3ION	5.24665E-06	0.0	0.0	0.0
MGHSIO3ION	1.50880E-09	0.0	0.0	0.0
MGION	2.28294E-04	0.0	0.0	0.0
MGOHION	3.13797E-09	0.0	0.0	0.0
MGP2O7ION	1.26807E-09	0.0	0.0	0.0
MGPO4ION	2.11702E-07	0.0	0.0	0.0
NACO3ION	1.85791E-09	0.0	0.0	0.0
NAION	0.00140168	0.0	0.0	0.0
NASO4ION	4.03861E-06	0.0	0.0	0.0
NICLION	8.60617E-11	0.0	0.0	0.0
NIION	8.88789E-07	0.0	0.0	0.0
NINO3ION	6.35138E-10	0.0	0.0	0.0
NIOH3ION	8.43213E-16	0.0	0.0	0.0
NIOHION	1.02677E-09	0.0	0.0	0.0
NO3ION	3.38195E-04	0.0	0.0	0.0
P2O7ION	9.64276E-13	0.0	0.0	0.0
PBCL3ION	3.60198E-16	0.0	0.0	0.0
PBCL4ION	3.49513E-19	0.0	0.0	0.0
PBCLION	1.35530E-10	0.0	0.0	0.0
PBH2PO4ION	1.10752E-11	0.0	0.0	0.0
PBION	5.09232E-09	0.0	0.0	0.0
PBNO33ION	4.06480E-19	0.0	0.0	0.0
PBNO3ION	2.50043E-11	0.0	0.0	0.0
PBOHION	1.07779E-09	0.0	0.0	0.0
PO4ION	4.38231E-10	0.0	0.0	0.0
SO4ION	4.73792E-04	0.0	0.0	0.0
SRION	1.07407E-05	0.0	0.0	0.0
SRNO3ION	1.49637E-08	0.0	0.0	0.0
SROHION	5.72876E-12	0.0	0.0	0.0
SRPO4ION	9.64015E-11	0.0	0.0	0.0
UIVOH2ION	4.56739E-22	0.0	0.0	0.0
UIVOH3ION	3.51398E-16	0.0	0.0	0.0
UIVOH5ION	1.78225E-13	0.0	0.0	0.0
UIVOHION	9.61721E-27	0.0	0.0	0.0
UIVSO4ION	1.29621E-30	0.0	0.0	0.0
ZNCL3ION	1.72381E-14	0.0	0.0	0.0

ZNCLION	3.02381E-08	0.0	0.0	0.0
ZNH2PO4ION	3.98550E-08	0.0	0.0	0.0
ZNHCO3ION	2.59775E-07	0.0	0.0	0.0
ZNION	1.96875E-05	0.0	0.0	0.0
ZNNO3ION	1.40707E-08	0.0	0.0	0.0
ZNOH3ION	8.74325E-13	0.0	0.0	0.0
ZNOH4ION	1.49181E-18	0.0	0.0	0.0
ZNOHION	1.98555E-07	0.0	0.0	0.0
CU3PO42.2H2O	0.0	1.03769E-06	0.0	0.0
PB3PO42	0.0	7.06331E-07	0.0	0.0
UIVO2	0.0	2.01650E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	999.994	0.00646066	0.0	0.0
Volume, L/hr	1.00293	2.14241E-06	0.0	0.0
Enthalpy, cal/hr	-3.79147E+06	-20.2479	0.0	0.0
Density, g/L	997.073	3015.6		
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	0.166988			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	4.08198E-04			
E-Con, cm2/ohm-mol	139.526			
Abs Visc, cP	0.892087			
Rel Visc	1.00154			
Ionic Strength	0.00522365			

STREAM: Evap Contents
 TO : Evap separator
 FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.754	102.754	102.754	102.754
Pressure, atm	1.	1.	1.	1.
pH	8.02839			
Total mol/hr	0.03692398	9.66192E-04	55.4597	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0336664	0.0	55.45868	0.0
CO2	8.45986E-11	0.0	9.91404E-04	0.0
H2SO4	1.10416E-30	0.0	1.45453E-27	0.0
HCL	2.05353E-16	0.0	2.94330E-10	0.0
HNO3	2.02651E-13	0.0	6.53194E-11	0.0
LAURICACID	3.31137E-10	0.0	2.56699E-05	0.0
CAH2SIO4	1.40949E-09	0.0	0.0	0.0
CASO4	3.83930E-07	4.58556E-04	0.0	0.0
CDCL2	4.69456E-09	0.0	0.0	0.0
CDOH2	4.50076E-13	0.0	0.0	0.0
CDSO4	3.34449E-13	0.0	0.0	0.0
CROH3	2.49966E-11	5.38148E-08	0.0	0.0
CUCL2	2.47903E-12	0.0	0.0	0.0
CUCO3	5.94988E-14	0.0	0.0	0.0
CUNO32	1.76863E-14	0.0	0.0	0.0
CUOH2	6.01398E-09	3.14345E-06	0.0	0.0
FEIICL2	2.56798E-16	0.0	0.0	0.0
FEIICO3	1.08858E-14	0.0	0.0	0.0
FEIIHPO4	6.11399E-20	0.0	0.0	0.0
FEIIOH2	3.44292E-13	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	1.38155E-19	0.0	0.0	0.0
ALOH3	2.20629E-11	0.0	0.0	0.0
BACO3	3.00355E-14	0.0	0.0	0.0
KCL	3.73000E-06	0.0	0.0	0.0
KHSO4	4.55751E-14	0.0	0.0	0.0
BASO4	6.84051E-13	4.06550E-07	0.0	0.0
MGCO3	4.73991E-11	0.0	0.0	0.0
MGH2SIO4	1.11885E-09	0.0	0.0	0.0
MGHPO4	1.17969E-12	0.0	0.0	0.0
MGSO4	2.31764E-08	0.0	0.0	0.0
NAHCO3	8.17297E-09	0.0	0.0	0.0
NAHSIO3	5.57625E-06	0.0	0.0	0.0
NANO3	7.20620E-05	0.0	0.0	0.0
NIOH2	1.58825E-12	9.36907E-07	0.0	0.0
NISO4	3.17467E-12	0.0	0.0	0.0
PBCL2	1.46340E-07	0.0	0.0	0.0
PBHPO4	8.46242E-16	0.0	0.0	0.0
PBNO32	4.43245E-09	0.0	0.0	0.0
PBO	4.16487E-08	0.0	0.0	0.0
CACL2	3.36268E-15	0.0	0.0	0.0
SIO2	2.84398E-06	1.26773E-04	0.0	0.0
CACO3	1.79262E-09	8.57765E-06	0.0	0.0
SRHPO4	2.54974E-15	0.0	0.0	0.0

SRNO32	8.97745E-08	0.0	0.0	0.0
SRSO4	6.54174E-09	1.06798E-05	0.0	0.0
UIVOH4	8.37123E-13	0.0	0.0	0.0
ZNCL2	1.78229E-06	0.0	0.0	0.0
ZNHPO4	3.26913E-14	0.0	0.0	0.0
ZNNO32	7.91958E-10	0.0	0.0	0.0
ZNOH2	6.18627E-07	0.0	0.0	0.0
OHION	5.95771E-08	0.0	0.0	0.0
ALION	7.85826E-24	0.0	0.0	0.0
ALOH2ION	2.60627E-15	0.0	0.0	0.0
ALOH4ION	2.01890E-08	0.0	0.0	0.0
ALOHCLION	9.15109E-19	0.0	0.0	0.0
ALOHION	3.05609E-19	0.0	0.0	0.0
ALSO42ION	9.02522E-25	0.0	0.0	0.0
ALSO4ION	8.43341E-24	0.0	0.0	0.0
BAHCO3ION	4.37644E-13	0.0	0.0	0.0
BAION	2.20773E-09	0.0	0.0	0.0
BAOHION	1.23723E-13	0.0	0.0	0.0
CACLION	8.18426E-08	0.0	0.0	0.0
CAH2PO4ION	1.07390E-13	0.0	0.0	0.0
CAHCO3ION	8.47306E-10	0.0	0.0	0.0
CAHSIO3ION	1.22029E-07	0.0	0.0	0.0
CAION	2.40130E-05	0.0	0.0	0.0
CANO3ION	1.03754E-05	0.0	0.0	0.0
CAOHION	2.52168E-08	0.0	0.0	0.0
CAPO4ION	1.05563E-11	0.0	0.0	0.0
CDCL3ION	3.25648E-09	0.0	0.0	0.0
CDCL4ION	6.84901E-10	0.0	0.0	0.0
CDCLION	2.83352E-10	0.0	0.0	0.0
CDION	6.11628E-12	0.0	0.0	0.0
CDNO3ION	1.52455E-12	0.0	0.0	0.0
CDOH3ION	3.64377E-16	0.0	0.0	0.0
CDOH4ION	1.74748E-19	0.0	0.0	0.0
CDOHION	8.50008E-13	0.0	0.0	0.0
CLION	0.00130005	0.0	0.0	0.0
CO3ION	6.84639E-10	0.0	0.0	0.0
CRIIIICL2ION	2.33591E-18	0.0	0.0	0.0
CRIIIICLION	2.46967E-17	0.0	0.0	0.0
CRIIIH2PO4ION	3.19395E-25	0.0	0.0	0.0
CRIIIHPO4ION	7.70390E-13	0.0	0.0	0.0
CRIIIIION	3.42549E-20	0.0	0.0	0.0
CRIIINO3ION	1.01079E-15	0.0	0.0	0.0
CROH2ION	7.24619E-14	0.0	0.0	0.0
CROH4ION	3.16473E-13	0.0	0.0	0.0
CROHION	5.13133E-12	0.0	0.0	0.0
CRSO4ION	8.63597E-15	0.0	0.0	0.0
CUCL3ION	2.96340E-14	0.0	0.0	0.0
CUCLION	1.63948E-11	0.0	0.0	0.0
CUCO32ION	3.24991E-16	0.0	0.0	0.0
CUION	5.07538E-12	0.0	0.0	0.0
CUNO3ION	8.04294E-13	0.0	0.0	0.0
CUOH3ION	3.05339E-11	0.0	0.0	0.0
CUOH4ION	3.45909E-13	0.0	0.0	0.0
CUOHION	8.14155E-11	0.0	0.0	0.0
DODECION	8.03202E-06	0.0	0.0	0.0
FEIICLION	5.70151E-14	0.0	0.0	0.0
FEIICO32ION	1.79477E-18	0.0	0.0	0.0
FEIIH2PO4ION	1.12139E-21	0.0	0.0	0.0

FEIIHCO3ION	5.17038E-18	0.0	0.0	0.0
FEIIION	7.60978E-12	0.0	0.0	0.0
FEIIOH3ION	3.60461E-14	0.0	0.0	0.0
FEIIOH4ION	4.85157E-18	0.0	0.0	0.0
FEIIOHION	4.39727E-12	0.0	0.0	0.0
H2P2O7ION	9.13297E-24	0.0	0.0	0.0
H2PO4ION	1.41129E-13	0.0	0.0	0.0
H2SIO4ION	1.55131E-10	0.0	0.0	0.0
H3P2O7ION	2.18083E-30	0.0	0.0	0.0
H3SIO4ION	1.89190E-06	0.0	0.0	0.0
HCO3ION	6.21526E-09	0.0	0.0	0.0
HION	7.44004E-12	0.0	0.0	0.0
HP2O7ION	9.67561E-22	0.0	0.0	0.0
HPBO2ION	2.17424E-09	0.0	0.0	0.0
HPO4ION	7.41704E-12	0.0	0.0	0.0
HSO4ION	9.06469E-12	0.0	0.0	0.0
KION	1.99619E-04	0.0	0.0	0.0
KSO4ION	3.43971E-06	0.0	0.0	0.0
MGH2PO4ION	1.92950E-15	0.0	0.0	0.0
MGHCO3ION	8.86580E-11	0.0	0.0	0.0
MGHSIO3ION	1.27147E-08	0.0	0.0	0.0
MGION	6.66297E-07	0.0	0.0	0.0
MGOHION	1.11071E-08	0.0	0.0	0.0
MGP2O7ION	9.53207E-19	0.0	0.0	0.0
MGPO4ION	6.60609E-13	0.0	0.0	0.0
NACO3ION	1.05927E-10	0.0	0.0	0.0
NAION	0.00132855	0.0	0.0	0.0
NASO4ION	3.14083E-13	0.0	0.0	0.0
NICLION	2.98284E-12	0.0	0.0	0.0
NIION	4.13937E-11	0.0	0.0	0.0
NINO3ION	5.17392E-12	0.0	0.0	0.0
NIOH3ION	2.02244E-14	0.0	0.0	0.0
NIOHION	6.47792E-12	0.0	0.0	0.0
NO3ION	2.55714E-04	0.0	0.0	0.0
P2O7ION	8.94668E-22	0.0	0.0	0.0
PBCL3ION	2.54069E-07	0.0	0.0	0.0
PBCL4ION	1.45033E-06	0.0	0.0	0.0
PBCLION	4.35974E-08	0.0	0.0	0.0
PBH2PO4ION	7.56365E-18	0.0	0.0	0.0
PBION	1.57136E-09	0.0	0.0	0.0
PBNO33ION	1.27725E-10	0.0	0.0	0.0
PBNO3ION	1.25704E-08	0.0	0.0	0.0
PBOHION	1.68743E-07	0.0	0.0	0.0
PO4ION	6.14844E-15	0.0	0.0	0.0
SO4ION	1.60872E-05	0.0	0.0	0.0
SRION	1.97064E-07	0.0	0.0	0.0
SRNO3ION	3.27990E-07	0.0	0.0	0.0
SROHION	1.81995E-10	0.0	0.0	0.0
SRPO4ION	2.44782E-15	0.0	0.0	0.0
UIVOH2ION	1.41254E-27	0.0	0.0	0.0
UIVOH3ION	2.23720E-21	0.0	0.0	0.0
UIVOH5ION	4.03654E-14	0.0	0.0	0.0
ZNCL3ION	1.79483E-06	0.0	0.0	0.0
ZNCLION	4.20624E-06	0.0	0.0	0.0
ZNH2PO4ION	1.42368E-16	0.0	0.0	0.0
ZNHCO3ION	5.25506E-12	0.0	0.0	0.0
ZNION	2.88376E-07	0.0	0.0	0.0
ZNNO3ION	2.76236E-08	0.0	0.0	0.0

ZNOH3ION	1.28146E-07	0.0	0.0	0.0
ZNOH4ION	4.96039E-10	0.0	0.0	0.0
ZNOHION	1.25593E-05	0.0	0.0	0.0
ALOOH	0.0	7.38720E-06	0.0	0.0
CA3PO42	0.0	7.36842E-05	0.0	0.0
CHAMOSITE7A	0.0	2.77778E-05	0.0	0.0
MGOH2	0.0	2.46199E-04	0.0	0.0
UIVO2	0.0	2.01681E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.722739	0.121055	999.156	0.0
Volume, L/hr	6.83304E-04	3.89195E-05	1696.67	0.0
Enthalpy, cal/hr	-2430.03	-343.728	-3.17154E+06	0.0
Density, g/L	1057.71	3110.38	0.588891	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	156.136			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.449358			
E-Con, cm2/ohm-mol	51.8522			
Abs Visc, cP	0.376299			
Rel Visc	1.37516			
Ionic Strength	2.71916			

ESP V-6.6

PROCESS:AWE85_2

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.754	102.754	102.754	102.754
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4597	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.45868	0.0
CO2	0.0	0.0	9.91404E-04	0.0
H2SO4	0.0	0.0	1.45453E-27	0.0
HCL	0.0	0.0	2.94330E-10	0.0
HNO3	0.0	0.0	6.53194E-11	0.0
LAURICACID	0.0	0.0	2.56699E-05	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	999.156	0.0
Volume, L/hr	0.0	0.0	1696.67	0.0
Enthalpy, cal/hr	0.0	0.0	-3.17154E+06	0.0
Density, g/L			0.588891	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE85_2

12/05/2002

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STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.754	102.754	102.754	102.754
Pressure, atm	1.	1.	1.	1.
pH	8.02839			
Total mol/hr	0.03692398	9.66192E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0336664	0.0	0.0	0.0
CO2	8.45986E-11	0.0	0.0	0.0
H2SO4	1.10416E-30	0.0	0.0	0.0
HCL	2.05353E-16	0.0	0.0	0.0
HNO3	2.02651E-13	0.0	0.0	0.0
LAURICACID	3.31137E-10	0.0	0.0	0.0
CAH2SIO4	1.40949E-09	0.0	0.0	0.0
CASO4	3.83930E-07	4.58556E-04	0.0	0.0
CDCL2	4.69456E-09	0.0	0.0	0.0
CDOH2	4.50076E-13	0.0	0.0	0.0
CDSO4	3.34449E-13	0.0	0.0	0.0
CROH3	2.49966E-11	5.38148E-08	0.0	0.0
CUCL2	2.47903E-12	0.0	0.0	0.0
CUCO3	5.94988E-14	0.0	0.0	0.0
CUNO32	1.76863E-14	0.0	0.0	0.0
CUOH2	6.01398E-09	3.14345E-06	0.0	0.0
FEIICL2	2.56798E-16	0.0	0.0	0.0
FEIICO3	1.08858E-14	0.0	0.0	0.0
FEIIHPO4	6.11399E-20	0.0	0.0	0.0
FEIIOH2	3.44292E-13	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	1.38155E-19	0.0	0.0	0.0
ALOH3	2.20629E-11	0.0	0.0	0.0
BACO3	3.00355E-14	0.0	0.0	0.0
KCL	3.73000E-06	0.0	0.0	0.0
KHSO4	4.55751E-14	0.0	0.0	0.0
BASO4	6.84051E-13	4.06550E-07	0.0	0.0
MGCO3	4.73991E-11	0.0	0.0	0.0
MGH2SIO4	1.11885E-09	0.0	0.0	0.0
MGHPO4	1.17969E-12	0.0	0.0	0.0
MGSO4	2.31764E-08	0.0	0.0	0.0
NAHCO3	8.17297E-09	0.0	0.0	0.0
NAHSIO3	5.57625E-06	0.0	0.0	0.0
NANO3	7.20620E-05	0.0	0.0	0.0
NIOH2	1.58825E-12	9.36907E-07	0.0	0.0
NISO4	3.17467E-12	0.0	0.0	0.0
PBCL2	1.46340E-07	0.0	0.0	0.0
PBHP04	8.46242E-16	0.0	0.0	0.0
PBNO32	4.43245E-09	0.0	0.0	0.0
PBO	4.16487E-08	0.0	0.0	0.0
CACL2	3.36268E-15	0.0	0.0	0.0
SIO2	2.84398E-06	1.26773E-04	0.0	0.0
CACO3	1.79262E-09	8.57765E-06	0.0	0.0
SRHPO4	2.54974E-15	0.0	0.0	0.0

SRNO32	8.97745E-08	0.0	0.0	0.0
SRSO4	6.54174E-09	1.06798E-05	0.0	0.0
UIVOH4	8.37123E-13	0.0	0.0	0.0
ZNCL2	1.78229E-06	0.0	0.0	0.0
ZNHPO4	3.26913E-14	0.0	0.0	0.0
ZNNO32	7.91958E-10	0.0	0.0	0.0
ZNOH2	6.18627E-07	0.0	0.0	0.0
OHION	5.95771E-08	0.0	0.0	0.0
ALION	7.85826E-24	0.0	0.0	0.0
ALOH2ION	2.60627E-15	0.0	0.0	0.0
ALOH4ION	2.01890E-08	0.0	0.0	0.0
ALOHCLION	9.15109E-19	0.0	0.0	0.0
ALOHION	3.05609E-19	0.0	0.0	0.0
ALSO42ION	9.02522E-25	0.0	0.0	0.0
ALSO4ION	8.43341E-24	0.0	0.0	0.0
BAHCO3ION	4.37644E-13	0.0	0.0	0.0
BAION	2.20773E-09	0.0	0.0	0.0
BAOHION	1.23723E-13	0.0	0.0	0.0
CACLION	8.18426E-08	0.0	0.0	0.0
CAH2PO4ION	1.07390E-13	0.0	0.0	0.0
CAHCO3ION	8.47306E-10	0.0	0.0	0.0
CAHSIO3ION	1.22029E-07	0.0	0.0	0.0
CAION	2.40130E-05	0.0	0.0	0.0
CANO3ION	1.03754E-05	0.0	0.0	0.0
CAOHION	2.52168E-08	0.0	0.0	0.0
CAPO4ION	1.05563E-11	0.0	0.0	0.0
CDCL3ION	3.25648E-09	0.0	0.0	0.0
CDCL4ION	6.84901E-10	0.0	0.0	0.0
CDCLION	2.83352E-10	0.0	0.0	0.0
CDION	6.11628E-12	0.0	0.0	0.0
CDNO3ION	1.52455E-12	0.0	0.0	0.0
CDOH3ION	3.64377E-16	0.0	0.0	0.0
CDOH4ION	1.74748E-19	0.0	0.0	0.0
CDOHION	8.50008E-13	0.0	0.0	0.0
CLION	0.00130005	0.0	0.0	0.0
CO3ION	6.84639E-10	0.0	0.0	0.0
CRIIIICL2ION	2.33591E-18	0.0	0.0	0.0
CRIIIICLION	2.46967E-17	0.0	0.0	0.0
CRIIIH2PO4ION	3.19395E-25	0.0	0.0	0.0
CRIIIHPO4ION	7.70390E-13	0.0	0.0	0.0
CRIIIIION	3.42549E-20	0.0	0.0	0.0
CRIIINO3ION	1.01079E-15	0.0	0.0	0.0
CROH2ION	7.24619E-14	0.0	0.0	0.0
CROH4ION	3.16473E-13	0.0	0.0	0.0
CROHION	5.13133E-12	0.0	0.0	0.0
CRSO4ION	8.63597E-15	0.0	0.0	0.0
CUCL3ION	2.96340E-14	0.0	0.0	0.0
CUCLION	1.63948E-11	0.0	0.0	0.0
CUCO32ION	3.24991E-16	0.0	0.0	0.0
CUION	5.07538E-12	0.0	0.0	0.0
CUNO3ION	8.04294E-13	0.0	0.0	0.0
CUOH3ION	3.05339E-11	0.0	0.0	0.0
CUOH4ION	3.45909E-13	0.0	0.0	0.0
CUOHION	8.14155E-11	0.0	0.0	0.0
DODECION	8.03202E-06	0.0	0.0	0.0
FEIICLION	5.70151E-14	0.0	0.0	0.0
FEIICO32ION	1.79477E-18	0.0	0.0	0.0
FEIIH2PO4ION	1.12139E-21	0.0	0.0	0.0

FEIIHCO3ION	5.17038E-18	0.0	0.0	0.0
FEIIION	7.60978E-12	0.0	0.0	0.0
FEIIOH3ION	3.60461E-14	0.0	0.0	0.0
FEIIOH4ION	4.85157E-18	0.0	0.0	0.0
FEIIOHION	4.39727E-12	0.0	0.0	0.0
H2P2O7ION	9.13297E-24	0.0	0.0	0.0
H2PO4ION	1.41129E-13	0.0	0.0	0.0
H2SIO4ION	1.55131E-10	0.0	0.0	0.0
H3P2O7ION	2.18083E-30	0.0	0.0	0.0
H3SIO4ION	1.89190E-06	0.0	0.0	0.0
HCO3ION	6.21526E-09	0.0	0.0	0.0
HION	7.44004E-12	0.0	0.0	0.0
HP2O7ION	9.67561E-22	0.0	0.0	0.0
HPBO2ION	2.17424E-09	0.0	0.0	0.0
HPO4ION	7.41704E-12	0.0	0.0	0.0
HSO4ION	9.06469E-12	0.0	0.0	0.0
KION	1.99619E-04	0.0	0.0	0.0
KSO4ION	3.43971E-06	0.0	0.0	0.0
MGH2PO4ION	1.92950E-15	0.0	0.0	0.0
MGHCO3ION	8.86580E-11	0.0	0.0	0.0
MGHSIO3ION	1.27147E-08	0.0	0.0	0.0
MGION	6.66297E-07	0.0	0.0	0.0
MGOHION	1.11071E-08	0.0	0.0	0.0
MGP2O7ION	9.53207E-19	0.0	0.0	0.0
MGPO4ION	6.60609E-13	0.0	0.0	0.0
NACO3ION	1.05927E-10	0.0	0.0	0.0
NAION	0.00132855	0.0	0.0	0.0
NASO4ION	3.14083E-13	0.0	0.0	0.0
NICLION	2.98284E-12	0.0	0.0	0.0
NIION	4.13937E-11	0.0	0.0	0.0
NINO3ION	5.17392E-12	0.0	0.0	0.0
NIOH3ION	2.02244E-14	0.0	0.0	0.0
NIOHION	6.47792E-12	0.0	0.0	0.0
NO3ION	2.55714E-04	0.0	0.0	0.0
P2O7ION	8.94668E-22	0.0	0.0	0.0
PBCL3ION	2.54069E-07	0.0	0.0	0.0
PBCL4ION	1.45033E-06	0.0	0.0	0.0
PBCLION	4.35974E-08	0.0	0.0	0.0
PBH2PO4ION	7.56365E-18	0.0	0.0	0.0
PBION	1.57136E-09	0.0	0.0	0.0
PBNO33ION	1.27725E-10	0.0	0.0	0.0
PBNO3ION	1.25704E-08	0.0	0.0	0.0
PBOHION	1.68743E-07	0.0	0.0	0.0
PO4ION	6.14844E-15	0.0	0.0	0.0
SO4ION	1.60872E-05	0.0	0.0	0.0
SRION	1.97064E-07	0.0	0.0	0.0
SRNO3ION	3.27990E-07	0.0	0.0	0.0
SROHION	1.81995E-10	0.0	0.0	0.0
SRPO4ION	2.44782E-15	0.0	0.0	0.0
UIVOH2ION	1.41254E-27	0.0	0.0	0.0
UIVOH3ION	2.23720E-21	0.0	0.0	0.0
UIVOH5ION	4.03654E-14	0.0	0.0	0.0
ZNCL3ION	1.79483E-06	0.0	0.0	0.0
ZNCLION	4.20624E-06	0.0	0.0	0.0
ZNH2PO4ION	1.42368E-16	0.0	0.0	0.0
ZNHCO3ION	5.25506E-12	0.0	0.0	0.0
ZNION	2.88376E-07	0.0	0.0	0.0
ZNNO3ION	2.76236E-08	0.0	0.0	0.0

ZNOH3ION	1.28146E-07	0.0	0.0	0.0
ZNOH4ION	4.96039E-10	0.0	0.0	0.0
ZNOHION	1.25593E-05	0.0	0.0	0.0
ALOOH	0.0	7.38720E-06	0.0	0.0
CA3PO42	0.0	7.36842E-05	0.0	0.0
CHAMOSITE7A	0.0	2.77778E-05	0.0	0.0
MGOH2	0.0	2.46199E-04	0.0	0.0
UIVO2	0.0	2.01681E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.722739	0.121055	0.0	0.0
Volume, L/hr	6.83304E-04	3.89195E-05	0.0	0.0
Enthalpy, cal/hr	-2430.03	-343.728	0.0	0.0
Density, g/L	1057.71	3110.38		
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	156.136			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.449358			
E-Con, cm2/ohm-mol	51.8522			
Abs Visc, cP	0.376299			
Rel Visc	1.37516			
Ionic Strength	2.71916			

ESP V-6.6

PROCESS:AWE85_2

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	9.19072			
Total mol/hr	0.03613947	9.23755E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0327863	0.0	0.0	0.0
CO2	1.33026E-12	0.0	0.0	0.0
HCL	2.31984E-19	0.0	0.0	0.0
HNO3	2.79816E-15	0.0	0.0	0.0
LAURICACID	1.24648E-10	0.0	0.0	0.0
CAH2SIO4	1.52803E-08	0.0	0.0	0.0
CASO4	5.46774E-07	0.0	0.0	0.0
CDCL2	2.45053E-09	0.0	0.0	0.0
CDOH2	6.02225E-15	0.0	0.0	0.0
CDSO4	3.76313E-13	0.0	0.0	0.0
CROH3	3.75871E-10	5.34407E-08	0.0	0.0
CUCL2	8.84359E-13	0.0	0.0	0.0
CUCO3	1.21594E-13	0.0	0.0	0.0
CUNO32	5.91790E-15	0.0	0.0	0.0
CUOH2	2.17285E-09	3.14740E-06	0.0	0.0
FEIICL2	2.88352E-17	0.0	0.0	0.0
FEIICO3	4.56289E-14	0.0	0.0	0.0
FEIIHPO4	1.12312E-19	0.0	0.0	0.0
FEIIOH2	1.02056E-14	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	7.22595E-22	0.0	0.0	0.0
ALOH3	8.78891E-13	7.40655E-06	0.0	0.0
BACO3	1.30987E-15	0.0	0.0	0.0
KCL	8.37352E-07	0.0	0.0	0.0
KHSO4	1.59762E-16	0.0	0.0	0.0
BASO4	7.53247E-14	4.08141E-07	0.0	0.0
MGCO3	1.29182E-09	0.0	0.0	0.0
MGH2SIO4	1.83719E-07	0.0	0.0	0.0
MGHPO4	2.02368E-11	0.0	0.0	0.0
MGSO4	1.18541E-06	0.0	0.0	0.0
NAHCO3	5.54242E-10	0.0	0.0	0.0
NAHSIO3	2.66429E-05	0.0	0.0	0.0
NANO3	2.21563E-05	0.0	0.0	0.0
NIOH2	2.32553E-12	9.36773E-07	0.0	0.0
NISO4	5.35850E-12	0.0	0.0	0.0
PBCL2	1.00336E-08	0.0	0.0	0.0
PBHP04	1.26385E-16	0.0	0.0	0.0
PBNO32	6.12903E-11	0.0	0.0	0.0
PBO	8.04641E-10	0.0	0.0	0.0
CACL2	1.66567E-23	0.0	0.0	0.0
SIO2	7.77933E-07	1.08815E-04	0.0	0.0
CACO3	2.30154E-09	8.58395E-06	0.0	0.0
SRHPO4	1.36958E-15	0.0	0.0	0.0
SRNO32	2.57731E-08	0.0	0.0	0.0

SRSO4	1.57826E-08	1.04336E-05	0.0	0.0
UIVOH4	8.97299E-14	0.0	0.0	0.0
ZNCL2	1.49813E-09	0.0	0.0	0.0
ZNHPO4	1.20708E-15	0.0	0.0	0.0
ZNNO32	1.76386E-11	0.0	0.0	0.0
ZNOH2	2.97688E-09	2.13878E-05	0.0	0.0
OHION	9.00906E-09	0.0	0.0	0.0
ALION	1.18752E-23	0.0	0.0	0.0
ALOH2ION	2.60133E-16	0.0	0.0	0.0
ALOH4ION	8.63300E-10	0.0	0.0	0.0
ALOHCLION	3.32860E-19	0.0	0.0	0.0
ALOHION	6.86596E-20	0.0	0.0	0.0
ALSO42ION	1.66504E-24	0.0	0.0	0.0
ALSO4ION	9.98299E-24	0.0	0.0	0.0
BAHCO3ION	1.44675E-15	0.0	0.0	0.0
BAION	6.18485E-10	0.0	0.0	0.0
BAOHION	3.24760E-16	0.0	0.0	0.0
CACLION	6.40261E-11	0.0	0.0	0.0
CAH2PO4ION	1.76416E-14	0.0	0.0	0.0
CAHCO3ION	4.96869E-10	0.0	0.0	0.0
CAHSIO3ION	1.53175E-07	0.0	0.0	0.0
CAION	4.16670E-05	0.0	0.0	0.0
CANO3ION	1.58307E-05	0.0	0.0	0.0
CAOHION	3.52974E-09	0.0	0.0	0.0
CAPO4ION	1.23277E-10	0.0	0.0	0.0
CDCL3ION	6.62931E-10	0.0	0.0	0.0
CDCL4ION	5.63647E-09	0.0	0.0	0.0
CDCLION	1.68949E-10	0.0	0.0	0.0
CDION	8.04214E-12	0.0	0.0	0.0
CDNO3ION	1.14484E-12	0.0	0.0	0.0
CDOH3ION	3.99716E-18	0.0	0.0	0.0
CDOH4ION	2.53513E-22	0.0	0.0	0.0
CDOHION	1.20873E-13	0.0	0.0	0.0
CLION	0.00132194	0.0	0.0	0.0
CO3ION	1.65459E-09	0.0	0.0	0.0
CRIIIICL2ION	9.97225E-19	0.0	0.0	0.0
CRIIIICLION	1.24147E-17	0.0	0.0	0.0
CRIIIH2PO4ION	4.03872E-24	0.0	0.0	0.0
CRIIIHPO4ION	2.98671E-16	0.0	0.0	0.0
CRIIIION	1.03292E-19	0.0	0.0	0.0
CRIIIINO3ION	2.22331E-16	0.0	0.0	0.0
CROH2ION	1.79243E-13	0.0	0.0	0.0
CROH4ION	2.06275E-11	0.0	0.0	0.0
CROHION	8.75613E-12	0.0	0.0	0.0
CRSO4ION	3.78275E-15	0.0	0.0	0.0
CUCL3ION	1.03673E-14	0.0	0.0	0.0
CUCLION	2.85207E-12	0.0	0.0	0.0
CUCO32ION	9.73132E-16	0.0	0.0	0.0
CUION	2.90877E-12	0.0	0.0	0.0
CUNO3ION	4.83527E-13	0.0	0.0	0.0
CUOH3ION	5.30006E-12	0.0	0.0	0.0
CUOH4ION	5.41236E-15	0.0	0.0	0.0
CUOHION	1.93266E-11	0.0	0.0	0.0
DODECION	8.03223E-06	0.0	0.0	0.0
FEIICLION	1.14977E-14	0.0	0.0	0.0
FEIICO32ION	7.72812E-18	0.0	0.0	0.0
FEIIH2PO4ION	4.99477E-22	0.0	0.0	0.0
FEIIHCO3ION	1.70543E-18	0.0	0.0	0.0

FEIIION	9.42257E-12	0.0	0.0	0.0
FEIIOH3ION	1.76857E-15	0.0	0.0	0.0
FEIIOH4ION	2.57951E-20	0.0	0.0	0.0
FEIIOHION	2.06895E-12	0.0	0.0	0.0
H2P2O7ION	2.53032E-26	0.0	0.0	0.0
H2PO4ION	3.26902E-14	0.0	0.0	0.0
H2SIO4ION	4.45530E-10	0.0	0.0	0.0
H3SIO4ION	2.81712E-07	0.0	0.0	0.0
HCO3ION	2.90276E-09	0.0	0.0	0.0
HION	3.38977E-13	0.0	0.0	0.0
HP2O7ION	5.85406E-23	0.0	0.0	0.0
HPBO2ION	3.05670E-11	0.0	0.0	0.0
HPO4ION	3.01027E-11	0.0	0.0	0.0
HSO4ION	1.05694E-13	0.0	0.0	0.0
KION	2.02637E-04	0.0	0.0	0.0
KSO4ION	3.31470E-06	0.0	0.0	0.0
MGH2PO4ION	2.82005E-14	0.0	0.0	0.0
MGHCO3ION	1.71496E-09	0.0	0.0	0.0
MGHSIO3ION	3.52031E-07	0.0	0.0	0.0
MGION	2.32061E-05	0.0	0.0	0.0
MGOHION	4.20710E-08	0.0	0.0	0.0
MGP2O7ION	3.71584E-18	0.0	0.0	0.0
MGPO4ION	2.23481E-10	0.0	0.0	0.0
NACO3ION	8.27003E-10	0.0	0.0	0.0
NAION	0.00134516	0.0	0.0	0.0
NASO4ION	1.22281E-05	0.0	0.0	0.0
NICLION	4.70957E-12	0.0	0.0	0.0
NIION	1.46066E-10	0.0	0.0	0.0
NINO3ION	3.12552E-11	0.0	0.0	0.0
NIOH3ION	1.13268E-13	0.0	0.0	0.0
NIOHION	5.13684E-12	0.0	0.0	0.0
NO3ION	3.00468E-04	0.0	0.0	0.0
P2O7ION	4.82793E-21	0.0	0.0	0.0
PBCL3ION	1.97407E-08	0.0	0.0	0.0
PBCL4ION	2.60397E-07	0.0	0.0	0.0
PBCLION	4.06804E-09	0.0	0.0	0.0
PBH2PO4ION	1.12013E-19	0.0	0.0	0.0
PBION	2.73966E-10	0.0	0.0	0.0
PBNO33ION	1.05072E-11	0.0	0.0	0.0
PBNO3ION	6.75140E-10	0.0	0.0	0.0
PBOHION	2.95949E-09	0.0	0.0	0.0
PO4ION	2.19382E-13	0.0	0.0	0.0
SO4ION	2.42876E-05	0.0	0.0	0.0
SRION	6.24837E-07	0.0	0.0	0.0
SRNO3ION	2.01350E-07	0.0	0.0	0.0
SROHION	1.09224E-11	0.0	0.0	0.0
SRPO4ION	9.90274E-15	0.0	0.0	0.0
UIVOH2ION	3.15845E-29	0.0	0.0	0.0
UIVOH3ION	1.76270E-21	0.0	0.0	0.0
UIVOH5ION	2.22589E-14	0.0	0.0	0.0
ZNCL3ION	2.04823E-09	0.0	0.0	0.0
ZNCLION	1.96842E-09	0.0	0.0	0.0
ZNH2PO4ION	8.73909E-19	0.0	0.0	0.0
ZNHCO3ION	5.25567E-14	0.0	0.0	0.0
ZNION	7.89937E-09	0.0	0.0	0.0
ZNNO3ION	8.23693E-10	0.0	0.0	0.0
ZNOH3ION	9.46295E-11	0.0	0.0	0.0
ZNOH4ION	2.26483E-13	0.0	0.0	0.0

ZNOHION	1.64828E-09	0.0	0.0	0.0
CA3PO42	0.0	7.30752E-05	0.0	0.0
CASO4.2H2O	0.0	4.37163E-04	0.0	0.0
CHAMOSITE7A	0.0	2.77778E-05	0.0	0.0
MGOH2	0.0	2.21941E-04	0.0	0.0
PB3PO42	0.0	6.08850E-07	0.0	0.0
UIVO2	0.0	2.01681E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.709872	0.133922	0.0	0.0
Volume, L/hr	6.33837E-04	4.59292E-05	0.0	0.0
Enthalpy, cal/hr	-2431.	-392.771	0.0	0.0
Density, g/L	1119.96	2915.83		
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	146.078			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.179649			
E-Con, cm2/ohm-mol	30.4509			
Abs Visc, cP	1.18016			
Rel Visc	1.32495			
Ionic Strength	3.02289			

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.5922			
Total mol/hr	55.45974	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4587	0.0	0.0	0.0
CO2	9.74015E-04	0.0	0.0	0.0
HCL	4.43231E-21	0.0	0.0	0.0
HNO3	8.27637E-17	0.0	0.0	0.0
LAURICACID	1.73575E-05	0.0	0.0	0.0
OHION	3.98607E-10	0.0	0.0	0.0
CLION	2.94330E-10	0.0	0.0	0.0
CO3ION	3.25101E-11	0.0	0.0	0.0
DODECION	8.31236E-06	0.0	0.0	0.0
HCO3ION	1.73896E-05	0.0	0.0	0.0
HION	2.57028E-05	0.0	0.0	0.0
NO3ION	6.53193E-11	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	999.156	0.0	0.0	0.0
Volume, L/hr	1.0023	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78866E+06	0.0	0.0	0.0
Density, g/L	996.861			
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	0.0254588			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.02191E-05			
E-Con, cm2/ohm-mol	10.0707			
Abs Visc, cP	0.890739			
Rel Visc	1.00002			
Ionic Strength	2.57260E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.17178D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-5.00133D+01
MIX	CONDENSATE MIXER	-6.17120D+05

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PROCESS:AWE85_2

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===== BLOCK REPORT =====
BLOCK NAME: Evap mixer
BLOCK TYPE: Mix
=====

Mix Input

Pressure Specification, atm
 Outlet Pressure = 1.
Equilibrium Type P, V/F
V/F (molar) 0.999345

Standard Block Information

Duty, cal/hr 617178.

Total Mass g/hr In Out Rel. Diff.
Total Energy cal/hr -3.79149E+06 -3.17432E+06 0.0

Mix Output

Outlet Temperature, C 102.754
Outlet Pressure, atm 1.
Aqueous pH 8.02839
V/F (molar) 0.999346

	Outlet Flow		Outlet Enthalpy	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0353538	0.722739	6.83304E-04	-2430.03
Solid	9.66192E-04	0.121055	3.89195E-05	-343.728
Vapor	55.4597	999.156	1696.67	-3.17154E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.496	1000.	1696.68	-3.17432E+06

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

=====

Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification, atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type Adiabatic

Duty, cal/hr 0.0

Standard Block Information

Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	0.0
Total Energy cal/hr	-3.17432E+06	-3.17432E+06	0.0

Separate Output

Outlet Temperature, C	102.754
Outlet Pressure, atm	1.
Aqueous pH	8.02839
Suspended Solids, g solid/g liq solution	0.167494
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0353538	0.722739	6.83304E-04	-2430.03
Solid	9.66192E-04	0.121055	3.89195E-05	-343.728
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0363199	0.843793	7.22224E-04	-2773.76

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4597	999.156	1696.67	-3.17154E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4597	999.156	1696.67	-3.17154E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -50.0133

	In	Out	Rel. Diff.
Total Mass g/hr	0.843793	0.843793	3.94726E-16
Total Energy cal/hr	-2773.76	-2823.77	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 9.19072
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0345126	0.709872	6.33837E-04	-2431.
Solid	9.23755E-04	0.133922	4.59292E-05	-392.771
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0354364	0.843793	6.79766E-04	-2823.77

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.17120E+05

	In	Out	Rel. Diff.
Total Mass g/hr	999.156	999.156	3.41349E-16
Total Energy cal/hr	-3.17154E+06	-3.78866E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.5922
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4597	999.156	1.0023	-3.78866E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4597	999.156	1.0023	-3.78866E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block               Mix: Evap mixer
Control Parameter              Vapor Fraction
Control Parameter Minimum      0.0
Control Parameter Maximum      0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations             20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:     Solution Species
```

Controller Output

```
-----
Specification Stream          Cooled Bottoms
Controlled Block              Evap mixer
Control Parameter Type:       General Process Variable
Convergence:                  Converged
Iterations Completed this Sequence      14.
Total Iterations Completed all Sequences 14.
Last Parameter Value           0.999345
Last DIFF (Computed-Setpoint)  4.57459E-07
Previous Parameter Value        0.999345
Previous DIFF (Computed-Setpoint) -6.92540E-05
Control Parameter Minimum       0.99934
Control Parameter Maximum       0.999345
Control Parameter Stepsize      0.0
Maximum Iterations              0.0
```

Influent Limit Composition 60% Target pH=8.5
8.5-60

=====

```
      O   O   O           L           I I I I
    O     O           L           I
  O     O     O       L           I
O     O     O     O   L           I
O     O     O     O   L           I
O     O     O     O   L           I
  O     O     O     O   L           I
    O     O     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 September 1, 2002

PROCESS: AWE85_3

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE85_3.LIS

DATE: 12/05/2002

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79141D+06
Total in	1.00000D+03	-3.79141D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	9.84187D-01	-3.28821D+03
CONDENSATE	9.99016D+02	-3.78812D+06
Total out	1.00000D+03	-3.79141D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.17144D+05
EVAP BOTTOMS COOLING MIXER	-5.84613D+01
CONDENSATE MIXER	-6.17077D+05
Total Duty	8.45893D+00

DIFFERENCE	6.82121D-13	1.16415D-10
REL DIFFERENCE	6.82121D-16	-3.07050D-17

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10980D+02	1.10980D+02	5.68434D-14	5.12194D-16
K(+1)	2.51221D-04	2.51221D-04	0.00000D+00	0.00000D+00
NA(+1)	1.70833D-03	1.70833D-03	-8.67362D-19	-5.07724D-16
BA(+2)	4.96350D-07	4.96350D-07	-1.48231D-21	-2.98641D-15
CA(+2)	7.98005D-04	7.98005D-04	-2.16840D-19	-2.71728D-16
ZN(+2)	2.59939D-05	2.59939D-05	0.00000D+00	0.00000D+00
CU(+2)	3.93701D-06	3.93701D-06	-8.47033D-22	-2.15146D-16
FE(+2)	7.16846D-05	7.16846D-05	0.00000D+00	0.00000D+00
MG(+2)	2.83951D-04	2.83951D-04	-5.42101D-20	-1.90914D-16
PB(+2)	2.57488D-06	2.57488D-06	4.23516D-22	1.64480D-16
AL(+3)	7.77778D-05	7.77778D-05	0.00000D+00	0.00000D+00
NI(+2)	1.09029D-06	1.09029D-06	2.11758D-22	1.94222D-16
O(-2)	5.54974D+01	5.54974D+01	2.84217D-14	5.12127D-16
CL(-1)	1.57746D-03	1.57746D-03	-2.16840D-19	-1.37461D-16
C(+4)	1.10000D-03	1.10000D-03	6.50521D-19	5.91383D-16
P(+5)	1.78947D-04	1.78947D-04	-2.71051D-20	-1.51469D-16
S(+6)	5.83333D-04	5.83333D-04	0.00000D+00	0.00000D+00
N(+5)	4.03226D-04	4.03226D-04	7.04731D-19	1.74773D-15
SI(+4)	1.83333D-04	1.83333D-04	0.00000D+00	0.00000D+00
SR(+2)	1.48402D-05	1.48402D-05	-1.69407D-21	-1.14154D-16

CD (+2)	1.69643D-08	1.69643D-08	6.98140D-22	4.11535D-14
CR (+3)	6.53846D-08	6.53846D-08	0.00000D+00	0.00000D+00
U (+4)	2.43697D-06	2.43697D-06	0.00000D+00	0.00000D+00

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DODEC(-1)

3.79916D-05 3.79916D-05 8.80914D-20 2.31871D-15

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PROCESS BLOCKS

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BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
 TO : Evap mixer
 FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.96924			
Total mol/hr	55.49656	8.24711E-05	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4894	0.0	0.0	0.0
CO2	1.93653E-04	0.0	0.0	0.0
H2SO4	1.70876E-26	0.0	0.0	0.0
HCL	9.23469E-17	0.0	0.0	0.0
HNO3	1.97945E-12	0.0	0.0	0.0
LAURICACID	3.04963E-07	0.0	0.0	0.0
SO3	2.21182E-30	0.0	0.0	0.0
CAH2SIO4	5.63823E-12	0.0	0.0	0.0
CASO4	8.49931E-06	0.0	0.0	0.0
CDCL2	4.08671E-11	0.0	0.0	0.0
CDOH2	5.83272E-15	0.0	0.0	0.0
CDSO4	1.47583E-09	0.0	0.0	0.0
CROH3	3.31255E-12	0.0	0.0	0.0
CUCL2	3.86444E-14	0.0	0.0	0.0
CUCO3	1.48132E-08	0.0	0.0	0.0
CUNO32	5.33608E-16	0.0	0.0	0.0
CUOH2	5.51424E-09	0.0	0.0	0.0
FEIICL2	5.27434E-16	0.0	0.0	0.0
FEIICO3	2.32682E-06	0.0	0.0	0.0
FEIIHPO4	6.18591E-08	0.0	0.0	0.0
FEIIOH2	1.08413E-11	0.0	0.0	0.0
ALO2H2CL	1.78646E-29	0.0	0.0	0.0
H3PO4	1.26185E-09	0.0	0.0	0.0
H4P2O7	2.82778E-21	0.0	0.0	0.0
ALOH3	2.40151E-09	7.77692E-05	0.0	0.0
BACO3	4.24310E-11	0.0	0.0	0.0
KCL	2.77744E-09	0.0	0.0	0.0
KHSO4	1.81550E-14	0.0	0.0	0.0
BASO4	2.05819E-10	1.08262E-07	0.0	0.0
MGCO3	6.42253E-08	0.0	0.0	0.0
MGH2SIO4	1.82888E-11	0.0	0.0	0.0
MGHPO4	1.08667E-05	0.0	0.0	0.0
MGSO4	4.97121E-06	0.0	0.0	0.0
NAHCO3	5.37003E-07	0.0	0.0	0.0
NAHSIO3	4.65555E-08	0.0	0.0	0.0
NANO3	3.33280E-08	0.0	0.0	0.0
NIOH2	6.53357E-12	0.0	0.0	0.0
NISO4	6.09601E-08	0.0	0.0	0.0
PBCL2	7.84260E-13	0.0	0.0	0.0
PBHPO4	2.97462E-10	0.0	0.0	0.0
PBNO32	9.88538E-15	0.0	0.0	0.0
PBO	3.28996E-12	0.0	0.0	0.0
CACL2	1.10101E-27	0.0	0.0	0.0
SIO2	1.83016E-04	0.0	0.0	0.0

CACO3	4.24133E-07	0.0	0.0	0.0
SRHPO4	8.88457E-09	0.0	0.0	0.0
SRNO32	1.14573E-11	0.0	0.0	0.0
SRSO4	7.99590E-07	0.0	0.0	0.0
UIVOH4	3.02216E-10	0.0	0.0	0.0
UIVSO42	5.15008E-30	0.0	0.0	0.0
ZNCL2	6.36596E-11	0.0	0.0	0.0
ZNHPO4	1.54449E-06	0.0	0.0	0.0
ZNNO32	1.54660E-12	0.0	0.0	0.0
ZNOH2	7.34642E-09	0.0	0.0	0.0
OHION	1.02641E-07	0.0	0.0	0.0
ALION	2.49312E-14	0.0	0.0	0.0
ALOH2ION	5.12812E-11	0.0	0.0	0.0
ALOH4ION	6.09729E-09	0.0	0.0	0.0
ALOHCLION	5.71689E-15	0.0	0.0	0.0
ALOHION	1.53716E-12	0.0	0.0	0.0
ALSO42ION	1.67138E-16	0.0	0.0	0.0
ALSO4ION	5.29742E-15	0.0	0.0	0.0
BAHCO3ION	2.49157E-09	0.0	0.0	0.0
BAION	3.85348E-07	0.0	0.0	0.0
BAOHION	1.58044E-14	0.0	0.0	0.0
CACLION	2.11036E-11	0.0	0.0	0.0
CAH2PO4ION	1.86728E-06	0.0	0.0	0.0
CAHCO3ION	5.56216E-06	0.0	0.0	0.0
CAHSIO3ION	2.70757E-09	0.0	0.0	0.0
CAION	7.80560E-04	0.0	0.0	0.0
CANO3ION	5.92046E-07	0.0	0.0	0.0
CAOHION	9.76457E-10	0.0	0.0	0.0
CAPO4ION	4.95771E-07	0.0	0.0	0.0
CDCL3ION	3.08880E-15	0.0	0.0	0.0
CDCL4ION	3.14909E-18	0.0	0.0	0.0
CDCLION	1.43455E-09	0.0	0.0	0.0
CDION	1.39938E-08	0.0	0.0	0.0
CDNO3ION	1.07980E-11	0.0	0.0	0.0
CDOH3ION	8.24274E-21	0.0	0.0	0.0
CDOH4ION	4.77723E-28	0.0	0.0	0.0
CDOHION	8.43626E-12	0.0	0.0	0.0
CLION	0.00157742	0.0	0.0	0.0
CO3ION	5.02154E-07	0.0	0.0	0.0
CRIIIICL2ION	7.24882E-21	0.0	0.0	0.0
CRIIIICLION	3.41728E-17	0.0	0.0	0.0
CRIIIH2PO4ION	2.01706E-14	0.0	0.0	0.0
CRIIIHPO4ION	6.53688E-08	0.0	0.0	0.0
CRIIIIION	9.01028E-15	0.0	0.0	0.0
CRIIINO3ION	5.35692E-16	0.0	0.0	0.0
CROH2ION	1.13820E-13	0.0	0.0	0.0
CROH4ION	3.87058E-16	0.0	0.0	0.0
CROHION	5.84478E-12	0.0	0.0	0.0
CRSO4ION	6.53318E-12	0.0	0.0	0.0
CUCL3ION	1.26571E-19	0.0	0.0	0.0
CUCLION	6.34547E-11	0.0	0.0	0.0
CUCO32ION	1.11341E-11	0.0	0.0	0.0
CUION	1.03624E-08	0.0	0.0	0.0
CUNO3ION	1.08727E-11	0.0	0.0	0.0
CUOH3ION	3.01365E-14	0.0	0.0	0.0
CUOH4ION	2.68727E-20	0.0	0.0	0.0
CUOHION	3.53281E-09	0.0	0.0	0.0
DODECION	3.76867E-05	0.0	0.0	0.0

FEIICLION	1.07078E-10	0.0	0.0	0.0
FEIICO32ION	3.81789E-11	0.0	0.0	0.0
FEIIH2PO4ION	1.46295E-08	0.0	0.0	0.0
FEIIHCO3ION	6.45090E-09	0.0	0.0	0.0
FEIIION	6.91162E-05	0.0	0.0	0.0
FEIIOH3ION	4.33981E-15	0.0	0.0	0.0
FEIIOH4ION	5.33054E-23	0.0	0.0	0.0
FEIIOHION	1.58421E-07	0.0	0.0	0.0
H2P2O7ION	4.42855E-11	0.0	0.0	0.0
H2PO4ION	9.06949E-05	0.0	0.0	0.0
H2SIO4ION	2.51988E-13	0.0	0.0	0.0
H3P2O7ION	8.16713E-16	0.0	0.0	0.0
H3SIO4ION	2.66269E-07	0.0	0.0	0.0
HCO3ION	8.90248E-04	0.0	0.0	0.0
HION	1.16552E-07	0.0	0.0	0.0
HP2O7ION	1.56881E-10	0.0	0.0	0.0
HPBO2ION	3.73294E-16	0.0	0.0	0.0
HPO4ION	6.79056E-05	0.0	0.0	0.0
HSO4ION	4.44774E-09	0.0	0.0	0.0
KION	2.50457E-04	0.0	0.0	0.0
KSO4ION	7.60756E-07	0.0	0.0	0.0
MGH2PO4ION	8.05283E-07	0.0	0.0	0.0
MGHCO3ION	6.32475E-06	0.0	0.0	0.0
MGHSIO3ION	1.67878E-09	0.0	0.0	0.0
MGION	2.60675E-04	0.0	0.0	0.0
MGOHION	3.14092E-09	0.0	0.0	0.0
MGP2O7ION	1.81299E-09	0.0	0.0	0.0
MGPO4ION	2.37014E-07	0.0	0.0	0.0
NACO3ION	2.15573E-09	0.0	0.0	0.0
NAION	0.00170202	0.0	0.0	0.0
NASO4ION	5.69544E-06	0.0	0.0	0.0
NICLION	1.16000E-10	0.0	0.0	0.0
NIION	1.02731E-06	0.0	0.0	0.0
NINO3ION	8.55139E-10	0.0	0.0	0.0
NIOH3ION	6.77552E-16	0.0	0.0	0.0
NIOHION	1.03987E-09	0.0	0.0	0.0
NO3ION	4.02557E-04	0.0	0.0	0.0
P2O7ION	1.31693E-12	0.0	0.0	0.0
PBCL3ION	6.04752E-16	0.0	0.0	0.0
PBCL4ION	7.07361E-19	0.0	0.0	0.0
PBCLION	1.61951E-10	0.0	0.0	0.0
PBH2PO4ION	1.40198E-11	0.0	0.0	0.0
PBION	5.22063E-09	0.0	0.0	0.0
PBNO33ION	6.80138E-19	0.0	0.0	0.0
PBNO3ION	2.98458E-11	0.0	0.0	0.0
PBOHION	9.67677E-10	0.0	0.0	0.0
PO4ION	4.58669E-10	0.0	0.0	0.0
SO4ION	5.62432E-04	0.0	0.0	0.0
SRION	1.40088E-05	0.0	0.0	0.0
SRNO3ION	2.27466E-08	0.0	0.0	0.0
SROHION	6.55112E-12	0.0	0.0	0.0
SRPO4ION	1.23292E-10	0.0	0.0	0.0
UIVOH2ION	5.88214E-22	0.0	0.0	0.0
UIVOH3ION	3.96644E-16	0.0	0.0	0.0
UIVOH5ION	1.59621E-13	0.0	0.0	0.0
UIVOHION	1.42908E-26	0.0	0.0	0.0
UIVSO4ION	2.44546E-30	0.0	0.0	0.0
ZNCL3ION	3.41120E-14	0.0	0.0	0.0

ZNCLION	4.25876E-08	0.0	0.0	0.0
ZNH2PO4ION	5.94635E-08	0.0	0.0	0.0
ZNHCO3ION	3.31122E-07	0.0	0.0	0.0
ZNION	2.37789E-05	0.0	0.0	0.0
ZNNO3ION	1.97954E-08	0.0	0.0	0.0
ZNOH3ION	7.34006E-13	0.0	0.0	0.0
ZNOH4ION	1.13436E-18	0.0	0.0	0.0
ZNOHION	2.10139E-07	0.0	0.0	0.0
CU3PO42.2H2O	0.0	1.30090E-06	0.0	0.0
PB3PO42	0.0	8.56061E-07	0.0	0.0
UIVO2	0.0	2.43667E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	999.992	0.00798621	0.0	0.0
Volume, L/hr	1.00289	2.64902E-06	0.0	0.0
Enthalpy, cal/hr	-3.79139E+06	-25.0603	0.0	0.0
Density, g/L	997.109	3014.77		
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	0.194295			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	4.73872E-04			
E-Con, cm2/ohm-mol	137.534			
Abs Visc, cP	0.89223			
Rel Visc	1.0017			
Ionic Strength	0.00605038			

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.858	102.858	102.858	102.858
Pressure, atm	1.	1.	1.	1.
pH	7.28941			
Total mol/hr	0.04314368	0.00106679	55.4517	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0392226	0.0	55.45056	0.0
CO2	1.06966E-10	0.0	0.001100001	0.0
H2SO4	8.86784E-29	0.0	1.03674E-25	0.0
HCL	1.32974E-15	0.0	1.67865E-09	0.0
HNO3	1.30831E-12	0.0	3.77280E-10	0.0
LAURICACID	5.18994E-10	0.0	3.56106E-05	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	2.26277E-11	0.0	0.0	0.0
CASO4	4.36594E-07	5.11611E-04	0.0	0.0
CDCL2	8.61753E-09	0.0	0.0	0.0
CDOH2	2.57653E-14	0.0	0.0	0.0
CDSO4	1.34432E-12	0.0	0.0	0.0
CROH3	2.83329E-11	6.22196E-08	0.0	0.0
CUCL2	9.09203E-11	0.0	0.0	0.0
CUCO3	7.49261E-14	0.0	0.0	0.0
CUNO32	6.64122E-13	0.0	0.0	0.0
CUOH2	6.85216E-09	3.92871E-06	0.0	0.0
FEIICL2	9.40519E-15	0.0	0.0	0.0
FEIICO3	1.36749E-14	0.0	0.0	0.0
FEIIHPO4	4.10196E-17	0.0	0.0	0.0
FEIIOH2	3.92671E-13	0.0	0.0	0.0
ALO2H2CL	4.81508E-30	0.0	0.0	0.0
H3PO4	9.27958E-17	0.0	0.0	0.0
H4P2O7	0.0	0.0	0.0	0.0
ALOH3	2.50828E-11	0.0	0.0	0.0
BACO3	5.37982E-16	0.0	0.0	0.0
KCL	4.44462E-06	0.0	0.0	0.0
KHSO4	6.76380E-13	0.0	0.0	0.0
BASO4	7.81771E-13	4.95158E-07	0.0	0.0
MGCO3	5.95080E-11	0.0	0.0	0.0
MGH2SIO4	1.26492E-09	0.0	0.0	0.0
MGHPO4	7.91226E-10	0.0	0.0	0.0
MGSO4	1.84940E-06	0.0	0.0	0.0
NAHCO3	1.93835E-09	0.0	0.0	0.0
NAHSIO3	1.19318E-06	0.0	0.0	0.0
NANO3	9.13817E-05	0.0	0.0	0.0
NIOH2	1.80594E-12	1.08823E-06	0.0	0.0
NISO4	2.54736E-10	0.0	0.0	0.0
PBCL2	1.31329E-07	0.0	0.0	0.0
PBHPO4	1.39358E-14	0.0	0.0	0.0
PBNO32	4.07967E-09	0.0	0.0	0.0
PBO	1.16705E-09	0.0	0.0	0.0
CACL2	1.77530E-15	0.0	0.0	0.0
SIO2	3.28615E-06	1.42520E-04	0.0	0.0

CACO3	3.19806E-11	0.0	0.0	0.0
SRHPO4	2.42874E-14	0.0	0.0	0.0
SRNO32	4.77103E-08	0.0	0.0	0.0
SRSO4	7.45195E-09	1.45855E-05	0.0	0.0
UIVOH4	9.47773E-13	0.0	0.0	0.0
ZNCL2	4.44723E-06	0.0	0.0	0.0
ZNHPO4	1.49132E-12	0.0	0.0	0.0
ZNNO32	2.01567E-09	0.0	0.0	0.0
ZNOH2	4.78525E-08	0.0	0.0	0.0
OHION	1.27039E-08	0.0	0.0	0.0
ALION	1.51543E-21	0.0	0.0	0.0
ALOH2ION	1.66307E-14	0.0	0.0	0.0
ALOH4ION	4.34362E-09	0.0	0.0	0.0
ALOHCLION	3.33852E-17	0.0	0.0	0.0
ALOHION	1.06046E-17	0.0	0.0	0.0
ALSO42ION	9.56301E-22	0.0	0.0	0.0
ALSO4ION	3.79373E-21	0.0	0.0	0.0
BAHCO3ION	4.44237E-14	0.0	0.0	0.0
BAION	1.18905E-09	0.0	0.0	0.0
BAOHION	1.12733E-14	0.0	0.0	0.0
CACLION	4.42404E-08	0.0	0.0	0.0
CAH2PO4ION	5.79142E-12	0.0	0.0	0.0
CAHCO3ION	8.40987E-11	0.0	0.0	0.0
CAHSIO3ION	1.11535E-08	0.0	0.0	0.0
CAION	1.27281E-05	0.0	0.0	0.0
CANO3ION	5.40057E-06	0.0	0.0	0.0
CAOHION	2.29084E-09	0.0	0.0	0.0
CAPO4ION	1.92794E-11	0.0	0.0	0.0
CDCL3ION	6.38887E-09	0.0	0.0	0.0
CDCL4ION	1.42345E-09	0.0	0.0	0.0
CDCLION	5.19038E-10	0.0	0.0	0.0
CDION	1.09361E-11	0.0	0.0	0.0
CDNO3ION	2.82444E-12	0.0	0.0	0.0
CDOH3ION	3.92486E-18	0.0	0.0	0.0
CDOH4ION	3.52815E-22	0.0	0.0	0.0
CDOHION	2.72848E-13	0.0	0.0	0.0
CLION	0.00153247	0.0	0.0	0.0
CO3ION	3.01628E-11	0.0	0.0	0.0
CRIIIICL2ION	4.85063E-16	0.0	0.0	0.0
CRIIIICLION	3.41947E-15	0.0	0.0	0.0
CRIIIH2PO4ION	6.83285E-21	0.0	0.0	0.0
CRIIIHPO4ION	2.96185E-09	0.0	0.0	0.0
CRIIIIION	3.31895E-18	0.0	0.0	0.0
CRIIINO3ION	2.10757E-13	0.0	0.0	0.0
CROH2ION	4.65743E-13	0.0	0.0	0.0
CROH4ION	6.73117E-14	0.0	0.0	0.0
CROHION	1.70005E-10	0.0	0.0	0.0
CRSO4ION	3.87547E-12	0.0	0.0	0.0
CUCL3ION	1.16063E-12	0.0	0.0	0.0
CUCLION	6.00452E-10	0.0	0.0	0.0
CUCO32ION	1.59633E-17	0.0	0.0	0.0
CUION	1.80610E-10	0.0	0.0	0.0
CUNO3ION	2.98082E-11	0.0	0.0	0.0
CUOH3ION	6.54991E-12	0.0	0.0	0.0
CUOH4ION	1.39444E-14	0.0	0.0	0.0
CUOHION	5.24911E-10	0.0	0.0	0.0
DODECION	2.38048E-06	0.0	0.0	0.0
FEIICLION	2.08282E-12	0.0	0.0	0.0

FEIICO32ION	8.79026E-20	0.0	0.0	0.0
FEIIH2PO4ION	4.25841E-18	0.0	0.0	0.0
FEIIHCO3ION	3.67653E-17	0.0	0.0	0.0
FEIIION	2.72780E-10	0.0	0.0	0.0
FEIIOH3ION	7.66934E-15	0.0	0.0	0.0
FEIIOH4ION	1.95094E-19	0.0	0.0	0.0
FEIIOHION	2.81092E-11	0.0	0.0	0.0
H2P2O7ION	1.27225E-19	0.0	0.0	0.0
H2PO4ION	1.78067E-11	0.0	0.0	0.0
H2SIO4ION	6.13631E-12	0.0	0.0	0.0
H3P2O7ION	1.60640E-25	0.0	0.0	0.0
H3SIO4ION	3.96670E-07	0.0	0.0	0.0
HCO3ION	1.44851E-09	0.0	0.0	0.0
HION	4.81551E-11	0.0	0.0	0.0
HP2O7ION	2.51929E-18	0.0	0.0	0.0
HPBO2ION	1.13378E-11	0.0	0.0	0.0
HPO4ION	1.75428E-10	0.0	0.0	0.0
HSO4ION	1.34611E-10	0.0	0.0	0.0
KION	2.37198E-04	0.0	0.0	0.0
KSO4ION	9.57860E-06	0.0	0.0	0.0
MGH2PO4ION	7.31358E-12	0.0	0.0	0.0
MGHCO3ION	6.24930E-10	0.0	0.0	0.0
MGHSIO3ION	8.18028E-08	0.0	0.0	0.0
MGION	2.32857E-05	0.0	0.0	0.0
MGOHION	7.10139E-08	0.0	0.0	0.0
MGP2O7ION	1.33858E-14	0.0	0.0	0.0
MGPO4ION	8.11805E-11	0.0	0.0	0.0
NACO3ION	4.66615E-12	0.0	0.0	0.0
NAION	0.00161576	0.0	0.0	0.0
NASO4ION	7.08753E-13	0.0	0.0	0.0
NICLION	1.08993E-10	0.0	0.0	0.0
NIION	1.46111E-09	0.0	0.0	0.0
NINO3ION	1.90981E-10	0.0	0.0	0.0
NIOH3ION	4.31767E-15	0.0	0.0	0.0
NIOHION	4.16995E-11	0.0	0.0	0.0
NO3ION	3.06082E-04	0.0	0.0	0.0
P2O7ION	4.47364E-19	0.0	0.0	0.0
PBCL3ION	2.40646E-07	0.0	0.0	0.0
PBCL4ION	1.47289E-06	0.0	0.0	0.0
PBCLION	3.90385E-08	0.0	0.0	0.0
PBH2PO4ION	7.05658E-16	0.0	0.0	0.0
PBION	1.50807E-09	0.0	0.0	0.0
PBNO33ION	1.26755E-10	0.0	0.0	0.0
PBNO3ION	1.13963E-08	0.0	0.0	0.0
PBOHION	2.66424E-08	0.0	0.0	0.0
PO4ION	2.74981E-14	0.0	0.0	0.0
SO4ION	4.47672E-05	0.0	0.0	0.0
SRION	2.74514E-08	0.0	0.0	0.0
SRNO3ION	1.71994E-07	0.0	0.0	0.0
SROHION	1.66468E-11	0.0	0.0	0.0
SRPO4ION	4.39386E-15	0.0	0.0	0.0
UIVOH2ION	4.94330E-26	0.0	0.0	0.0
UIVOH3ION	1.42057E-20	0.0	0.0	0.0
UIVOH5ION	8.56529E-15	0.0	0.0	0.0
UIVOHION	0.0	0.0	0.0	0.0
ZNCL3ION	4.72385E-06	0.0	0.0	0.0
ZNCLION	1.04817E-05	0.0	0.0	0.0
ZNH2PO4ION	3.67765E-14	0.0	0.0	0.0

ZNHCO3ION	2.54236E-12	0.0	0.0	0.0
ZNION	6.96366E-07	0.0	0.0	0.0
ZNNO3ION	6.93195E-08	0.0	0.0	0.0
ZNOH3ION	1.84924E-09	0.0	0.0	0.0
ZNOH4ION	1.35538E-12	0.0	0.0	0.0
ZNOHION	5.52373E-06	0.0	0.0	0.0
ALOOH	0.0	6.08910E-06	0.0	0.0
CA3PO42	0.0	8.92560E-05	0.0	0.0
CHAMOSITE7A	0.0	3.58420E-05	0.0	0.0
MGOH2	0.0	2.58659E-04	0.0	0.0
PB3PO42	0.0	2.15346E-07	0.0	0.0
UIVO2	0.0	2.43696E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.846469	0.137718	999.016	0.0
Volume, L/hr	7.97549E-04	4.35179E-05	1696.91	0.0
Enthalpy, cal/hr	-2840.68	-389.062	-3.17104E+06	0.0
Density, g/L	1061.34	3164.64	0.588726	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	162.392			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.454821			
E-Con, cm2/ohm-mol	52.4316			
Abs Visc, cP	0.385228			
Rel Visc	1.4093			
Ionic Strength	2.87483			

STREAM: Overhead
 TO : Condensate mixer
 FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.858	102.858	102.858	102.858
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4517	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.45056	0.0
CO2	0.0	0.0	0.001100001	0.0
H2SO4	0.0	0.0	1.03674E-25	0.0
HCL	0.0	0.0	1.67865E-09	0.0
HNO3	0.0	0.0	3.77280E-10	0.0
LAURICACID	0.0	0.0	3.56106E-05	0.0
SO3	0.0	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	999.016	0.0
Volume, L/hr	0.0	0.0	1696.91	0.0
Enthalpy, cal/hr	0.0	0.0	-3.17104E+06	0.0
Density, g/L			0.588726	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE85_3

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STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.858	102.858	102.858	102.858
Pressure, atm	1.	1.	1.	1.
pH	7.28941			
Total mol/hr	0.04314368	0.00106679	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0392226	0.0	0.0	0.0
CO2	1.06966E-10	0.0	0.0	0.0
H2SO4	8.86784E-29	0.0	0.0	0.0
HCL	1.32974E-15	0.0	0.0	0.0
HNO3	1.30831E-12	0.0	0.0	0.0
LAURICACID	5.18994E-10	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	2.26277E-11	0.0	0.0	0.0
CASO4	4.36594E-07	5.11611E-04	0.0	0.0
CDCL2	8.61753E-09	0.0	0.0	0.0
CDOH2	2.57653E-14	0.0	0.0	0.0
CDSO4	1.34432E-12	0.0	0.0	0.0
CROH3	2.83329E-11	6.22196E-08	0.0	0.0
CUCL2	9.09203E-11	0.0	0.0	0.0
CUCO3	7.49261E-14	0.0	0.0	0.0
CUNO32	6.64122E-13	0.0	0.0	0.0
CUOH2	6.85216E-09	3.92871E-06	0.0	0.0
FEIICL2	9.40519E-15	0.0	0.0	0.0
FEIICO3	1.36749E-14	0.0	0.0	0.0
FEIIHPO4	4.10196E-17	0.0	0.0	0.0
FEIIOH2	3.92671E-13	0.0	0.0	0.0
ALO2H2CL	4.81508E-30	0.0	0.0	0.0
H3PO4	9.27958E-17	0.0	0.0	0.0
H4P2O7	0.0	0.0	0.0	0.0
ALOH3	2.50828E-11	0.0	0.0	0.0
BACO3	5.37982E-16	0.0	0.0	0.0
KCL	4.44462E-06	0.0	0.0	0.0
KHSO4	6.76380E-13	0.0	0.0	0.0
BASO4	7.81771E-13	4.95158E-07	0.0	0.0
MGCO3	5.95080E-11	0.0	0.0	0.0
MGH2SIO4	1.26492E-09	0.0	0.0	0.0
MGHPO4	7.91226E-10	0.0	0.0	0.0
MGSO4	1.84940E-06	0.0	0.0	0.0
NAHCO3	1.93835E-09	0.0	0.0	0.0
NAHSIO3	1.19318E-06	0.0	0.0	0.0
NANO3	9.13817E-05	0.0	0.0	0.0
NIOH2	1.80594E-12	1.08823E-06	0.0	0.0
NISO4	2.54736E-10	0.0	0.0	0.0
PBCL2	1.31329E-07	0.0	0.0	0.0
PBHPO4	1.39358E-14	0.0	0.0	0.0
PBNO32	4.07967E-09	0.0	0.0	0.0
PBO	1.16705E-09	0.0	0.0	0.0
CACL2	1.77530E-15	0.0	0.0	0.0
SIO2	3.28615E-06	1.42520E-04	0.0	0.0

CACO3	3.19806E-11	0.0	0.0	0.0
SRHPO4	2.42874E-14	0.0	0.0	0.0
SRNO32	4.77103E-08	0.0	0.0	0.0
SRSO4	7.45195E-09	1.45855E-05	0.0	0.0
UIVOH4	9.47773E-13	0.0	0.0	0.0
ZNCL2	4.44723E-06	0.0	0.0	0.0
ZNHPO4	1.49132E-12	0.0	0.0	0.0
ZNNO32	2.01567E-09	0.0	0.0	0.0
ZNOH2	4.78525E-08	0.0	0.0	0.0
OHION	1.27039E-08	0.0	0.0	0.0
ALION	1.51543E-21	0.0	0.0	0.0
ALOH2ION	1.66307E-14	0.0	0.0	0.0
ALOH4ION	4.34362E-09	0.0	0.0	0.0
ALOHCLION	3.33852E-17	0.0	0.0	0.0
ALOHION	1.06046E-17	0.0	0.0	0.0
ALSO42ION	9.56301E-22	0.0	0.0	0.0
ALSO4ION	3.79373E-21	0.0	0.0	0.0
BAHCO3ION	4.44237E-14	0.0	0.0	0.0
BAION	1.18905E-09	0.0	0.0	0.0
BAOHION	1.12733E-14	0.0	0.0	0.0
CACLION	4.42404E-08	0.0	0.0	0.0
CAH2PO4ION	5.79142E-12	0.0	0.0	0.0
CAHCO3ION	8.40987E-11	0.0	0.0	0.0
CAHSIO3ION	1.11535E-08	0.0	0.0	0.0
CAION	1.27281E-05	0.0	0.0	0.0
CANO3ION	5.40057E-06	0.0	0.0	0.0
CAOHION	2.29084E-09	0.0	0.0	0.0
CAPO4ION	1.92794E-11	0.0	0.0	0.0
CDCL3ION	6.38887E-09	0.0	0.0	0.0
CDCL4ION	1.42345E-09	0.0	0.0	0.0
CDCLION	5.19038E-10	0.0	0.0	0.0
CDION	1.09361E-11	0.0	0.0	0.0
CDNO3ION	2.82444E-12	0.0	0.0	0.0
CDOH3ION	3.92486E-18	0.0	0.0	0.0
CDOH4ION	3.52815E-22	0.0	0.0	0.0
CDOHION	2.72848E-13	0.0	0.0	0.0
CLION	0.00153247	0.0	0.0	0.0
CO3ION	3.01628E-11	0.0	0.0	0.0
CRIIIICL2ION	4.85063E-16	0.0	0.0	0.0
CRIIIICLION	3.41947E-15	0.0	0.0	0.0
CRIIIH2PO4ION	6.83285E-21	0.0	0.0	0.0
CRIIIHPO4ION	2.96185E-09	0.0	0.0	0.0
CRIIIIION	3.31895E-18	0.0	0.0	0.0
CRIIINO3ION	2.10757E-13	0.0	0.0	0.0
CROH2ION	4.65743E-13	0.0	0.0	0.0
CROH4ION	6.73117E-14	0.0	0.0	0.0
CROHION	1.70005E-10	0.0	0.0	0.0
CRSO4ION	3.87547E-12	0.0	0.0	0.0
CUCL3ION	1.16063E-12	0.0	0.0	0.0
CUCLION	6.00452E-10	0.0	0.0	0.0
CUCO32ION	1.59633E-17	0.0	0.0	0.0
CUION	1.80610E-10	0.0	0.0	0.0
CUNO3ION	2.98082E-11	0.0	0.0	0.0
CUOH3ION	6.54991E-12	0.0	0.0	0.0
CUOH4ION	1.39444E-14	0.0	0.0	0.0
CUOHION	5.24911E-10	0.0	0.0	0.0
DODECION	2.38048E-06	0.0	0.0	0.0
FEIICLION	2.08282E-12	0.0	0.0	0.0

FEIICO32ION	8.79026E-20	0.0	0.0	0.0
FEIIH2PO4ION	4.25841E-18	0.0	0.0	0.0
FEIIHCO3ION	3.67653E-17	0.0	0.0	0.0
FEIIION	2.72780E-10	0.0	0.0	0.0
FEIIOH3ION	7.66934E-15	0.0	0.0	0.0
FEIIOH4ION	1.95094E-19	0.0	0.0	0.0
FEIIOHION	2.81092E-11	0.0	0.0	0.0
H2P2O7ION	1.27225E-19	0.0	0.0	0.0
H2PO4ION	1.78067E-11	0.0	0.0	0.0
H2SIO4ION	6.13631E-12	0.0	0.0	0.0
H3P2O7ION	1.60640E-25	0.0	0.0	0.0
H3SIO4ION	3.96670E-07	0.0	0.0	0.0
HCO3ION	1.44851E-09	0.0	0.0	0.0
HION	4.81551E-11	0.0	0.0	0.0
HP2O7ION	2.51929E-18	0.0	0.0	0.0
HPBO2ION	1.13378E-11	0.0	0.0	0.0
HPO4ION	1.75428E-10	0.0	0.0	0.0
HSO4ION	1.34611E-10	0.0	0.0	0.0
KION	2.37198E-04	0.0	0.0	0.0
KSO4ION	9.57860E-06	0.0	0.0	0.0
MGH2PO4ION	7.31358E-12	0.0	0.0	0.0
MGHCO3ION	6.24930E-10	0.0	0.0	0.0
MGHSIO3ION	8.18028E-08	0.0	0.0	0.0
MGION	2.32857E-05	0.0	0.0	0.0
MGOHION	7.10139E-08	0.0	0.0	0.0
MGP2O7ION	1.33858E-14	0.0	0.0	0.0
MGPO4ION	8.11805E-11	0.0	0.0	0.0
NACO3ION	4.66615E-12	0.0	0.0	0.0
NAION	0.00161576	0.0	0.0	0.0
NASO4ION	7.08753E-13	0.0	0.0	0.0
NICLION	1.08993E-10	0.0	0.0	0.0
NIION	1.46111E-09	0.0	0.0	0.0
NINO3ION	1.90981E-10	0.0	0.0	0.0
NIOH3ION	4.31767E-15	0.0	0.0	0.0
NIOHION	4.16995E-11	0.0	0.0	0.0
NO3ION	3.06082E-04	0.0	0.0	0.0
P2O7ION	4.47364E-19	0.0	0.0	0.0
PBCL3ION	2.40646E-07	0.0	0.0	0.0
PBCL4ION	1.47289E-06	0.0	0.0	0.0
PBCLION	3.90385E-08	0.0	0.0	0.0
PBH2PO4ION	7.05658E-16	0.0	0.0	0.0
PBION	1.50807E-09	0.0	0.0	0.0
PBNO33ION	1.26755E-10	0.0	0.0	0.0
PBNO3ION	1.13963E-08	0.0	0.0	0.0
PBOHION	2.66424E-08	0.0	0.0	0.0
PO4ION	2.74981E-14	0.0	0.0	0.0
SO4ION	4.47672E-05	0.0	0.0	0.0
SRION	2.74514E-08	0.0	0.0	0.0
SRNO3ION	1.71994E-07	0.0	0.0	0.0
SROHION	1.66468E-11	0.0	0.0	0.0
SRPO4ION	4.39386E-15	0.0	0.0	0.0
UIVOH2ION	4.94330E-26	0.0	0.0	0.0
UIVOH3ION	1.42057E-20	0.0	0.0	0.0
UIVOH5ION	8.56529E-15	0.0	0.0	0.0
UIVOHION	0.0	0.0	0.0	0.0
ZNCL3ION	4.72385E-06	0.0	0.0	0.0
ZNCLION	1.04817E-05	0.0	0.0	0.0
ZNH2PO4ION	3.67765E-14	0.0	0.0	0.0

ZNHCO3ION	2.54236E-12	0.0	0.0	0.0
ZNION	6.96366E-07	0.0	0.0	0.0
ZNNO3ION	6.93195E-08	0.0	0.0	0.0
ZNOH3ION	1.84924E-09	0.0	0.0	0.0
ZNOH4ION	1.35538E-12	0.0	0.0	0.0
ZNOHION	5.52373E-06	0.0	0.0	0.0
ALOOH	0.0	6.08910E-06	0.0	0.0
CA3PO42	0.0	8.92560E-05	0.0	0.0
CHAMOSITE7A	0.0	3.58420E-05	0.0	0.0
MGOH2	0.0	2.58659E-04	0.0	0.0
PB3PO42	0.0	2.15346E-07	0.0	0.0
UIVO2	0.0	2.43696E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.846469	0.137718	0.0	0.0
Volume, L/hr	7.97549E-04	4.35179E-05	0.0	0.0
Enthalpy, cal/hr	-2840.68	-389.062	0.0	0.0
Density, g/L	1061.34	3164.64		
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	162.392			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.454821			
E-Con, cm2/ohm-mol	52.4316			
Abs Visc, cP	0.385228			
Rel Visc	1.4093			
Ionic Strength	2.87483			

ESP V-6.6

PROCESS:AWE85_3

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	9.04042			
Total mol/hr	0.0422934	0.00101499	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0382413	0.0	0.0	0.0
CO2	6.72144E-13	0.0	0.0	0.0
HCL	3.91539E-19	0.0	0.0	0.0
HNO3	4.69672E-15	0.0	0.0	0.0
LAURICACID	5.05062E-11	0.0	0.0	0.0
CAH2SIO4	5.39836E-09	0.0	0.0	0.0
CASO4	6.26902E-07	0.0	0.0	0.0
CDCL2	4.18843E-09	0.0	0.0	0.0
CDOH2	4.62157E-15	0.0	0.0	0.0
CDSO4	9.37221E-13	0.0	0.0	0.0
CROH3	4.27032E-10	6.49199E-08	0.0	0.0
CUCL2	2.23775E-12	0.0	0.0	0.0
CUCO3	6.17189E-14	0.0	0.0	0.0
CUNO32	1.50590E-14	0.0	0.0	0.0
CUOH2	2.46860E-09	3.93448E-06	0.0	0.0
FEIICL2	7.24652E-17	0.0	0.0	0.0
FEIICO3	2.30022E-14	0.0	0.0	0.0
FEIIHPO4	7.27485E-19	0.0	0.0	0.0
FEIIOH2	1.15155E-14	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	4.66983E-21	0.0	0.0	0.0
ALOH3	9.98520E-13	6.09250E-06	0.0	0.0
BACO3	2.04867E-16	0.0	0.0	0.0
KCL	1.01983E-06	0.0	0.0	0.0
KHSO4	4.21201E-16	0.0	0.0	0.0
BASO4	8.55774E-14	4.95604E-07	0.0	0.0
MGCO3	6.55708E-10	0.0	0.0	0.0
MGH2SIO4	2.08726E-07	0.0	0.0	0.0
MGHPO4	1.31983E-10	0.0	0.0	0.0
MGSO4	4.37070E-06	0.0	0.0	0.0
NAHCO3	2.05075E-10	0.0	0.0	0.0
NAHSIO3	2.21663E-05	0.0	0.0	0.0
NANO3	2.84606E-05	0.0	0.0	0.0
NIOH2	2.64206E-12	1.08982E-06	0.0	0.0
NISO4	1.97573E-11	0.0	0.0	0.0
PBCL2	7.89491E-09	0.0	0.0	0.0
PBHP04	2.56317E-16	0.0	0.0	0.0
PBNO32	4.84986E-11	0.0	0.0	0.0
PBO	2.85573E-10	0.0	0.0	0.0
CACL2	1.31063E-23	0.0	0.0	0.0
SIO2	8.91587E-07	1.23325E-04	0.0	0.0
CACO3	3.63274E-10	0.0	0.0	0.0
SRHP04	2.75233E-15	0.0	0.0	0.0
SRNO32	2.02086E-08	0.0	0.0	0.0

SRSO4	1.79308E-08	1.39670E-05	0.0	0.0
UIVOH4	1.01016E-13	0.0	0.0	0.0
ZNCL2	3.79081E-09	0.0	0.0	0.0
ZNHPO4	7.87248E-15	0.0	0.0	0.0
ZNNO32	4.48843E-11	0.0	0.0	0.0
ZNOH2	3.38208E-09	2.59522E-05	0.0	0.0
OHION	7.32376E-09	0.0	0.0	0.0
ALION	4.03360E-23	0.0	0.0	0.0
ALOH2ION	4.30625E-16	0.0	0.0	0.0
ALOH4ION	7.09191E-10	0.0	0.0	0.0
ALOHCLION	8.28752E-19	0.0	0.0	0.0
ALOHION	1.60142E-19	0.0	0.0	0.0
ALSO42ION	1.44908E-23	0.0	0.0	0.0
ALSO4ION	5.40112E-23	0.0	0.0	0.0
BAHCO3ION	3.30762E-16	0.0	0.0	0.0
BAION	7.46405E-10	0.0	0.0	0.0
BAOHION	1.65655E-16	0.0	0.0	0.0
CACLION	5.17392E-11	0.0	0.0	0.0
CAH2PO4ION	5.22995E-14	0.0	0.0	0.0
CAHCO3ION	1.16603E-10	0.0	0.0	0.0
CAHSIO3ION	7.94672E-08	0.0	0.0	0.0
CAION	3.12183E-05	0.0	0.0	0.0
CANO3ION	1.22636E-05	0.0	0.0	0.0
CAOHION	1.81801E-09	0.0	0.0	0.0
CAPO4ION	1.86547E-10	0.0	0.0	0.0
CDCL3ION	1.23144E-09	0.0	0.0	0.0
CDCL4ION	1.12456E-08	0.0	0.0	0.0
CDCLION	2.82721E-10	0.0	0.0	0.0
CDION	1.31324E-11	0.0	0.0	0.0
CDNO3ION	1.92687E-12	0.0	0.0	0.0
CDOH3ION	2.23385E-18	0.0	0.0	0.0
CDOH4ION	1.01965E-22	0.0	0.0	0.0
CDOHION	1.35230E-13	0.0	0.0	0.0
CLION	0.00157532	0.0	0.0	0.0
CO3ION	4.43457E-10	0.0	0.0	0.0
CRIIIICL2ION	3.70542E-18	0.0	0.0	0.0
CRIIIICLION	2.83426E-17	0.0	0.0	0.0
CRIIIH2PO4ION	5.58770E-23	0.0	0.0	0.0
CRIIIHPO4ION	2.86041E-15	0.0	0.0	0.0
CRIIIIION	1.56247E-19	0.0	0.0	0.0
CRIIINO3ION	7.99579E-16	0.0	0.0	0.0
CROH2ION	2.96939E-13	0.0	0.0	0.0
CROH4ION	1.70663E-11	0.0	0.0	0.0
CROHION	2.03130E-11	0.0	0.0	0.0
CRSO4ION	2.03453E-14	0.0	0.0	0.0
CUCL3ION	2.85105E-14	0.0	0.0	0.0
CUCLION	7.06569E-12	0.0	0.0	0.0
CUCO32ION	1.15782E-16	0.0	0.0	0.0
CUION	7.04789E-12	0.0	0.0	0.0
CUNO3ION	1.20805E-12	0.0	0.0	0.0
CUOH3ION	4.37950E-12	0.0	0.0	0.0
CUOH4ION	3.22615E-15	0.0	0.0	0.0
CUOHION	3.20169E-11	0.0	0.0	0.0
DODECION	2.38095E-06	0.0	0.0	0.0
FEIICLION	2.82896E-14	0.0	0.0	0.0
FEIICO32ION	9.18354E-19	0.0	0.0	0.0
FEIIH2PO4ION	4.72923E-21	0.0	0.0	0.0
FEIIHCO3ION	1.25046E-18	0.0	0.0	0.0

FEIIION	2.24882E-11	0.0	0.0	0.0
FEIIOH3ION	1.43971E-15	0.0	0.0	0.0
FEIIOH4ION	1.52546E-20	0.0	0.0	0.0
FEIIOHION	3.40336E-12	0.0	0.0	0.0
H2P2O7ION	4.95629E-25	0.0	0.0	0.0
H2PO4ION	1.54608E-13	0.0	0.0	0.0
H2SIO4ION	2.65686E-10	0.0	0.0	0.0
H3SIO4ION	2.27137E-07	0.0	0.0	0.0
HCO3ION	1.05987E-09	0.0	0.0	0.0
HION	5.62641E-13	0.0	0.0	0.0
HP2O7ION	8.27993E-22	0.0	0.0	0.0
HPBO2ION	7.80690E-12	0.0	0.0	0.0
HPO4ION	1.04129E-10	0.0	0.0	0.0
HSO4ION	2.76605E-13	0.0	0.0	0.0
KION	2.43816E-04	0.0	0.0	0.0
KSO4ION	6.38549E-06	0.0	0.0	0.0
MGH2PO4ION	2.68849E-13	0.0	0.0	0.0
MGHCO3ION	1.26584E-09	0.0	0.0	0.0
MGHSIO3ION	5.87318E-07	0.0	0.0	0.0
MGION	5.40894E-05	0.0	0.0	0.0
MGOHION	6.96833E-08	0.0	0.0	0.0
MGP2O7ION	7.32470E-17	0.0	0.0	0.0
MGPO4ION	1.03572E-09	0.0	0.0	0.0
NACO3ION	2.21218E-10	0.0	0.0	0.0
NAION	0.00163461	0.0	0.0	0.0
NASO4ION	2.30933E-05	0.0	0.0	0.0
NICLION	1.16675E-11	0.0	0.0	0.0
NIION	3.49141E-10	0.0	0.0	0.0
NINO3ION	7.78789E-11	0.0	0.0	0.0
NIOH3ION	9.37132E-14	0.0	0.0	0.0
NIOHION	8.50982E-12	0.0	0.0	0.0
NO3ION	3.62303E-04	0.0	0.0	0.0
P2O7ION	5.15491E-20	0.0	0.0	0.0
PBCL3ION	1.66819E-08	0.0	0.0	0.0
PBCL4ION	2.40773E-07	0.0	0.0	0.0
PBCLION	3.13415E-09	0.0	0.0	0.0
PBH2PO4ION	3.32068E-19	0.0	0.0	0.0
PBION	2.18359E-10	0.0	0.0	0.0
PBNO33ION	9.06155E-12	0.0	0.0	0.0
PBNO3ION	5.23118E-10	0.0	0.0	0.0
PBOHION	1.52458E-09	0.0	0.0	0.0
PO4ION	5.53687E-13	0.0	0.0	0.0
SO4ION	4.66827E-05	0.0	0.0	0.0
SRION	6.80087E-07	0.0	0.0	0.0
SRNO3ION	1.54909E-07	0.0	0.0	0.0
SROHION	5.61184E-12	0.0	0.0	0.0
SRPO4ION	1.45597E-14	0.0	0.0	0.0
UIVOH2ION	7.37466E-29	0.0	0.0	0.0
UIVOH3ION	2.89891E-21	0.0	0.0	0.0
UIVOH5ION	1.82485E-14	0.0	0.0	0.0
ZNCL3ION	5.56616E-09	0.0	0.0	0.0
ZNCLION	4.87655E-09	0.0	0.0	0.0
ZNH2PO4ION	8.33140E-18	0.0	0.0	0.0
ZNHCO3ION	3.89952E-14	0.0	0.0	0.0
ZNION	1.91637E-08	0.0	0.0	0.0
ZNNO3ION	2.05241E-09	0.0	0.0	0.0
ZNOH3ION	7.72697E-11	0.0	0.0	0.0
ZNOH4ION	1.35904E-13	0.0	0.0	0.0

ZNOHION	2.74427E-09	0.0	0.0	0.0
CA3PO42	0.0	8.87050E-05	0.0	0.0
CASO4.2H2O	0.0	4.87694E-04	0.0	0.0
CHAMOSITE7A	0.0	3.58423E-05	0.0	0.0
MGOH2	0.0	2.24622E-04	0.0	0.0
PB3PO42	0.0	7.67926E-07	0.0	0.0
UIVO2	0.0	2.43697E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.832437	0.15175	0.0	0.0
Volume, L/hr	7.39819E-04	5.11410E-05	0.0	0.0
Enthalpy, cal/hr	-2845.54	-442.663	0.0	0.0
Density, g/L	1125.19	2967.29		
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	152.855			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.181873			
E-Con, cm2/ohm-mol	30.4915			
Abs Visc, cP	1.21716			
Rel Visc	1.36649			
Ionic Strength	3.18839			

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STREAM: Condensate
TO :
FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.54998			
Total mol/hr	55.45166	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4505	0.0	0.0	0.0
CO2	0.00108245	0.0	0.0	0.0
HCL	2.78519E-20	0.0	0.0	0.0
HNO3	5.26698E-16	0.0	0.0	0.0
LAURICACID	2.48218E-05	0.0	0.0	0.0
OHION	3.61728E-10	0.0	0.0	0.0
CLION	1.67865E-09	0.0	0.0	0.0
CO3ION	2.97799E-11	0.0	0.0	0.0
DODECION	1.07888E-05	0.0	0.0	0.0
HCO3ION	1.75403E-05	0.0	0.0	0.0
HION	2.83315E-05	0.0	0.0	0.0
NO3ION	3.77280E-10	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	999.016	0.0	0.0	0.0
Volume, L/hr	1.00216	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78812E+06	0.0	0.0	0.0
Density, g/L	996.864			
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	0.028421			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.12896E-05			
E-Con, cm2/ohm-mol	9.96292			
Abs Visc, cP	0.890739			
Rel Visc	1.00002			
Ionic Strength	2.83613E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.17144D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-5.84613D+01
MIX	CONDENSATE MIXER	-6.17077D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.999237

Standard Block Information

Duty, cal/hr 617144.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	3.41061E-16
Total Energy cal/hr	-3.79141E+06	-3.17427E+06	0.0

Mix Output

Outlet Temperature, C 102.858
 Outlet Pressure, atm 1.
 Aqueous pH 7.28941
 V/F (molar) 0.999237

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0412616	0.846469	7.97549E-04	-2840.68
Solid	0.00106679	0.137718	4.35179E-05	-389.062
Vapor	55.4517	999.016	1696.91	-3.17104E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.494	1000.	1696.91	-3.17427E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap separator
 BLOCK TYPE: Separate
 =====

Separate Input

 Liquid Outlet Stream Bottoms
 Vapor Outlet Stream Overhead
 Suspended Solids, g solid/g liq solution 0.0
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Pressure Specification, atm
 Outlet Pressure = Min Inlet Pressure
 Equilibrium Type Adiabatic
 Duty, cal/hr 0.0

Standard Block Information

 Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	0.0
Total Energy cal/hr	-3.17427E+06	-3.17427E+06	0.0

Separate Output

 Outlet Temperature, C 102.858
 Outlet Pressure, atm 1.
 Aqueous pH 7.28941
 Suspended Solids, g solid/g liq solution 0.162698
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Liquid Stream	Bottoms			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0412616	0.846469	7.97549E-04	-2840.68
Solid	0.00106679	0.137718	4.35179E-05	-389.062
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0423284	0.984187	8.41067E-04	-3229.74

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4517	999.016	1696.91	-3.17104E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4517	999.016	1696.91	-3.17104E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -58.4613

	In	Out	Rel. Diff.
Total Mass g/hr	0.984187	0.984187	-1.12806E-16
Total Energy cal/hr	-3229.74	-3288.21	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 9.04042
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0403303	0.832437	7.39819E-04	-2845.54
Solid	0.00101499	0.15175	5.11410E-05	-442.663
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0413453	0.984187	7.90960E-04	-3288.21

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.17077E+05

	In	Out	Rel. Diff.
Total Mass g/hr	999.016	999.016	3.41397E-16
Total Energy cal/hr	-3.17104E+06	-3.78812E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.54998
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4517	999.016	1.00216	-3.78812E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4517	999.016	1.00216	-3.78812E+06


```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
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Controller Input

```
-----
Convergence Tolerance      Default Tolerance
Specification Value
  Composition,weight fraction  0.7
  Species
  H2O
Controlled block           Mix: Evap mixer
Control Parameter          Vapor Fraction
Control Parameter Minimum   0.0
Control Parameter Maximum   0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations         20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:      Total
Specification Composition: Solution Species
```

Controller Output

```
-----
Specification Stream      Cooled Bottoms
Controlled Block          Evap mixer
Control Parameter Type:   General Process Variable
Convergence:              Converged
Iterations Completed this Sequence      13.
Total Iterations Completed all Sequences 13.
Last Parameter Value           0.999237
Last DIFF (Computed-Setpoint) -3.44664E-08
Previous Parameter Value        0.999237
Previous DIFF (Computed-Setpoint) 1.95427E-05
Control Parameter Minimum        0.999237
Control Parameter Maximum        0.999273
Control Parameter Stepsize       0.0
Maximum Iterations              0.0
```

Influent Limit Composition 70% Target pH=8.5
8.5-70

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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 September 1, 2002

PROCESS: AWE85_4

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE85_4.LIS

DATE: 12/05/2002
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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79128D+06
Total in	1.00000D+03	-3.79128D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	1.22044D+00	-4.05834D+03
CONDENSATE	9.98780D+02	-3.78721D+06
Total out	1.00000D+03	-3.79127D+06

Block Heat Duties	cal/hr
EVAP MIXER	6.17162D+05
EVAP BOTTOMS COOLING MIXER	-7.27961D+01
CONDENSATE MIXER	-6.17081D+05
Total Duty	8.69082D+00

DIFFERENCE	2.27374D-13	0.00000D+00
REL DIFFERENCE	2.27374D-16	0.00000D+00

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10972D+02	1.10972D+02	1.42109D-14	1.28058D-16
K(+1)	3.51739D-04	3.51739D-04	-1.62630D-18	-4.62361D-15
NA(+1)	2.39187D-03	2.39187D-03	1.30104D-18	5.43944D-16
BA(+2)	5.83942D-07	5.83942D-07	1.05879D-21	1.81318D-15
CA(+2)	8.72818D-04	8.72818D-04	1.08420D-19	1.24219D-16
ZN(+2)	2.90520D-05	2.90520D-05	1.01644D-20	3.49869D-16
CU(+2)	5.19685D-06	5.19685D-06	8.47033D-22	1.62990D-16
FE(+2)	8.60215D-05	8.60215D-05	0.00000D+00	0.00000D+00
MG(+2)	3.29218D-04	3.29218D-04	-5.42101D-20	-1.64663D-16
PB(+2)	2.99517D-06	2.99517D-06	-8.47033D-22	-2.82800D-16
AL(+3)	8.88889D-05	8.88889D-05	0.00000D+00	0.00000D+00
NI(+2)	1.29472D-06	1.29472D-06	2.11758D-22	1.63555D-16
O(-2)	5.54945D+01	5.54945D+01	7.10543D-15	1.28038D-16
CL(-1)	2.14085D-03	2.14085D-03	8.67362D-19	4.05149D-16
C(+4)	1.20000D-03	1.20000D-03	1.08420D-18	9.03502D-16
P(+5)	2.10526D-04	2.10526D-04	0.00000D+00	0.00000D+00
S(+6)	7.39583D-04	7.39583D-04	0.00000D+00	0.00000D+00
N(+5)	4.67742D-04	4.67742D-04	1.08420D-19	2.31795D-16
SI(+4)	2.00000D-04	2.00000D-04	0.00000D+00	0.00000D+00
SR(+2)	1.71233D-05	1.71233D-05	3.38813D-21	1.97867D-16

CD (+2)	3.57143D-08	3.57143D-08	6.41892D-22	1.79730D-14
CR (+3)	7.88462D-08	7.88462D-08	-1.32349D-23	-1.67857D-16
U (+4)	2.89916D-06	2.89916D-06	0.00000D+00	0.00000D+00

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DODEC(-1)

4.16682D-05 4.16682D-05 -8.80914D-20 -2.11411D-15

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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PROCESS:AWE85_4

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.94841			
Total mol/hr	55.49421	9.47509E-05	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4852	0.0	0.0	0.0
CO2	2.18015E-04	0.0	0.0	0.0
H2SO4	2.29771E-26	0.0	0.0	0.0
HCL	1.30470E-16	0.0	0.0	0.0
HNO3	2.38930E-12	0.0	0.0	0.0
LAURICACID	3.47879E-07	0.0	0.0	0.0
SO3	2.97425E-30	0.0	0.0	0.0
CAH2SIO4	5.90826E-12	0.0	0.0	0.0
CASO4	1.09798E-05	0.0	0.0	0.0
CDCL2	1.44769E-10	0.0	0.0	0.0
CDOH2	1.03450E-14	0.0	0.0	0.0
CDSO4	3.52092E-09	0.0	0.0	0.0
CROH3	3.07479E-12	0.0	0.0	0.0
CUCL2	6.72897E-14	0.0	0.0	0.0
CUCO3	1.45432E-08	0.0	0.0	0.0
CUNO32	6.78273E-16	0.0	0.0	0.0
CUOH2	4.80736E-09	0.0	0.0	0.0
FEIICL2	1.11350E-15	0.0	0.0	0.0
FEIICO3	2.76973E-06	0.0	0.0	0.0
FEIIHPO4	8.02933E-08	0.0	0.0	0.0
FEIIOH2	1.14595E-11	0.0	0.0	0.0
ALO2H2CL	2.52404E-29	0.0	0.0	0.0
H3PO4	1.54901E-09	0.0	0.0	0.0
H4P2O7	4.26255E-21	0.0	0.0	0.0
ALOH3	2.40087E-09	8.88806E-05	0.0	0.0
BACO3	3.55140E-11	0.0	0.0	0.0
KCL	5.19206E-09	0.0	0.0	0.0
KHSO4	3.23011E-14	0.0	0.0	0.0
BASO4	2.05765E-10	2.54002E-07	0.0	0.0
MGCO3	7.32889E-08	0.0	0.0	0.0
MGH2SIO4	2.02205E-11	0.0	0.0	0.0
MGHPO4	1.35217E-05	0.0	0.0	0.0
MGSO4	6.77584E-06	0.0	0.0	0.0
NAHCO3	7.99994E-07	0.0	0.0	0.0
NAHSIO3	6.72004E-08	0.0	0.0	0.0
NANO3	5.32522E-08	0.0	0.0	0.0
NIOH2	6.75853E-12	0.0	0.0	0.0
NISO4	8.48219E-08	0.0	0.0	0.0
PBCL2	1.36556E-12	0.0	0.0	0.0
PBHPO4	3.18446E-10	0.0	0.0	0.0
PBNO32	1.25651E-14	0.0	0.0	0.0
PBO	2.86825E-12	0.0	0.0	0.0
CACL2	2.11194E-27	0.0	0.0	0.0
SIO2	1.99649E-04	0.0	0.0	0.0

CACO3	4.58716E-07	0.0	0.0	0.0
SRHPO4	1.09778E-08	0.0	0.0	0.0
SRNO32	1.68083E-11	0.0	0.0	0.0
SRSO4	1.08221E-06	0.0	0.0	0.0
UIVOH4	3.02113E-10	0.0	0.0	0.0
UIVSO42	9.31509E-30	0.0	0.0	0.0
ZNCL2	1.24323E-10	0.0	0.0	0.0
ZNHPO4	1.85449E-06	0.0	0.0	0.0
ZNNO32	2.20488E-12	0.0	0.0	0.0
ZNOH2	7.18328E-09	0.0	0.0	0.0
OHION	9.85742E-08	0.0	0.0	0.0
ALION	3.08616E-14	0.0	0.0	0.0
ALOH2ION	5.42222E-11	0.0	0.0	0.0
ALOH4ION	5.85764E-09	0.0	0.0	0.0
ALOHCLION	8.54540E-15	0.0	0.0	0.0
ALOHION	1.74503E-12	0.0	0.0	0.0
ALSO42ION	2.90565E-16	0.0	0.0	0.0
ALSO4ION	7.53605E-15	0.0	0.0	0.0
BAHCO3ION	2.20612E-09	0.0	0.0	0.0
BAION	3.27492E-07	0.0	0.0	0.0
BAOHION	1.24228E-14	0.0	0.0	0.0
CACLION	3.02263E-11	0.0	0.0	0.0
CAH2PO4ION	2.32970E-06	0.0	0.0	0.0
CAHCO3ION	6.36165E-06	0.0	0.0	0.0
CAHSIO3ION	3.00168E-09	0.0	0.0	0.0
CAION	8.51396E-04	0.0	0.0	0.0
CANO3ION	7.26291E-07	0.0	0.0	0.0
CAOHION	9.91795E-10	0.0	0.0	0.0
CAPO4ION	5.61900E-07	0.0	0.0	0.0
CDCL3ION	1.48625E-14	0.0	0.0	0.0
CDCL4ION	2.09163E-17	0.0	0.0	0.0
CDCLION	3.80342E-09	0.0	0.0	0.0
CDION	2.82049E-08	0.0	0.0	0.0
CDNO3ION	2.44648E-11	0.0	0.0	0.0
CDOH3ION	1.40511E-20	0.0	0.0	0.0
CDOH4ION	7.95415E-28	0.0	0.0	0.0
CDOHION	1.58246E-11	0.0	0.0	0.0
CLION	0.00214077	0.0	0.0	0.0
CO3ION	5.30379E-07	0.0	0.0	0.0
CRIIIICL2ION	1.42177E-20	0.0	0.0	0.0
CRIIIICLION	5.11348E-17	0.0	0.0	0.0
CRIIIH2PO4ION	2.61492E-14	0.0	0.0	0.0
CRIIIHPO4ION	7.88281E-08	0.0	0.0	0.0
CRIIIIION	1.04007E-14	0.0	0.0	0.0
CRIIIIINO3ION	6.82852E-16	0.0	0.0	0.0
CROH2ION	1.11747E-13	0.0	0.0	0.0
CROH4ION	3.45310E-16	0.0	0.0	0.0
CROHION	6.17887E-12	0.0	0.0	0.0
CRSO4ION	8.62864E-12	0.0	0.0	0.0
CUCL3ION	2.99361E-19	0.0	0.0	0.0
CUCLION	8.26958E-11	0.0	0.0	0.0
CUCO32ION	1.15557E-11	0.0	0.0	0.0
CUION	1.02671E-08	0.0	0.0	0.0
CUNO3ION	1.21089E-11	0.0	0.0	0.0
CUOH3ION	2.52509E-14	0.0	0.0	0.0
CUOH4ION	2.19921E-20	0.0	0.0	0.0
CUOHION	3.25757E-09	0.0	0.0	0.0
DODECION	4.13204E-05	0.0	0.0	0.0

FEIICLION	1.69193E-10	0.0	0.0	0.0
FEIICO32ION	4.80262E-11	0.0	0.0	0.0
FEIIH2PO4ION	2.00887E-08	0.0	0.0	0.0
FEIIHCO3ION	8.12185E-09	0.0	0.0	0.0
FEIIION	8.29660E-05	0.0	0.0	0.0
FEIIOH3ION	4.40781E-15	0.0	0.0	0.0
FEIIOH4ION	5.28926E-23	0.0	0.0	0.0
FEIIOHION	1.77103E-07	0.0	0.0	0.0
H2P2O7ION	6.26280E-11	0.0	0.0	0.0
H2PO4ION	1.06986E-04	0.0	0.0	0.0
H2SIO4ION	2.57882E-13	0.0	0.0	0.0
H3P2O7ION	1.18264E-15	0.0	0.0	0.0
H3SIO4ION	2.79016E-07	0.0	0.0	0.0
HCO3ION	9.62945E-04	0.0	0.0	0.0
HION	1.23206E-07	0.0	0.0	0.0
HP2O7ION	2.19892E-10	0.0	0.0	0.0
HPBO2ION	3.12713E-16	0.0	0.0	0.0
HPO4ION	7.82197E-05	0.0	0.0	0.0
HSO4ION	5.74527E-09	0.0	0.0	0.0
KION	3.50433E-04	0.0	0.0	0.0
KSO4ION	1.30090E-06	0.0	0.0	0.0
MGH2PO4ION	1.06006E-06	0.0	0.0	0.0
MGHCO3ION	7.63295E-06	0.0	0.0	0.0
MGHSIO3ION	1.96366E-09	0.0	0.0	0.0
MGION	2.99863E-04	0.0	0.0	0.0
MGOHION	3.36610E-09	0.0	0.0	0.0
MGP2O7ION	2.60073E-09	0.0	0.0	0.0
MGPO4ION	2.83445E-07	0.0	0.0	0.0
NACO3ION	3.08597E-09	0.0	0.0	0.0
NAION	0.00238121	0.0	0.0	0.0
NASO4ION	9.73707E-06	0.0	0.0	0.0
NICLION	1.79373E-10	0.0	0.0	0.0
NIION	1.20744E-06	0.0	0.0	0.0
NINO3ION	1.12999E-09	0.0	0.0	0.0
NIOH3ION	6.73633E-16	0.0	0.0	0.0
NIOHION	1.13774E-09	0.0	0.0	0.0
NO3ION	4.66907E-04	0.0	0.0	0.0
P2O7ION	1.86106E-12	0.0	0.0	0.0
PBCL3ION	1.42994E-15	0.0	0.0	0.0
PBCL4ION	2.30852E-18	0.0	0.0	0.0
PBCLION	2.11054E-10	0.0	0.0	0.0
PBH2PO4ION	1.58779E-11	0.0	0.0	0.0
PBION	5.17468E-09	0.0	0.0	0.0
PBNO33ION	1.00329E-18	0.0	0.0	0.0
PBNO3ION	3.32377E-11	0.0	0.0	0.0
PBOHION	8.92262E-10	0.0	0.0	0.0
PO4ION	5.23834E-10	0.0	0.0	0.0
SO4ION	7.09359E-04	0.0	0.0	0.0
SRION	1.60007E-05	0.0	0.0	0.0
SRNO3ION	2.92379E-08	0.0	0.0	0.0
SROHION	6.97366E-12	0.0	0.0	0.0
SRPO4ION	1.46421E-10	0.0	0.0	0.0
UIVOH2ION	6.67700E-22	0.0	0.0	0.0
UIVOH3ION	4.19354E-16	0.0	0.0	0.0
UIVOH5ION	1.53363E-13	0.0	0.0	0.0
UIVOHION	1.76997E-26	0.0	0.0	0.0
UIVSO4ION	3.73898E-30	0.0	0.0	0.0
ZNCL3ION	9.04653E-14	0.0	0.0	0.0

ZNCLION	6.22483E-08	0.0	0.0	0.0
ZNH2PO4ION	7.55331E-08	0.0	0.0	0.0
ZNHCO3ION	3.85725E-07	0.0	0.0	0.0
ZNION	2.64246E-05	0.0	0.0	0.0
ZNNO3ION	2.47257E-08	0.0	0.0	0.0
ZNOH3ION	6.89601E-13	0.0	0.0	0.0
ZNOH4ION	1.04082E-18	0.0	0.0	0.0
ZNOHION	2.17373E-07	0.0	0.0	0.0
CU3PO42.2H2O	0.0	1.72129E-06	0.0	0.0
PB3PO42	0.0	9.96173E-07	0.0	0.0
UIVO2	0.0	2.89886E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	999.991	0.0093006	0.0	0.0
Volume, L/hr	1.00283	3.03914E-06	0.0	0.0
Enthalpy, cal/hr	-3.79125E+06	-28.8644	0.0	0.0
Density, g/L	997.168	3060.28		
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	0.244569			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	5.90442E-04			
E-Con, cm2/ohm-mol	134.192			
Abs Visc, cP	0.892421			
Rel Visc	1.00191			
Ionic Strength	0.00737689			

ESP V-6.6

PROCESS:AWE85_4

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.192	103.192	103.192	103.192
Pressure, atm	1.	1.	1.	1.
pH	7.28381			
Total mol/hr	0.05383635	0.00117804	55.4384	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0484753	0.0	55.43716	0.0
CO2	1.37523E-10	0.0	0.001199991	0.0
H2SO4	1.78697E-28	0.0	1.85560E-25	0.0
HCL	1.77654E-15	0.0	1.94423E-09	0.0
HNO3	1.36765E-12	0.0	3.56608E-10	0.0
LAURICACID	6.37235E-10	0.0	3.85048E-05	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	1.49568E-11	0.0	0.0	0.0
CASO4	5.06267E-07	5.89884E-04	0.0	0.0
CDCL2	1.62540E-08	0.0	0.0	0.0
CDOH2	3.79342E-14	0.0	0.0	0.0
CDSO4	3.37601E-12	0.0	0.0	0.0
CROH3	3.25137E-11	6.97487E-08	0.0	0.0
CUCL2	1.37581E-10	0.0	0.0	0.0
CUCO3	9.41767E-14	0.0	0.0	0.0
CUNO32	6.65563E-13	0.0	0.0	0.0
CUOH2	7.99489E-09	5.18694E-06	0.0	0.0
FEIICL2	1.41689E-14	0.0	0.0	0.0
FEIICO3	1.70549E-14	0.0	0.0	0.0
FEIIHPO4	1.06906E-16	0.0	0.0	0.0
FEIIOH2	4.59617E-13	0.0	0.0	0.0
ALO2H2CL	6.34366E-30	0.0	0.0	0.0
H3PO4	2.42732E-16	0.0	0.0	0.0
H4P2O7	1.69069E-30	0.0	0.0	0.0
ALOH3	2.90620E-11	0.0	0.0	0.0
BACO3	3.94782E-16	0.0	0.0	0.0
KCL	6.42515E-06	0.0	0.0	0.0
KHSO4	1.49461E-12	0.0	0.0	0.0
BASO4	9.21084E-13	5.83022E-07	0.0	0.0
MGCO3	7.40747E-11	0.0	0.0	0.0
MGH2SIO4	1.43972E-09	0.0	0.0	0.0
MGHPO4	2.06007E-09	0.0	0.0	0.0
MGSO4	3.65074E-06	0.0	0.0	0.0
NAHCO3	2.71487E-09	0.0	0.0	0.0
NAHSIO3	1.53736E-06	0.0	0.0	0.0
NANO3	1.23920E-04	0.0	0.0	0.0
NIOH2	2.09348E-12	1.29197E-06	0.0	0.0
NISO4	5.11833E-10	0.0	0.0	0.0
PBCL2	1.15048E-07	0.0	0.0	0.0
PBHPO4	2.12365E-14	0.0	0.0	0.0
PBNO32	2.38004E-09	0.0	0.0	0.0
PBO	8.01172E-10	0.0	0.0	0.0
CACL2	1.62934E-15	0.0	0.0	0.0
SIO2	3.97116E-06	1.50895E-04	0.0	0.0

CACO3	2.31711E-11	0.0	0.0	0.0
SRHPO4	3.67409E-14	0.0	0.0	0.0
SRNO32	2.74753E-08	0.0	0.0	0.0
SRSO4	8.68924E-09	1.69661E-05	0.0	0.0
UIVOH4	1.08368E-12	0.0	0.0	0.0
ZNCL2	3.94652E-06	0.0	0.0	0.0
ZNHPO4	2.27496E-12	0.0	0.0	0.0
ZNNO32	1.17059E-09	0.0	0.0	0.0
ZNOH2	3.25219E-08	0.0	0.0	0.0
OHION	1.52535E-08	0.0	0.0	0.0
ALION	1.72695E-21	0.0	0.0	0.0
ALOH2ION	2.05332E-14	0.0	0.0	0.0
ALOH4ION	5.43938E-09	0.0	0.0	0.0
ALOHCLION	4.81481E-17	0.0	0.0	0.0
ALOHION	1.25146E-17	0.0	0.0	0.0
ALSO42ION	3.47714E-21	0.0	0.0	0.0
ALSO4ION	8.20164E-21	0.0	0.0	0.0
BAHCO3ION	3.58529E-14	0.0	0.0	0.0
BAION	9.20856E-10	0.0	0.0	0.0
BAOHION	8.22836E-15	0.0	0.0	0.0
CACLION	4.09695E-08	0.0	0.0	0.0
CAH2PO4ION	9.60553E-12	0.0	0.0	0.0
CAHCO3ION	6.21605E-11	0.0	0.0	0.0
CAHSIO3ION	8.21871E-09	0.0	0.0	0.0
CAION	9.69012E-06	0.0	0.0	0.0
CANO3ION	3.67905E-06	0.0	0.0	0.0
CAOHION	1.65087E-09	0.0	0.0	0.0
CAPO4ION	3.12794E-11	0.0	0.0	0.0
CDCL3ION	1.46702E-08	0.0	0.0	0.0
CDCL4ION	3.84474E-09	0.0	0.0	0.0
CDCLION	9.19493E-10	0.0	0.0	0.0
CDION	1.77989E-11	0.0	0.0	0.0
CDNO3ION	4.21555E-12	0.0	0.0	0.0
CDOH3ION	6.15446E-18	0.0	0.0	0.0
CDOH4ION	5.78509E-22	0.0	0.0	0.0
CDOHION	4.25880E-13	0.0	0.0	0.0
CLION	0.00209468	0.0	0.0	0.0
CO3ION	4.14855E-11	0.0	0.0	0.0
CRIIIICL2ION	8.04905E-16	0.0	0.0	0.0
CRIIIICLION	1.85289E-15	0.0	0.0	0.0
CRIIIH2PO4ION	2.09213E-20	0.0	0.0	0.0
CRIIIHPO4ION	8.79574E-09	0.0	0.0	0.0
CRIIIIION	5.11800E-19	0.0	0.0	0.0
CRIIINO3ION	2.83918E-13	0.0	0.0	0.0
CROH2ION	5.81135E-13	0.0	0.0	0.0
CROH4ION	8.15587E-14	0.0	0.0	0.0
CROHION	2.60134E-10	0.0	0.0	0.0
CRSO4ION	8.43097E-12	0.0	0.0	0.0
CUCL3ION	2.13245E-12	0.0	0.0	0.0
CUCLION	8.55316E-10	0.0	0.0	0.0
CUCO32ION	2.40202E-17	0.0	0.0	0.0
CUION	2.39428E-10	0.0	0.0	0.0
CUNO3ION	3.54428E-11	0.0	0.0	0.0
CUOH3ION	8.13586E-12	0.0	0.0	0.0
CUOH4ION	1.82274E-14	0.0	0.0	0.0
CUOHION	6.61459E-10	0.0	0.0	0.0
DODECION	3.16278E-06	0.0	0.0	0.0
FEIICLION	2.94280E-12	0.0	0.0	0.0

FEIICO32ION	1.29957E-19	0.0	0.0	0.0
FEIIH2PO4ION	1.21581E-17	0.0	0.0	0.0
FEIIHCO3ION	4.90154E-17	0.0	0.0	0.0
FEIIION	3.61861E-10	0.0	0.0	0.0
FEIIOH3ION	9.62746E-15	0.0	0.0	0.0
FEIIOH4ION	2.54081E-19	0.0	0.0	0.0
FEIIOHION	3.48336E-11	0.0	0.0	0.0
H2P2O7ION	8.46229E-19	0.0	0.0	0.0
H2PO4ION	5.08588E-11	0.0	0.0	0.0
H2SIO4ION	7.85532E-12	0.0	0.0	0.0
H3P2O7ION	9.91442E-25	0.0	0.0	0.0
H3SIO4ION	4.74023E-07	0.0	0.0	0.0
HCO3ION	1.84753E-09	0.0	0.0	0.0
HION	5.75886E-11	0.0	0.0	0.0
HP2O7ION	1.56469E-17	0.0	0.0	0.0
HPBO2ION	7.98558E-12	0.0	0.0	0.0
HPO4ION	5.23140E-10	0.0	0.0	0.0
HSO4ION	2.80365E-10	0.0	0.0	0.0
KION	3.23039E-04	0.0	0.0	0.0
KSO4ION	2.22741E-05	0.0	0.0	0.0
MGH2PO4ION	2.07577E-11	0.0	0.0	0.0
MGHCO3ION	8.18751E-10	0.0	0.0	0.0
MGHSIO3ION	1.03645E-07	0.0	0.0	0.0
MGION	2.68458E-05	0.0	0.0	0.0
MGOHION	8.79443E-08	0.0	0.0	0.0
MGP2O7ION	8.89815E-14	0.0	0.0	0.0
MGPO4ION	2.25681E-10	0.0	0.0	0.0
NACO3ION	6.66262E-12	0.0	0.0	0.0
NAION	0.00226641	0.0	0.0	0.0
NASO4ION	2.21505E-13	0.0	0.0	0.0
NICLION	1.54115E-10	0.0	0.0	0.0
NIION	1.81544E-09	0.0	0.0	0.0
NINO3ION	2.26657E-10	0.0	0.0	0.0
NIOH3ION	5.29422E-15	0.0	0.0	0.0
NIOHION	5.22840E-11	0.0	0.0	0.0
NO3ION	3.39907E-04	0.0	0.0	0.0
P2O7ION	3.04580E-18	0.0	0.0	0.0
PBCL3ION	2.46053E-07	0.0	0.0	0.0
PBCL4ION	1.82272E-06	0.0	0.0	0.0
PBCLION	3.21393E-08	0.0	0.0	0.0
PBH2PO4ION	1.18148E-15	0.0	0.0	0.0
PBION	1.18817E-09	0.0	0.0	0.0
PBNO33ION	7.25594E-11	0.0	0.0	0.0
PBNO3ION	7.92409E-09	0.0	0.0	0.0
PBOHION	1.95221E-08	0.0	0.0	0.0
PO4ION	8.04226E-14	0.0	0.0	0.0
SO4ION	1.05711E-04	0.0	0.0	0.0
SRION	3.72064E-09	0.0	0.0	0.0
SRNO3ION	1.17374E-07	0.0	0.0	0.0
SROHION	1.23354E-11	0.0	0.0	0.0
SRPO4ION	7.10798E-15	0.0	0.0	0.0
UIVOH2ION	5.58314E-26	0.0	0.0	0.0
UIVOH3ION	1.70374E-20	0.0	0.0	0.0
UIVOH5ION	1.03006E-14	0.0	0.0	0.0
UIVOHION	1.08377E-30	0.0	0.0	0.0
ZNCL3ION	4.88884E-06	0.0	0.0	0.0
ZNCLION	8.75666E-06	0.0	0.0	0.0
ZNH2PO4ION	6.15416E-14	0.0	0.0	0.0

ZNHCO3ION	2.03770E-12	0.0	0.0	0.0
ZNION	5.36005E-07	0.0	0.0	0.0
ZNNO3ION	4.81247E-08	0.0	0.0	0.0
ZNOH3ION	1.29088E-09	0.0	0.0	0.0
ZNOH4ION	1.01438E-12	0.0	0.0	0.0
ZNOHION	4.21867E-06	0.0	0.0	0.0
ALOOH	0.0	2.86232E-06	0.0	0.0
CA3PO42	0.0	8.96701E-05	0.0	0.0
CHAMOSITE7A	0.0	4.30108E-05	0.0	0.0
MG3PO42	0.0	1.31312E-05	0.0	0.0
MGOH2	0.0	2.59133E-04	0.0	0.0
PB3PO42	0.0	2.49104E-07	0.0	0.0
UIVO2	0.0	2.89917E-06	0.0	0.0
ZN3PO42.2H2O	0.0	2.20740E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	1.06401	0.156425	998.78	0.0
Volume, L/hr	9.93763E-04	4.75020E-05	1698.04	0.0
Enthalpy, cal/hr	-3547.01	-438.537	-3.17013E+06	0.0
Density, g/L	1070.69	3293.02	0.588194	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	182.086			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.484794			
E-Con, cm2/ohm-mol	55.4865			
Abs Visc, cP	0.402037			
Rel Visc	1.47583			
Ionic Strength	3.2353			

STREAM: Overhead
 TO : Condensate mixer
 FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.192	103.192	103.192	103.192
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.4384	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.43716	0.0
CO2	0.0	0.0	0.001199991	0.0
H2SO4	0.0	0.0	1.85560E-25	0.0
HCL	0.0	0.0	1.94423E-09	0.0
HNO3	0.0	0.0	3.56608E-10	0.0
LAURICACID	0.0	0.0	3.85048E-05	0.0
SO3	0.0	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	998.78	0.0
Volume, L/hr	0.0	0.0	1698.04	0.0
Enthalpy, cal/hr	0.0	0.0	-3.17013E+06	0.0
Density, g/L			0.588194	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.192	103.192	103.192	103.192
Pressure, atm	1.	1.	1.	1.
pH	7.28381			
Total mol/hr	0.05383635	0.00117804	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0484753	0.0	0.0	0.0
CO2	1.37523E-10	0.0	0.0	0.0
H2SO4	1.78697E-28	0.0	0.0	0.0
HCL	1.77654E-15	0.0	0.0	0.0
HNO3	1.36765E-12	0.0	0.0	0.0
LAURICACID	6.37235E-10	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	1.49568E-11	0.0	0.0	0.0
CASO4	5.06267E-07	5.89884E-04	0.0	0.0
CDCL2	1.62540E-08	0.0	0.0	0.0
CDOH2	3.79342E-14	0.0	0.0	0.0
CDSO4	3.37601E-12	0.0	0.0	0.0
CROH3	3.25137E-11	6.97487E-08	0.0	0.0
CUCL2	1.37581E-10	0.0	0.0	0.0
CUCO3	9.41767E-14	0.0	0.0	0.0
CUNO32	6.65563E-13	0.0	0.0	0.0
CUOH2	7.99489E-09	5.18694E-06	0.0	0.0
FEIICL2	1.41689E-14	0.0	0.0	0.0
FEIICO3	1.70549E-14	0.0	0.0	0.0
FEIIHPO4	1.06906E-16	0.0	0.0	0.0
FEIIOH2	4.59617E-13	0.0	0.0	0.0
ALO2H2CL	6.34366E-30	0.0	0.0	0.0
H3PO4	2.42732E-16	0.0	0.0	0.0
H4P2O7	1.69069E-30	0.0	0.0	0.0
ALOH3	2.90620E-11	0.0	0.0	0.0
BACO3	3.94782E-16	0.0	0.0	0.0
KCL	6.42515E-06	0.0	0.0	0.0
KHSO4	1.49461E-12	0.0	0.0	0.0
BASO4	9.21084E-13	5.83022E-07	0.0	0.0
MGCO3	7.40747E-11	0.0	0.0	0.0
MGH2SIO4	1.43972E-09	0.0	0.0	0.0
MGHPO4	2.06007E-09	0.0	0.0	0.0
MGSO4	3.65074E-06	0.0	0.0	0.0
NAHCO3	2.71487E-09	0.0	0.0	0.0
NAHSIO3	1.53736E-06	0.0	0.0	0.0
NANO3	1.23920E-04	0.0	0.0	0.0
NIOH2	2.09348E-12	1.29197E-06	0.0	0.0
NISO4	5.11833E-10	0.0	0.0	0.0
PBCL2	1.15048E-07	0.0	0.0	0.0
PBHPO4	2.12365E-14	0.0	0.0	0.0
PBNO32	2.38004E-09	0.0	0.0	0.0
PBO	8.01172E-10	0.0	0.0	0.0
CACL2	1.62934E-15	0.0	0.0	0.0
SIO2	3.97116E-06	1.50895E-04	0.0	0.0

CACO3	2.31711E-11	0.0	0.0	0.0
SRHPO4	3.67409E-14	0.0	0.0	0.0
SRNO32	2.74753E-08	0.0	0.0	0.0
SRSO4	8.68924E-09	1.69661E-05	0.0	0.0
UIVOH4	1.08368E-12	0.0	0.0	0.0
ZNCL2	3.94652E-06	0.0	0.0	0.0
ZNHPO4	2.27496E-12	0.0	0.0	0.0
ZNNO32	1.17059E-09	0.0	0.0	0.0
ZNOH2	3.25219E-08	0.0	0.0	0.0
OHION	1.52535E-08	0.0	0.0	0.0
ALION	1.72695E-21	0.0	0.0	0.0
ALOH2ION	2.05332E-14	0.0	0.0	0.0
ALOH4ION	5.43938E-09	0.0	0.0	0.0
ALOHCLION	4.81481E-17	0.0	0.0	0.0
ALOHION	1.25146E-17	0.0	0.0	0.0
ALSO42ION	3.47714E-21	0.0	0.0	0.0
ALSO4ION	8.20164E-21	0.0	0.0	0.0
BAHCO3ION	3.58529E-14	0.0	0.0	0.0
BAION	9.20856E-10	0.0	0.0	0.0
BAOHION	8.22836E-15	0.0	0.0	0.0
CACLION	4.09695E-08	0.0	0.0	0.0
CAH2PO4ION	9.60553E-12	0.0	0.0	0.0
CAHCO3ION	6.21605E-11	0.0	0.0	0.0
CAHSIO3ION	8.21871E-09	0.0	0.0	0.0
CAION	9.69012E-06	0.0	0.0	0.0
CANO3ION	3.67905E-06	0.0	0.0	0.0
CAOHION	1.65087E-09	0.0	0.0	0.0
CAPO4ION	3.12794E-11	0.0	0.0	0.0
CDCL3ION	1.46702E-08	0.0	0.0	0.0
CDCL4ION	3.84474E-09	0.0	0.0	0.0
CDCLION	9.19493E-10	0.0	0.0	0.0
CDION	1.77989E-11	0.0	0.0	0.0
CDNO3ION	4.21555E-12	0.0	0.0	0.0
CDOH3ION	6.15446E-18	0.0	0.0	0.0
CDOH4ION	5.78509E-22	0.0	0.0	0.0
CDOHION	4.25880E-13	0.0	0.0	0.0
CLION	0.00209468	0.0	0.0	0.0
CO3ION	4.14855E-11	0.0	0.0	0.0
CRIIIICL2ION	8.04905E-16	0.0	0.0	0.0
CRIIIICLION	1.85289E-15	0.0	0.0	0.0
CRIIIH2PO4ION	2.09213E-20	0.0	0.0	0.0
CRIIIHPO4ION	8.79574E-09	0.0	0.0	0.0
CRIIIIION	5.11800E-19	0.0	0.0	0.0
CRIIINO3ION	2.83918E-13	0.0	0.0	0.0
CROH2ION	5.81135E-13	0.0	0.0	0.0
CROH4ION	8.15587E-14	0.0	0.0	0.0
CROHION	2.60134E-10	0.0	0.0	0.0
CRSO4ION	8.43097E-12	0.0	0.0	0.0
CUCL3ION	2.13245E-12	0.0	0.0	0.0
CUCLION	8.55316E-10	0.0	0.0	0.0
CUCO32ION	2.40202E-17	0.0	0.0	0.0
CUION	2.39428E-10	0.0	0.0	0.0
CUNO3ION	3.54428E-11	0.0	0.0	0.0
CUOH3ION	8.13586E-12	0.0	0.0	0.0
CUOH4ION	1.82274E-14	0.0	0.0	0.0
CUOHION	6.61459E-10	0.0	0.0	0.0
DODECION	3.16278E-06	0.0	0.0	0.0
FEIICLION	2.94280E-12	0.0	0.0	0.0

FEIICO32ION	1.29957E-19	0.0	0.0	0.0
FEIIH2PO4ION	1.21581E-17	0.0	0.0	0.0
FEIIHCO3ION	4.90154E-17	0.0	0.0	0.0
FEIIION	3.61861E-10	0.0	0.0	0.0
FEIIOH3ION	9.62746E-15	0.0	0.0	0.0
FEIIOH4ION	2.54081E-19	0.0	0.0	0.0
FEIIOHION	3.48336E-11	0.0	0.0	0.0
H2P2O7ION	8.46229E-19	0.0	0.0	0.0
H2PO4ION	5.08588E-11	0.0	0.0	0.0
H2SIO4ION	7.85532E-12	0.0	0.0	0.0
H3P2O7ION	9.91442E-25	0.0	0.0	0.0
H3SIO4ION	4.74023E-07	0.0	0.0	0.0
HCO3ION	1.84753E-09	0.0	0.0	0.0
HION	5.75886E-11	0.0	0.0	0.0
HP2O7ION	1.56469E-17	0.0	0.0	0.0
HPBO2ION	7.98558E-12	0.0	0.0	0.0
HPO4ION	5.23140E-10	0.0	0.0	0.0
HSO4ION	2.80365E-10	0.0	0.0	0.0
KION	3.23039E-04	0.0	0.0	0.0
KSO4ION	2.22741E-05	0.0	0.0	0.0
MGH2PO4ION	2.07577E-11	0.0	0.0	0.0
MGHCO3ION	8.18751E-10	0.0	0.0	0.0
MGHSIO3ION	1.03645E-07	0.0	0.0	0.0
MGION	2.68458E-05	0.0	0.0	0.0
MGOHION	8.79443E-08	0.0	0.0	0.0
MGP2O7ION	8.89815E-14	0.0	0.0	0.0
MGPO4ION	2.25681E-10	0.0	0.0	0.0
NACO3ION	6.66262E-12	0.0	0.0	0.0
NAION	0.00226641	0.0	0.0	0.0
NASO4ION	2.21505E-13	0.0	0.0	0.0
NICLION	1.54115E-10	0.0	0.0	0.0
NIION	1.81544E-09	0.0	0.0	0.0
NINO3ION	2.26657E-10	0.0	0.0	0.0
NIOH3ION	5.29422E-15	0.0	0.0	0.0
NIOHION	5.22840E-11	0.0	0.0	0.0
NO3ION	3.39907E-04	0.0	0.0	0.0
P2O7ION	3.04580E-18	0.0	0.0	0.0
PBCL3ION	2.46053E-07	0.0	0.0	0.0
PBCL4ION	1.82272E-06	0.0	0.0	0.0
PBCLION	3.21393E-08	0.0	0.0	0.0
PBH2PO4ION	1.18148E-15	0.0	0.0	0.0
PBION	1.18817E-09	0.0	0.0	0.0
PBNO33ION	7.25594E-11	0.0	0.0	0.0
PBNO3ION	7.92409E-09	0.0	0.0	0.0
PBOHION	1.95221E-08	0.0	0.0	0.0
PO4ION	8.04226E-14	0.0	0.0	0.0
SO4ION	1.05711E-04	0.0	0.0	0.0
SRION	3.72064E-09	0.0	0.0	0.0
SRNO3ION	1.17374E-07	0.0	0.0	0.0
SROHION	1.23354E-11	0.0	0.0	0.0
SRPO4ION	7.10798E-15	0.0	0.0	0.0
UIVOH2ION	5.58314E-26	0.0	0.0	0.0
UIVOH3ION	1.70374E-20	0.0	0.0	0.0
UIVOH5ION	1.03006E-14	0.0	0.0	0.0
UIVOHION	1.08377E-30	0.0	0.0	0.0
ZNCL3ION	4.88884E-06	0.0	0.0	0.0
ZNCLION	8.75666E-06	0.0	0.0	0.0
ZNH2PO4ION	6.15416E-14	0.0	0.0	0.0

ZNHCO3ION	2.03770E-12	0.0	0.0	0.0
ZNION	5.36005E-07	0.0	0.0	0.0
ZNNO3ION	4.81247E-08	0.0	0.0	0.0
ZNOH3ION	1.29088E-09	0.0	0.0	0.0
ZNOH4ION	1.01438E-12	0.0	0.0	0.0
ZNOHION	4.21867E-06	0.0	0.0	0.0
ALOOH	0.0	2.86232E-06	0.0	0.0
CA3PO42	0.0	8.96701E-05	0.0	0.0
CHAMOSITE7A	0.0	4.30108E-05	0.0	0.0
MG3PO42	0.0	1.31312E-05	0.0	0.0
MGOH2	0.0	2.59133E-04	0.0	0.0
PB3PO42	0.0	2.49104E-07	0.0	0.0
UIVO2	0.0	2.89917E-06	0.0	0.0
ZN3PO42.2H2O	0.0	2.20740E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	1.06401	0.156425	0.0	0.0
Volume, L/hr	9.93763E-04	4.75020E-05	0.0	0.0
Enthalpy, cal/hr	-3547.01	-438.537	0.0	0.0
Density, g/L	1070.69	3293.02		
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	182.086			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.484794			
E-Con, cm2/ohm-mol	55.4865			
Abs Visc, cP	0.402037			
Rel Visc	1.47583			
Ionic Strength	3.2353			

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PROCESS:AWE85_4

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	8.95999			
Total mol/hr	0.05298368	0.00108555	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.047421	0.0	0.0	0.0
CO2	9.21121E-13	0.0	0.0	0.0
H2SO4	0.0	0.0	0.0	0.0
HCL	6.23200E-19	0.0	0.0	0.0
HNO3	6.12888E-15	0.0	0.0	0.0
LAURICACID	7.40459E-11	0.0	0.0	0.0
CAH2SIO4	2.42870E-09	0.0	0.0	0.0
CASO4	7.45691E-07	0.0	0.0	0.0
CDCL2	6.53813E-09	0.0	0.0	0.0
CDOH2	3.70293E-15	0.0	0.0	0.0
CDSO4	1.98539E-12	0.0	0.0	0.0
CROH3	4.93855E-10	7.82916E-08	0.0	0.0
CUCL2	5.04194E-12	0.0	0.0	0.0
CUCO3	8.57765E-14	0.0	0.0	0.0
CUNO32	2.34256E-14	0.0	0.0	0.0
CUOH2	2.85489E-09	5.19392E-06	0.0	0.0
FEIICL2	1.59864E-16	0.0	0.0	0.0
FEIICO3	3.13007E-14	0.0	0.0	0.0
FEIIHPO4	3.34756E-18	0.0	0.0	0.0
FEIIOH2	1.30394E-14	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	2.13378E-20	0.0	0.0	0.0
ALOH3	1.15477E-12	2.86671E-06	0.0	0.0
BACO3	1.07690E-16	0.0	0.0	0.0
KCL	1.48056E-06	0.0	0.0	0.0
KHSO4	1.14209E-15	0.0	0.0	0.0
BASO4	9.89688E-14	5.82265E-07	0.0	0.0
MGCO3	9.11298E-10	0.0	0.0	0.0
MGH2SIO4	2.41388E-07	0.0	0.0	0.0
MGHPO4	6.20278E-10	0.0	0.0	0.0
MGSO4	1.33640E-05	0.0	0.0	0.0
NAHCO3	2.60249E-10	0.0	0.0	0.0
NAHSIO3	2.37394E-05	0.0	0.0	0.0
NANO3	3.93349E-05	0.0	0.0	0.0
NIOH2	3.05550E-12	1.29383E-06	0.0	0.0
NISO4	6.04106E-11	0.0	0.0	0.0
PBCL2	6.91999E-09	0.0	0.0	0.0
PBHPO4	4.68619E-16	0.0	0.0	0.0
PBNO32	2.93492E-11	0.0	0.0	0.0
PBO	1.30298E-10	0.0	0.0	0.0
CACL2	1.14878E-23	0.0	0.0	0.0
SIO2	1.05850E-06	1.30774E-04	0.0	0.0
CACO3	1.96407E-10	0.0	0.0	0.0
SRHPO4	4.89242E-15	0.0	0.0	0.0

SRNO32	1.18900E-08	0.0	0.0	0.0
SRSO4	2.07367E-08	1.59460E-05	0.0	0.0
UIVOH4	1.13582E-13	0.0	0.0	0.0
ZNCL2	8.54117E-09	0.0	0.0	0.0
ZNHPO4	3.69983E-14	0.0	0.0	0.0
ZNNO32	6.98213E-11	0.0	0.0	0.0
ZNOH2	3.91132E-09	2.89682E-05	0.0	0.0
OHION	7.06169E-09	0.0	0.0	0.0
ALION	9.07501E-23	0.0	0.0	0.0
ALOH2ION	6.48856E-16	0.0	0.0	0.0
ALOH4ION	7.16041E-10	0.0	0.0	0.0
ALOHCLION	1.78067E-18	0.0	0.0	0.0
ALOHION	2.85357E-19	0.0	0.0	0.0
ALSO42ION	1.04184E-22	0.0	0.0	0.0
ALSO4ION	2.19560E-22	0.0	0.0	0.0
BAHCO3ION	2.28194E-16	0.0	0.0	0.0
BAION	1.67775E-09	0.0	0.0	0.0
BAOHION	9.44075E-17	0.0	0.0	0.0
CACLION	4.76908E-11	0.0	0.0	0.0
CAH2PO4ION	1.25495E-13	0.0	0.0	0.0
CAHCO3ION	8.39094E-11	0.0	0.0	0.0
CAHSIO3ION	4.75884E-08	0.0	0.0	0.0
CAION	2.22874E-05	0.0	0.0	0.0
CANO3ION	8.57126E-06	0.0	0.0	0.0
CAOHION	1.06705E-09	0.0	0.0	0.0
CAPO4ION	3.13772E-10	0.0	0.0	0.0
CDCL3ION	2.39756E-09	0.0	0.0	0.0
CDCL4ION	2.63463E-08	0.0	0.0	0.0
CDCLION	4.09889E-10	0.0	0.0	0.0
CDION	1.79166E-11	0.0	0.0	0.0
CDNO3ION	2.39814E-12	0.0	0.0	0.0
CDOH3ION	1.59934E-18	0.0	0.0	0.0
CDOH4ION	6.29356E-23	0.0	0.0	0.0
CDOHION	1.41352E-13	0.0	0.0	0.0
CLION	0.00213781	0.0	0.0	0.0
CO3ION	4.81661E-10	0.0	0.0	0.0
CRIII2ION	1.11127E-17	0.0	0.0	0.0
CRIIIION	2.01374E-17	0.0	0.0	0.0
CRIIH2PO4ION	4.42604E-22	0.0	0.0	0.0
CRIIHPO4ION	1.78935E-14	0.0	0.0	0.0
CRIIION	2.92544E-20	0.0	0.0	0.0
CRIIINO3ION	1.90320E-15	0.0	0.0	0.0
CROH2ION	4.47950E-13	0.0	0.0	0.0
CROH4ION	1.76364E-11	0.0	0.0	0.0
CROHION	4.25994E-11	0.0	0.0	0.0
CRSO4ION	8.15133E-14	0.0	0.0	0.0
CUCL3ION	8.01203E-14	0.0	0.0	0.0
CUCLION	1.47858E-11	0.0	0.0	0.0
CUCO32ION	1.49321E-16	0.0	0.0	0.0
CUION	1.40378E-11	0.0	0.0	0.0
CUNO3ION	2.15383E-12	0.0	0.0	0.0
CUOH3ION	4.50442E-12	0.0	0.0	0.0
CUOH4ION	2.88100E-15	0.0	0.0	0.0
CUOHION	4.82995E-11	0.0	0.0	0.0
DODECION	3.16335E-06	0.0	0.0	0.0
FEIION	5.79634E-14	0.0	0.0	0.0
FEIICO32ION	1.17514E-18	0.0	0.0	0.0
FEI2H2PO4ION	2.85615E-20	0.0	0.0	0.0

FEIIHCO3ION	2.17508E-18	0.0	0.0	0.0
FEIIION	4.25053E-11	0.0	0.0	0.0
FEIIOH3ION	1.44798E-15	0.0	0.0	0.0
FEIIOH4ION	1.33065E-20	0.0	0.0	0.0
FEIIOHION	5.02752E-12	0.0	0.0	0.0
H2P2O7ION	7.33389E-24	0.0	0.0	0.0
H2PO4ION	6.55945E-13	0.0	0.0	0.0
H2SIO4ION	2.40697E-10	0.0	0.0	0.0
H3P2O7ION	0.0	0.0	0.0	0.0
H3SIO4ION	2.21536E-07	0.0	0.0	0.0
HCO3ION	1.29974E-09	0.0	0.0	0.0
HION	8.29014E-13	0.0	0.0	0.0
HP2O7ION	1.00406E-20	0.0	0.0	0.0
HPBO2ION	3.06512E-12	0.0	0.0	0.0
HPO4ION	3.96000E-10	0.0	0.0	0.0
HSO4ION	7.10685E-13	0.0	0.0	0.0
KION	3.34644E-04	0.0	0.0	0.0
KSO4ION	1.56146E-05	0.0	0.0	0.0
MGH2PO4ION	1.65830E-12	0.0	0.0	0.0
MGHCO3ION	2.24904E-09	0.0	0.0	0.0
MGHSIO3ION	9.04093E-07	0.0	0.0	0.0
MGION	9.39469E-05	0.0	0.0	0.0
MGOHION	1.05134E-07	0.0	0.0	0.0
MGP2O7ION	1.09292E-15	0.0	0.0	0.0
MGPO4ION	4.31908E-09	0.0	0.0	0.0
NACO3ION	2.44996E-10	0.0	0.0	0.0
NAION	0.00227874	0.0	0.0	0.0
NASO4ION	5.00583E-05	0.0	0.0	0.0
NICLION	2.44156E-11	0.0	0.0	0.0
NIION	6.51178E-10	0.0	0.0	0.0
NINO3ION	1.39903E-10	0.0	0.0	0.0
NIOH3ION	9.68434E-14	0.0	0.0	0.0
NIOHION	1.28376E-11	0.0	0.0	0.0
NO3ION	4.19703E-04	0.0	0.0	0.0
P2O7ION	6.09572E-19	0.0	0.0	0.0
PBCL3ION	1.75620E-08	0.0	0.0	0.0
PBCL4ION	3.21733E-07	0.0	0.0	0.0
PBCLION	2.55140E-09	0.0	0.0	0.0
PBH2PO4ION	7.96812E-19	0.0	0.0	0.0
PBION	1.76868E-10	0.0	0.0	0.0
PBNO33ION	5.68298E-12	0.0	0.0	0.0
PBNO3ION	3.65577E-10	0.0	0.0	0.0
PBOHION	8.94715E-10	0.0	0.0	0.0
PO4ION	1.79439E-12	0.0	0.0	0.0
SO4ION	1.15226E-04	0.0	0.0	0.0
SRION	1.04008E-06	0.0	0.0	0.0
SRNO3ION	1.04602E-07	0.0	0.0	0.0
SROHION	3.26311E-12	0.0	0.0	0.0
SRPO4ION	2.34506E-14	0.0	0.0	0.0
UIVOH2ION	1.23845E-28	0.0	0.0	0.0
UIVOH3ION	4.22601E-21	0.0	0.0	0.0
UIVOH5ION	1.83348E-14	0.0	0.0	0.0
ZNCL3ION	1.50630E-08	0.0	0.0	0.0
ZNCLION	1.02048E-08	0.0	0.0	0.0
ZNH2PO4ION	5.13894E-17	0.0	0.0	0.0
ZNHCO3ION	7.11291E-14	0.0	0.0	0.0
ZNION	3.79511E-08	0.0	0.0	0.0
ZNNO3ION	3.68697E-09	0.0	0.0	0.0

ZNOH3ION	7.65316E-11	0.0	0.0	0.0
ZNOH4ION	1.23277E-13	0.0	0.0	0.0
ZNOHION	4.25068E-09	0.0	0.0	0.0
CA3PO42	0.0	1.04379E-04	0.0	0.0
CASO4.2H2O	0.0	5.28027E-04	0.0	0.0
CHAMOSITE7A	0.0	4.30108E-05	0.0	0.0
MGOH2	0.0	2.20649E-04	0.0	0.0
PB3PO42	0.0	8.81600E-07	0.0	0.0
UIVO2	0.0	2.89916E-06	0.0	0.0
=====				
Total g/hr	1.05342	0.167014	0.0	0.0
Volume, L/hr	9.23975E-04	5.55172E-05	0.0	0.0
Enthalpy, cal/hr	-3573.27	-485.068	0.0	0.0
Density, g/L	1140.1	3008.32		
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	173.064			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.19062			
E-Con, cm2/ohm-mol	30.4352			
Abs Visc, cP	1.30298			
Rel Visc	1.46284			
Ionic Strength	3.61777			

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.53057			
Total mol/hr	55.43837	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4371	0.0	0.0	0.0
CO2	0.00118168	0.0	0.0	0.0
HCL	3.37278E-20	0.0	0.0	0.0
HNO3	5.20516E-16	0.0	0.0	0.0
LAURICACID	2.71982E-05	0.0	0.0	0.0
OHION	3.45885E-10	0.0	0.0	0.0
CLION	1.94423E-09	0.0	0.0	0.0
CO3ION	2.97470E-11	0.0	0.0	0.0
DODECION	1.13066E-05	0.0	0.0	0.0
HCO3ION	1.83139E-05	0.0	0.0	0.0
HION	2.96232E-05	0.0	0.0	0.0
NO3ION	3.56607E-10	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	998.78	0.0	0.0	0.0
Volume, L/hr	1.00192	0.0	0.0	0.0
Enthalpy, cal/hr	-3.78721E+06	0.0	0.0	0.0
Density, g/L	996.866			
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	0.0309725			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.18071E-05			
E-Con, cm2/ohm-mol	9.55165			
Abs Visc, cP	0.89074			
Rel Visc	1.00002			
Ionic Strength	2.96615E-05			

=====
Block Heat Duties
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Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	6.17162D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-7.27961D+01
MIX	CONDENSATE MIXER	-6.17081D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

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Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.999054

Standard Block Information

Duty, cal/hr 617162.

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	2.27374E-16
Total Energy cal/hr	-3.79128E+06	-3.17412E+06	0.0

Mix Output

Outlet Temperature, C 103.192
 Outlet Pressure, atm 1.
 Aqueous pH 7.28381
 V/F (molar) 0.999054

	Outlet Flow		Outlet Enthalpy	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0512972	1.06401	9.93763E-04	-3547.01
Solid	0.00117804	0.156425	4.75020E-05	-438.537
Vapor	55.4384	998.78	1698.04	-3.17013E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4909	1000.	1698.04	-3.17412E+06

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

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Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification, atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type Adiabatic

Duty, cal/hr 0.0

Standard Block Information

Duty, cal/hr	0.0			
		In	Out	Rel. Diff.
Total Mass	g/hr	1000.	1000.	0.0
Total Energy	cal/hr	-3.17412E+06	-3.17412E+06	0.0

Separate Output

Outlet Temperature, C	103.192
Outlet Pressure, atm	1.
Aqueous pH	7.28381
Suspended Solids, g solid/g liq solution	0.147015
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0512972	1.06401	9.93763E-04	-3547.01
Solid	0.00117804	0.156425	4.75020E-05	-438.537
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0524752	1.22044	0.00104126	-3985.54

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.4384	998.78	1698.04	-3.17013E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4384	998.78	1698.04	-3.17013E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -72.7961

	In	Out	Rel. Diff.
Total Mass g/hr	1.22044	1.22044	9.09694E-16
Total Energy cal/hr	-3985.54	-4058.34	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 8.95999
 V/F (molar) 0.0

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0503333	1.05342	9.23975E-04	-3573.27
Solid	0.00108555	0.167014	5.55172E-05	-485.068
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0514188	1.22044	9.79493E-04	-4058.34

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PROCESS:AWE85_4

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -6.17081E+05

	In	Out	Rel. Diff.
Total Mass g/hr	998.78	998.78	0.0
Total Energy cal/hr	-3.17013E+06	-3.78721E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.53057
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	55.4384	998.78	1.00192	-3.78721E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	55.4384	998.78	1.00192	-3.78721E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance      Default Tolerance
Specification Value
  Composition,weight fraction  0.7
  Species
  H2O
Controlled block           Mix: Evap mixer
Control Parameter          Vapor Fraction
Control Parameter Minimum   0.0
Control Parameter Maximum   0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations         20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:      Total
Specification Composition: Solution Species
```

Controller Output

```
-----
Specification Stream      Cooled Bottoms
Controlled Block          Evap mixer
Control Parameter Type:   General Process Variable
Convergence:              Converged
Iterations Completed this Sequence      13.
Total Iterations Completed all Sequences 13.
Last Parameter Value              0.999054
Last DIFF (Computed-Setpoint)       5.41038E-07
Previous Parameter Value            0.999054
Previous DIFF (Computed-Setpoint)    -9.24865E-05
Control Parameter Minimum            0.999047
Control Parameter Maximum            0.999054
Control Parameter Stepsize           0.0
Maximum Iterations                  0.0
```


Influent Limit Composition 80% Target pH=8.5
8.5-80

=====

```
      O   O   O           L           I I I I
    O     O           L           I
  O     O     O       L           I
O     O     O     O   L           I
O     O     O     O   L           I
O     O     O     O   L           I
  O     O     O     O   L           I
    O     O     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 September 1, 2002

PROCESS: AWE85_5

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE85_5.LIS

DATE: 12/05/2002

=====

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	5.00272D+02	-1.89611D+06
Total in	5.00272D+02	-1.89611D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	1.60989D+00	-5.32258D+03
CONDENSATE	4.98663D+02	-1.89077D+06
Total out	5.00272D+02	-1.89610D+06

Block Heat Duties	cal/hr
EVAP MIXER	3.08234D+05
EVAP BOTTOMS COOLING MIXER	-9.63814D+01
CONDENSATE MIXER	-3.08128D+05
Total Duty	9.18771D+00

DIFFERENCE	4.54747D-13	0.00000D+00
REL DIFFERENCE	9.08999D-16	0.00000D+00

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	5.54798D+01	5.54798D+01	4.26326D-14	7.68434D-16
K(+1)	5.20236D-04	5.20236D-04	4.33681D-19	8.33623D-16
NA(+1)	3.53767D-03	3.53767D-03	4.33681D-19	1.22589D-16
BA(+2)	6.71533D-07	6.71533D-07	2.11758D-22	3.15336D-16
CA(+2)	9.97506D-04	9.97506D-04	-2.16840D-19	-2.17383D-16
ZN(+2)	3.82263D-05	3.82263D-05	0.00000D+00	0.00000D+00
CU(+2)	6.77165D-06	6.77165D-06	0.00000D+00	0.00000D+00
FE(+2)	1.02150D-04	1.02150D-04	2.71051D-20	2.65344D-16
MG(+2)	3.78601D-04	3.78601D-04	1.08420D-19	2.86371D-16
PB(+2)	3.42995D-06	3.42995D-06	3.38813D-21	9.87808D-16
AL(+3)	1.03704D-04	1.03704D-04	0.00000D+00	0.00000D+00
NI(+2)	1.49915D-06	1.49915D-06	-2.11758D-22	-1.41252D-16
O(-2)	2.77510D+01	2.77510D+01	2.48690D-14	8.96147D-16
CL(-1)	2.81690D-03	2.81690D-03	4.77049D-18	1.69352D-15
C(+4)	1.50000D-03	1.50000D-03	-1.51788D-18	-1.01192D-15
P(+5)	2.63158D-04	2.63158D-04	0.00000D+00	0.00000D+00
S(+6)	9.58333D-04	9.58333D-04	1.08420D-19	1.13134D-16
N(+5)	7.25807D-04	7.25807D-04	-5.42101D-19	-7.46894D-16
SI(+4)	2.33333D-04	2.33333D-04	-2.71051D-20	-1.16165D-16
SR(+2)	2.16895D-05	2.16895D-05	3.38813D-21	1.56211D-16

CD (+2)	4.64286D-08	4.64286D-08	-4.03664D-22	-8.69430D-15
CR (+3)	1.21154D-07	1.21154D-07	-2.64698D-23	-2.18481D-16
U (+4)	4.20168D-06	4.20168D-06	0.00000D+00	0.00000D+00

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DODEC(-1)

5.57619D-05 5.57619D-05 1.07743D-18 1.93219D-14

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.69293			
Total mol/hr	27.75084	1.79950E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	27.7391	0.0	0.0	0.0
CO2	4.06004E-04	0.0	0.0	0.0
H2SO4	7.82980E-26	0.0	0.0	0.0
HCL	2.96506E-16	0.0	0.0	0.0
HNO3	6.37790E-12	0.0	0.0	0.0
LAURICACID	7.95431E-07	0.0	0.0	0.0
SO3	1.01381E-29	0.0	0.0	0.0
CAH2SIO4	3.46870E-12	0.0	0.0	0.0
CASO4	1.88392E-05	0.0	0.0	0.0
CDCL2	8.24872E-10	0.0	0.0	0.0
CDOH2	2.84297E-15	0.0	0.0	0.0
CDSO4	6.60825E-09	0.0	0.0	0.0
CROH3	8.03814E-13	0.0	0.0	0.0
CUCL2	3.26600E-13	0.0	0.0	0.0
CUCO3	1.27034E-08	0.0	0.0	0.0
CUNO32	4.54582E-15	0.0	0.0	0.0
CUOH2	1.12539E-09	0.0	0.0	0.0
FEIICL2	5.70810E-15	0.0	0.0	0.0
FEIICO3	2.55522E-06	2.05178E-05	0.0	0.0
FEIIHPO4	6.18267E-08	0.0	0.0	0.0
FEIIOH2	2.83331E-12	0.0	0.0	0.0
ALO2H2CL	5.73773E-29	0.0	0.0	0.0
H3PO4	2.40706E-09	0.0	0.0	0.0
H4P2O7	2.06228E-20	0.0	0.0	0.0
ALOH3	1.19860E-09	1.03701E-04	0.0	0.0
BACO3	9.68675E-12	0.0	0.0	0.0
KCL	1.84688E-08	0.0	0.0	0.0
KHSO4	1.72286E-13	0.0	0.0	0.0
BASO4	1.02726E-10	5.73454E-07	0.0	0.0
MGCO3	7.96406E-08	0.0	0.0	0.0
MGH2SIO4	1.37612E-11	0.0	0.0	0.0
MGHPO4	1.22640E-05	0.0	0.0	0.0
MGSO4	1.34768E-05	0.0	0.0	0.0
NAHCO3	2.33418E-06	0.0	0.0	0.0
NAHSIO3	1.22831E-07	0.0	0.0	0.0
NANO3	2.23268E-07	0.0	0.0	0.0
NIOH2	1.92588E-12	0.0	0.0	0.0
NISO4	1.65072E-07	0.0	0.0	0.0
PBCL2	6.62673E-12	0.0	0.0	0.0
PBHPO4	2.32123E-10	0.0	0.0	0.0
PBNO32	8.41962E-14	0.0	0.0	0.0
PBO	6.71513E-13	0.0	0.0	0.0
CACL2	1.10010E-26	0.0	0.0	0.0
SIO2	2.33016E-04	0.0	0.0	0.0

CACO3	4.30015E-07	0.0	0.0	0.0
SRHPO4	1.07235E-08	0.0	0.0	0.0
SRNO32	1.50936E-10	0.0	0.0	0.0
SRSO4	2.31824E-06	0.0	0.0	0.0
UIVOH4	1.50743E-10	0.0	0.0	0.0
UIVSO42	2.16787E-28	0.0	0.0	0.0
ZNCL2	7.56634E-10	0.0	0.0	0.0
ZNHPO4	1.69533E-06	0.0	0.0	0.0
ZNNO32	1.85293E-11	0.0	0.0	0.0
ZNOH2	2.10856E-09	0.0	0.0	0.0
OHION	2.85200E-08	0.0	0.0	0.0
ALION	1.31808E-13	0.0	0.0	0.0
ALOH2ION	5.09784E-11	0.0	0.0	0.0
ALOH4ION	1.69885E-09	0.0	0.0	0.0
ALOHCLION	3.66616E-14	0.0	0.0	0.0
ALOHION	3.35223E-12	0.0	0.0	0.0
ALSO42ION	3.93426E-15	0.0	0.0	0.0
ALSO4ION	4.84664E-14	0.0	0.0	0.0
BAHCO3ION	1.13488E-09	0.0	0.0	0.0
BAION	9.68298E-08	0.0	0.0	0.0
BAOHION	1.70943E-15	0.0	0.0	0.0
CACLION	6.41574E-11	0.0	0.0	0.0
CAH2PO4ION	3.43910E-06	0.0	0.0	0.0
CAHCO3ION	1.12166E-05	0.0	0.0	0.0
CAHSIO3ION	3.32588E-09	0.0	0.0	0.0
CAION	8.24039E-04	0.0	0.0	0.0
CANO3ION	1.84095E-06	0.0	0.0	0.0
CAOHION	4.69043E-10	0.0	0.0	0.0
CAPO4ION	2.55370E-07	0.0	0.0	0.0
CDCL3ION	2.24273E-13	0.0	0.0	0.0
CDCL4ION	9.13687E-16	0.0	0.0	0.0
CDCLION	8.97098E-09	0.0	0.0	0.0
CDION	2.99482E-08	0.0	0.0	0.0
CDNO3ION	6.78686E-11	0.0	0.0	0.0
CDOH3ION	2.24590E-21	0.0	0.0	0.0
CDOH4ION	8.08287E-29	0.0	0.0	0.0
CDOHION	8.18657E-12	0.0	0.0	0.0
CLION	0.00281671	0.0	0.0	0.0
CO3ION	3.63451E-07	0.0	0.0	0.0
CRIIIICL2ION	1.45437E-19	0.0	0.0	0.0
CRIIIICLION	2.41123E-16	0.0	0.0	0.0
CRIIIH2PO4ION	8.28481E-14	0.0	0.0	0.0
CRIIIHPO4ION	1.21117E-07	0.0	0.0	0.0
CRIIIIION	2.38365E-14	0.0	0.0	0.0
CRIIINO3ION	3.71142E-15	0.0	0.0	0.0
CROH2ION	5.50421E-14	0.0	0.0	0.0
CROH4ION	5.25035E-17	0.0	0.0	0.0
CROHION	6.32950E-12	0.0	0.0	0.0
CRSO4ION	2.90431E-11	0.0	0.0	0.0
CUCL3ION	3.84802E-18	0.0	0.0	0.0
CUCLION	1.66152E-10	0.0	0.0	0.0
CUCO32ION	1.39218E-11	0.0	0.0	0.0
CUION	9.29193E-09	0.0	0.0	0.0
CUNO3ION	2.86233E-11	0.0	0.0	0.0
CUOH3ION	3.43721E-15	0.0	0.0	0.0
CUOH4ION	1.90303E-21	0.0	0.0	0.0
CUOHION	1.43628E-09	0.0	0.0	0.0
DODECION	5.49665E-05	0.0	0.0	0.0

FEIICLION	3.59036E-10	0.0	0.0	0.0
FEIICO32ION	6.09771E-11	0.0	0.0	0.0
FEIIH2PO4ION	2.91842E-08	0.0	0.0	0.0
FEIIHCO3ION	1.41194E-08	0.0	0.0	0.0
FEIIION	7.88893E-05	0.0	0.0	0.0
FEIIOH3ION	6.32285E-16	0.0	0.0	0.0
FEIIOH4ION	4.83482E-24	0.0	0.0	0.0
FEIIOHION	8.24598E-08	0.0	0.0	0.0
H2P2O7ION	1.11461E-10	0.0	0.0	0.0
H2PO4ION	9.64959E-05	0.0	0.0	0.0
H2SIO4ION	1.10679E-13	0.0	0.0	0.0
H3P2O7ION	3.31378E-15	0.0	0.0	0.0
H3SIO4ION	1.88514E-07	0.0	0.0	0.0
HCO3ION	0.00104005	0.0	0.0	0.0
HION	1.15531E-07	0.0	0.0	0.0
HP2O7ION	2.69249E-10	0.0	0.0	0.0
HPBO2ION	4.25078E-17	0.0	0.0	0.0
HPO4ION	4.47688E-05	0.0	0.0	0.0
HSO4ION	1.13390E-08	0.0	0.0	0.0
KION	5.16182E-04	0.0	0.0	0.0
KSO4ION	4.03562E-06	0.0	0.0	0.0
MGH2PO4ION	1.81397E-06	0.0	0.0	0.0
MGHCO3ION	1.56153E-05	0.0	0.0	0.0
MGHSIO3ION	2.52212E-09	0.0	0.0	0.0
MGION	3.35194E-04	0.0	0.0	0.0
MGOHION	1.84607E-09	0.0	0.0	0.0
MGP2O7ION	2.71716E-09	0.0	0.0	0.0
MGPO4ION	1.49454E-07	0.0	0.0	0.0
NACO3ION	5.22967E-09	0.0	0.0	0.0
NAION	0.00350481	0.0	0.0	0.0
NASO4ION	3.01813E-05	0.0	0.0	0.0
NICLION	4.38692E-10	0.0	0.0	0.0
NIION	1.32977E-06	0.0	0.0	0.0
NINO3ION	3.25042E-09	0.0	0.0	0.0
NIOH3ION	1.11644E-16	0.0	0.0	0.0
NIOHION	6.10857E-10	0.0	0.0	0.0
NO3ION	7.23573E-04	0.0	0.0	0.0
P2O7ION	1.72366E-12	0.0	0.0	0.0
PBCL3ION	1.83453E-14	0.0	0.0	0.0
PBCL4ION	8.56782E-17	0.0	0.0	0.0
PBCLION	4.23970E-10	0.0	0.0	0.0
PBH2PO4ION	2.18361E-11	0.0	0.0	0.0
PBION	4.70897E-09	0.0	0.0	0.0
PBNO33ION	2.09219E-17	0.0	0.0	0.0
PBNO3ION	7.85300E-11	0.0	0.0	0.0
PBOHION	3.93329E-10	0.0	0.0	0.0
PO4ION	2.06772E-10	0.0	0.0	0.0
SO4ION	8.88725E-04	0.0	0.0	0.0
SRION	1.92677E-05	0.0	0.0	0.0
SRNO3ION	9.26073E-08	0.0	0.0	0.0
SROHION	4.12798E-12	0.0	0.0	0.0
SRPO4ION	8.32086E-11	0.0	0.0	0.0
UIVION	0.0	0.0	0.0	0.0
UIVOH2ION	1.28162E-21	0.0	0.0	0.0
UIVOH3ION	3.94016E-16	0.0	0.0	0.0
UIVOH5ION	4.45068E-14	0.0	0.0	0.0
UIVOHION	7.58308E-26	0.0	0.0	0.0
UIVSO4ION	4.94799E-29	0.0	0.0	0.0

ZNCL3ION	1.45559E-12	0.0	0.0	0.0
ZNCLION	1.56826E-07	0.0	0.0	0.0
ZNH2PO4ION	1.30277E-07	0.0	0.0	0.0
ZNHCO3ION	7.97109E-07	0.0	0.0	0.0
ZNION	2.99922E-05	0.0	0.0	0.0
ZNNO3ION	7.32658E-08	0.0	0.0	0.0
ZNOH3ION	1.17501E-13	0.0	0.0	0.0
ZNOH4ION	1.12660E-19	0.0	0.0	0.0
ZNOHION	1.20375E-07	0.0	0.0	0.0
CA3PO42	0.0	4.58136E-05	0.0	0.0
CU3PO42.2H2O	0.0	2.24895E-06	0.0	0.0
PB3PO42	0.0	1.14136E-06	0.0	0.0
UIVO2	0.0	4.20151E-06	0.0	0.0
ZN3PO42.2H2O	0.0	1.75265E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	500.244	0.028548	0.0	0.0
Volume, L/hr	0.501428	8.65328E-06	0.0	0.0
Enthalpy, cal/hr	-1.89602E+06	-84.0643	0.0	0.0
Density, g/L	997.638	3299.09		
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	0.621071			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.00143311			
E-Con, cm2/ohm-mol	119.881			
Abs Visc, cP	0.894055			
Rel Visc	1.00374			
Ionic Strength	0.0177239			

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PROCESS:AWE85_5

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.451	103.451	103.451	103.451
Pressure, atm	1.	1.	1.	1.
pH	7.38784			
Total mol/hr	0.07135988	0.00135427	27.6773	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0636844	0.0	27.67576	0.0
CO2	4.34201E-10	0.0	0.001499983	0.0
H2SO4	2.24966E-28	0.0	9.48482E-26	0.0
HCL	1.79891E-15	0.0	7.84407E-10	0.0
HNO3	1.50642E-12	0.0	1.64464E-10	0.0
LAURICACID	1.79187E-09	0.0	4.36678E-05	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	1.86733E-11	0.0	0.0	0.0
CASO4	6.37061E-07	6.27262E-04	0.0	0.0
CDCL2	2.01892E-08	0.0	0.0	0.0
CDOH2	7.47907E-14	0.0	0.0	0.0
CDSO4	6.56406E-12	0.0	0.0	0.0
CROH3	4.05833E-11	1.11556E-07	0.0	0.0
CUCL2	1.10640E-10	0.0	0.0	0.0
CUCO3	2.95200E-13	0.0	0.0	0.0
CUNO32	6.96337E-13	0.0	0.0	0.0
CUOH2	1.01088E-08	6.75976E-06	0.0	0.0
FEIICL2	1.13548E-14	0.0	0.0	0.0
FEIICO3	5.31362E-14	0.0	0.0	0.0
FEIIHPO4	1.32646E-16	0.0	0.0	0.0
FEIIOH2	5.82559E-13	0.0	0.0	0.0
ALO2H2CL	6.35432E-30	0.0	0.0	0.0
H3PO4	3.02023E-16	0.0	0.0	0.0
H4P2O7	2.10552E-30	0.0	0.0	0.0
ALOH3	3.65460E-11	0.0	0.0	0.0
BACO3	1.25076E-15	0.0	0.0	0.0
KCL	8.71176E-06	0.0	0.0	0.0
KHSO4	2.54571E-12	0.0	0.0	0.0
BASO4	1.17348E-12	6.70657E-07	0.0	0.0
MGCO3	2.30444E-10	0.0	0.0	0.0
MGH2SIO4	1.78567E-09	0.0	0.0	0.0
MGHPO4	2.55414E-09	0.0	0.0	0.0
MGSO4	4.52325E-06	0.0	0.0	0.0
NAHCO3	1.16776E-08	0.0	0.0	0.0
NAHSIO3	2.64890E-06	0.0	0.0	0.0
NANO3	2.11798E-04	0.0	0.0	0.0
NIOH2	2.63371E-12	1.49660E-06	0.0	0.0
NISO4	6.42945E-10	0.0	0.0	0.0
PBCL2	9.29030E-08	0.0	0.0	0.0
PBHPO4	2.66645E-14	0.0	0.0	0.0
PBNO32	2.51116E-09	0.0	0.0	0.0
PBO	1.03010E-09	0.0	0.0	0.0
CACL2	1.36404E-15	0.0	0.0	0.0
SIO2	5.19908E-06	1.73511E-04	0.0	0.0

CACO3	7.26897E-11	0.0	0.0	0.0
SRHPO4	4.58703E-14	0.0	0.0	0.0
SRNO32	2.86989E-08	0.0	0.0	0.0
SRSO4	1.09816E-08	2.15367E-05	0.0	0.0
UIVOH4	1.34872E-12	0.0	0.0	0.0
ZNCL2	3.20149E-06	0.0	0.0	0.0
ZNHPO4	2.84323E-12	0.0	0.0	0.0
ZNNO32	1.22405E-09	0.0	0.0	0.0
ZNOH2	4.12634E-08	0.0	0.0	0.0
OHION	2.50321E-08	0.0	0.0	0.0
ALION	1.09069E-21	0.0	0.0	0.0
ALOH2ION	2.11446E-14	0.0	0.0	0.0
ALOH4ION	9.32633E-09	0.0	0.0	0.0
ALOHCLION	4.01706E-17	0.0	0.0	0.0
ALOHION	9.87791E-18	0.0	0.0	0.0
ALSO42ION	5.76390E-21	0.0	0.0	0.0
ALSO4ION	8.40141E-21	0.0	0.0	0.0
BAHCO3ION	9.49527E-14	0.0	0.0	0.0
BAION	8.74076E-10	0.0	0.0	0.0
BAOHION	8.64824E-15	0.0	0.0	0.0
CACLION	3.95372E-08	0.0	0.0	0.0
CAH2PO4ION	1.00006E-11	0.0	0.0	0.0
CAHCO3ION	1.55488E-10	0.0	0.0	0.0
CAHSIO3ION	8.66800E-09	0.0	0.0	0.0
CAION	9.02446E-06	0.0	0.0	0.0
CANO3ION	3.45508E-06	0.0	0.0	0.0
CAOHION	1.72017E-09	0.0	0.0	0.0
CAPO4ION	5.26295E-11	0.0	0.0	0.0
CDCL3ION	1.95720E-08	0.0	0.0	0.0
CDCL4ION	5.42991E-09	0.0	0.0	0.0
CDCLION	1.20077E-09	0.0	0.0	0.0
CDION	2.31756E-11	0.0	0.0	0.0
CDNO3ION	6.21236E-12	0.0	0.0	0.0
CDOH3ION	1.62956E-17	0.0	0.0	0.0
CDOH4ION	2.05265E-21	0.0	0.0	0.0
CDOHION	6.85742E-13	0.0	0.0	0.0
CLION	0.00277442	0.0	0.0	0.0
CO3ION	2.31581E-10	0.0	0.0	0.0
CRIIIICL2ION	5.39856E-16	0.0	0.0	0.0
CRIIIICLION	4.50681E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.79499E-20	0.0	0.0	0.0
CRIIIHPO4ION	9.37721E-09	0.0	0.0	0.0
CRIIIIION	5.62589E-20	0.0	0.0	0.0
CRIIINO3ION	2.20116E-13	0.0	0.0	0.0
CROH2ION	6.08063E-13	0.0	0.0	0.0
CROH4ION	1.35798E-13	0.0	0.0	0.0
CROHION	1.70077E-10	0.0	0.0	0.0
CRSO4ION	8.58073E-12	0.0	0.0	0.0
CUCL3ION	1.83815E-12	0.0	0.0	0.0
CUCLION	7.24412E-10	0.0	0.0	0.0
CUCO32ION	3.35413E-16	0.0	0.0	0.0
CUION	1.99293E-10	0.0	0.0	0.0
CUNO3ION	3.40488E-11	0.0	0.0	0.0
CUOH3ION	1.38033E-11	0.0	0.0	0.0
CUOH4ION	4.16764E-14	0.0	0.0	0.0
CUOHION	6.97436E-10	0.0	0.0	0.0
DODECION	1.20924E-05	0.0	0.0	0.0
FEIICLION	2.47667E-12	0.0	0.0	0.0

FEIICO32ION	1.78873E-18	0.0	0.0	0.0
FEIIH2PO4ION	1.25717E-17	0.0	0.0	0.0
FEIIHCO3ION	1.27982E-16	0.0	0.0	0.0
FEIIION	3.04354E-10	0.0	0.0	0.0
FEIIOH3ION	1.65772E-14	0.0	0.0	0.0
FEIIOH4ION	5.79145E-19	0.0	0.0	0.0
FEIIOHION	3.60199E-11	0.0	0.0	0.0
H2P2O7ION	1.90460E-18	0.0	0.0	0.0
H2PO4ION	8.74013E-11	0.0	0.0	0.0
H2SIO4ION	1.77925E-11	0.0	0.0	0.0
H3P2O7ION	1.61286E-24	0.0	0.0	0.0
H3SIO4ION	7.80273E-07	0.0	0.0	0.0
HCO3ION	7.71356E-09	0.0	0.0	0.0
HION	6.04790E-11	0.0	0.0	0.0
HP2O7ION	4.30218E-17	0.0	0.0	0.0
HPBO2ION	1.32990E-11	0.0	0.0	0.0
HPO4ION	1.20700E-09	0.0	0.0	0.0
HSO4ION	4.62419E-10	0.0	0.0	0.0
KION	4.61072E-04	0.0	0.0	0.0
KSO4ION	5.04522E-05	0.0	0.0	0.0
MGH2PO4ION	2.13661E-11	0.0	0.0	0.0
MGHCO3ION	2.09549E-09	0.0	0.0	0.0
MGHSIO3ION	1.08471E-07	0.0	0.0	0.0
MGION	2.15352E-05	0.0	0.0	0.0
MGOHION	9.08930E-08	0.0	0.0	0.0
MGP2O7ION	1.98806E-13	0.0	0.0	0.0
MGPO4ION	3.79546E-10	0.0	0.0	0.0
NACO3ION	3.69506E-11	0.0	0.0	0.0
NAION	0.00332321	0.0	0.0	0.0
NASO4ION	3.92144E-13	0.0	0.0	0.0
NICLION	1.29786E-10	0.0	0.0	0.0
NIION	1.49902E-09	0.0	0.0	0.0
NINO3ION	2.14768E-10	0.0	0.0	0.0
NIOH3ION	8.89693E-15	0.0	0.0	0.0
NIOHION	5.49134E-11	0.0	0.0	0.0
NO3ION	5.10322E-04	0.0	0.0	0.0
P2O7ION	1.22128E-17	0.0	0.0	0.0
PBCL3ION	2.05078E-07	0.0	0.0	0.0
PBCL4ION	1.65430E-06	0.0	0.0	0.0
PBCLION	2.73174E-08	0.0	0.0	0.0
PBH2PO4ION	1.23910E-15	0.0	0.0	0.0
PBION	1.29408E-09	0.0	0.0	0.0
PBNO33ION	9.30935E-11	0.0	0.0	0.0
PBNO3ION	7.60984E-09	0.0	0.0	0.0
PBOHION	2.07438E-08	0.0	0.0	0.0
PO4ION	2.37021E-13	0.0	0.0	0.0
SO4ION	2.53239E-04	0.0	0.0	0.0
SRION	5.72314E-10	0.0	0.0	0.0
SRNO3ION	1.12544E-07	0.0	0.0	0.0
SROHION	1.30499E-11	0.0	0.0	0.0
SRPO4ION	1.19552E-14	0.0	0.0	0.0
UIVOH2ION	4.60321E-26	0.0	0.0	0.0
UIVOH3ION	1.73992E-20	0.0	0.0	0.0
UIVOH5ION	1.70497E-14	0.0	0.0	0.0
UIVOHION	0.0	0.0	0.0	0.0
ZNCL3ION	4.09188E-06	0.0	0.0	0.0
ZNCLION	7.48267E-06	0.0	0.0	0.0
ZNH2PO4ION	6.41653E-14	0.0	0.0	0.0

ZNHCO3ION	5.33856E-12	0.0	0.0	0.0
ZNION	4.52602E-07	0.0	0.0	0.0
ZNNO3ION	4.59099E-08	0.0	0.0	0.0
ZNOH3ION	2.12228E-09	0.0	0.0	0.0
ZNOH4ION	2.29426E-12	0.0	0.0	0.0
ZNOHION	4.49166E-06	0.0	0.0	0.0
ALOOH	0.0	1.54416E-06	0.0	0.0
CA3PO42	0.0	1.19026E-04	0.0	0.0
CHAMOSITE7A	0.0	5.10751E-05	0.0	0.0
MG3PO42	0.0	5.93559E-06	0.0	0.0
MGOH2	0.0	3.34529E-04	0.0	0.0
PB3PO42	0.0	4.72353E-07	0.0	0.0
UIVO2	0.0	4.20168E-06	0.0	0.0
ZN3PO42.2H2O	0.0	6.13848E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	1.4295	0.18039	498.663	0.0
Volume, L/hr	0.00132219	5.48580E-05	848.335	0.0
Enthalpy, cal/hr	-4719.19	-507.005	-1.58265E+06	0.0
Density, g/L	1081.16	3288.32	0.587813	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	196.506			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.501471			
E-Con, cm2/ohm-mol	58.4688			
Abs Visc, cP	0.421849			
Rel Visc	1.55267			
Ionic Strength	3.61561			

ESP V-6.6

PROCESS:AWE85_5

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.451	103.451	103.451	103.451
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	27.6773	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	27.67576	0.0
CO2	0.0	0.0	0.001499983	0.0
H2SO4	0.0	0.0	9.48482E-26	0.0
HCL	0.0	0.0	7.84407E-10	0.0
HNO3	0.0	0.0	1.64464E-10	0.0
LAURICACID	0.0	0.0	4.36678E-05	0.0
SO3	0.0	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	498.663	0.0
Volume, L/hr	0.0	0.0	848.335	0.0
Enthalpy, cal/hr	0.0	0.0	-1.58265E+06	0.0
Density, g/L			0.587813	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.451	103.451	103.451	103.451
Pressure, atm	1.	1.	1.	1.
pH	7.38784			
Total mol/hr	0.07135988	0.00135427	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0636844	0.0	0.0	0.0
CO2	4.34201E-10	0.0	0.0	0.0
H2SO4	2.24966E-28	0.0	0.0	0.0
HCL	1.79891E-15	0.0	0.0	0.0
HNO3	1.50642E-12	0.0	0.0	0.0
LAURICACID	1.79187E-09	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	1.86733E-11	0.0	0.0	0.0
CASO4	6.37061E-07	6.27262E-04	0.0	0.0
CDCL2	2.01892E-08	0.0	0.0	0.0
CDOH2	7.47907E-14	0.0	0.0	0.0
CDSO4	6.56406E-12	0.0	0.0	0.0
CROH3	4.05833E-11	1.11556E-07	0.0	0.0
CUCL2	1.10640E-10	0.0	0.0	0.0
CUCO3	2.95200E-13	0.0	0.0	0.0
CUNO32	6.96337E-13	0.0	0.0	0.0
CUOH2	1.01088E-08	6.75976E-06	0.0	0.0
FEIICL2	1.13548E-14	0.0	0.0	0.0
FEIICO3	5.31362E-14	0.0	0.0	0.0
FEIIHPO4	1.32646E-16	0.0	0.0	0.0
FEIIOH2	5.82559E-13	0.0	0.0	0.0
ALO2H2CL	6.35432E-30	0.0	0.0	0.0
H3PO4	3.02023E-16	0.0	0.0	0.0
H4P2O7	2.10552E-30	0.0	0.0	0.0
ALOH3	3.65460E-11	0.0	0.0	0.0
BACO3	1.25076E-15	0.0	0.0	0.0
KCL	8.71176E-06	0.0	0.0	0.0
KHSO4	2.54571E-12	0.0	0.0	0.0
BASO4	1.17348E-12	6.70657E-07	0.0	0.0
MGCO3	2.30444E-10	0.0	0.0	0.0
MGH2SIO4	1.78567E-09	0.0	0.0	0.0
MGHPO4	2.55414E-09	0.0	0.0	0.0
MGSO4	4.52325E-06	0.0	0.0	0.0
NAHCO3	1.16776E-08	0.0	0.0	0.0
NAHSIO3	2.64890E-06	0.0	0.0	0.0
NANO3	2.11798E-04	0.0	0.0	0.0
NIOH2	2.63371E-12	1.49660E-06	0.0	0.0
NISO4	6.42945E-10	0.0	0.0	0.0
PBCL2	9.29030E-08	0.0	0.0	0.0
PBHPO4	2.66645E-14	0.0	0.0	0.0
PBNO32	2.51116E-09	0.0	0.0	0.0
PBO	1.03010E-09	0.0	0.0	0.0
CACL2	1.36404E-15	0.0	0.0	0.0
SIO2	5.19908E-06	1.73511E-04	0.0	0.0

CACO3	7.26897E-11	0.0	0.0	0.0
SRHPO4	4.58703E-14	0.0	0.0	0.0
SRNO32	2.86989E-08	0.0	0.0	0.0
SRSO4	1.09816E-08	2.15367E-05	0.0	0.0
UIVOH4	1.34872E-12	0.0	0.0	0.0
ZNCL2	3.20149E-06	0.0	0.0	0.0
ZNHPO4	2.84323E-12	0.0	0.0	0.0
ZNNO32	1.22405E-09	0.0	0.0	0.0
ZNOH2	4.12634E-08	0.0	0.0	0.0
OHION	2.50321E-08	0.0	0.0	0.0
ALION	1.09069E-21	0.0	0.0	0.0
ALOH2ION	2.11446E-14	0.0	0.0	0.0
ALOH4ION	9.32633E-09	0.0	0.0	0.0
ALOHCLION	4.01706E-17	0.0	0.0	0.0
ALOHION	9.87791E-18	0.0	0.0	0.0
ALSO42ION	5.76390E-21	0.0	0.0	0.0
ALSO4ION	8.40141E-21	0.0	0.0	0.0
BAHCO3ION	9.49527E-14	0.0	0.0	0.0
BAION	8.74076E-10	0.0	0.0	0.0
BAOHION	8.64824E-15	0.0	0.0	0.0
CACLION	3.95372E-08	0.0	0.0	0.0
CAH2PO4ION	1.00006E-11	0.0	0.0	0.0
CAHCO3ION	1.55488E-10	0.0	0.0	0.0
CAHSIO3ION	8.66800E-09	0.0	0.0	0.0
CAION	9.02446E-06	0.0	0.0	0.0
CANO3ION	3.45508E-06	0.0	0.0	0.0
CAOHION	1.72017E-09	0.0	0.0	0.0
CAPO4ION	5.26295E-11	0.0	0.0	0.0
CDCL3ION	1.95720E-08	0.0	0.0	0.0
CDCL4ION	5.42991E-09	0.0	0.0	0.0
CDCLION	1.20077E-09	0.0	0.0	0.0
CDION	2.31756E-11	0.0	0.0	0.0
CDNO3ION	6.21236E-12	0.0	0.0	0.0
CDOH3ION	1.62956E-17	0.0	0.0	0.0
CDOH4ION	2.05265E-21	0.0	0.0	0.0
CDOHION	6.85742E-13	0.0	0.0	0.0
CLION	0.00277442	0.0	0.0	0.0
CO3ION	2.31581E-10	0.0	0.0	0.0
CRIIIICL2ION	5.39856E-16	0.0	0.0	0.0
CRIIIICLION	4.50681E-16	0.0	0.0	0.0
CRIIIH2PO4ION	1.79499E-20	0.0	0.0	0.0
CRIIIHPO4ION	9.37721E-09	0.0	0.0	0.0
CRIIIIION	5.62589E-20	0.0	0.0	0.0
CRIIINO3ION	2.20116E-13	0.0	0.0	0.0
CROH2ION	6.08063E-13	0.0	0.0	0.0
CROH4ION	1.35798E-13	0.0	0.0	0.0
CROHION	1.70077E-10	0.0	0.0	0.0
CRSO4ION	8.58073E-12	0.0	0.0	0.0
CUCL3ION	1.83815E-12	0.0	0.0	0.0
CUCLION	7.24412E-10	0.0	0.0	0.0
CUCO32ION	3.35413E-16	0.0	0.0	0.0
CUION	1.99293E-10	0.0	0.0	0.0
CUNO3ION	3.40488E-11	0.0	0.0	0.0
CUOH3ION	1.38033E-11	0.0	0.0	0.0
CUOH4ION	4.16764E-14	0.0	0.0	0.0
CUOHION	6.97436E-10	0.0	0.0	0.0
DODECION	1.20924E-05	0.0	0.0	0.0
FEIICLION	2.47667E-12	0.0	0.0	0.0

FEIICO32ION	1.78873E-18	0.0	0.0	0.0
FEIIH2PO4ION	1.25717E-17	0.0	0.0	0.0
FEIIHCO3ION	1.27982E-16	0.0	0.0	0.0
FEIIION	3.04354E-10	0.0	0.0	0.0
FEIIOH3ION	1.65772E-14	0.0	0.0	0.0
FEIIOH4ION	5.79145E-19	0.0	0.0	0.0
FEIIOHION	3.60199E-11	0.0	0.0	0.0
H2P2O7ION	1.90460E-18	0.0	0.0	0.0
H2PO4ION	8.74013E-11	0.0	0.0	0.0
H2SIO4ION	1.77925E-11	0.0	0.0	0.0
H3P2O7ION	1.61286E-24	0.0	0.0	0.0
H3SIO4ION	7.80273E-07	0.0	0.0	0.0
HCO3ION	7.71356E-09	0.0	0.0	0.0
HION	6.04790E-11	0.0	0.0	0.0
HP2O7ION	4.30218E-17	0.0	0.0	0.0
HPBO2ION	1.32990E-11	0.0	0.0	0.0
HPO4ION	1.20700E-09	0.0	0.0	0.0
HSO4ION	4.62419E-10	0.0	0.0	0.0
KION	4.61072E-04	0.0	0.0	0.0
KSO4ION	5.04522E-05	0.0	0.0	0.0
MGH2PO4ION	2.13661E-11	0.0	0.0	0.0
MGHCO3ION	2.09549E-09	0.0	0.0	0.0
MGHSIO3ION	1.08471E-07	0.0	0.0	0.0
MGION	2.15352E-05	0.0	0.0	0.0
MGOHION	9.08930E-08	0.0	0.0	0.0
MGP2O7ION	1.98806E-13	0.0	0.0	0.0
MGPO4ION	3.79546E-10	0.0	0.0	0.0
NACO3ION	3.69506E-11	0.0	0.0	0.0
NAION	0.00332321	0.0	0.0	0.0
NASO4ION	3.92144E-13	0.0	0.0	0.0
NICLION	1.29786E-10	0.0	0.0	0.0
NIION	1.49902E-09	0.0	0.0	0.0
NINO3ION	2.14768E-10	0.0	0.0	0.0
NIOH3ION	8.89693E-15	0.0	0.0	0.0
NIOHION	5.49134E-11	0.0	0.0	0.0
NO3ION	5.10322E-04	0.0	0.0	0.0
P2O7ION	1.22128E-17	0.0	0.0	0.0
PBCL3ION	2.05078E-07	0.0	0.0	0.0
PBCL4ION	1.65430E-06	0.0	0.0	0.0
PBCLION	2.73174E-08	0.0	0.0	0.0
PBH2PO4ION	1.23910E-15	0.0	0.0	0.0
PBION	1.29408E-09	0.0	0.0	0.0
PBNO33ION	9.30935E-11	0.0	0.0	0.0
PBNO3ION	7.60984E-09	0.0	0.0	0.0
PBOHION	2.07438E-08	0.0	0.0	0.0
PO4ION	2.37021E-13	0.0	0.0	0.0
SO4ION	2.53239E-04	0.0	0.0	0.0
SRION	5.72314E-10	0.0	0.0	0.0
SRNO3ION	1.12544E-07	0.0	0.0	0.0
SROHION	1.30499E-11	0.0	0.0	0.0
SRPO4ION	1.19552E-14	0.0	0.0	0.0
UIVOH2ION	4.60321E-26	0.0	0.0	0.0
UIVOH3ION	1.73992E-20	0.0	0.0	0.0
UIVOH5ION	1.70497E-14	0.0	0.0	0.0
UIVOHION	0.0	0.0	0.0	0.0
ZNCL3ION	4.09188E-06	0.0	0.0	0.0
ZNCLION	7.48267E-06	0.0	0.0	0.0
ZNH2PO4ION	6.41653E-14	0.0	0.0	0.0

ZNHCO3ION	5.33856E-12	0.0	0.0	0.0
ZNION	4.52602E-07	0.0	0.0	0.0
ZNNO3ION	4.59099E-08	0.0	0.0	0.0
ZNOH3ION	2.12228E-09	0.0	0.0	0.0
ZNOH4ION	2.29426E-12	0.0	0.0	0.0
ZNOHION	4.49166E-06	0.0	0.0	0.0
ALOOH	0.0	1.54416E-06	0.0	0.0
CA3PO42	0.0	1.19026E-04	0.0	0.0
CHAMOSITE7A	0.0	5.10751E-05	0.0	0.0
MG3PO42	0.0	5.93559E-06	0.0	0.0
MGOH2	0.0	3.34529E-04	0.0	0.0
PB3PO42	0.0	4.72353E-07	0.0	0.0
UIVO2	0.0	4.20168E-06	0.0	0.0
ZN3PO42.2H2O	0.0	6.13848E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	1.4295	0.18039	0.0	0.0
Volume, L/hr	0.00132219	5.48580E-05	0.0	0.0
Enthalpy, cal/hr	-4719.19	-507.005	0.0	0.0
Density, g/L	1081.16	3288.32		
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	196.506			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.501471			
E-Con, cm2/ohm-mol	58.4688			
Abs Visc, cP	0.421849			
Rel Visc	1.55267			
Ionic Strength	3.61561			

ESP V-6.6

PROCESS:AWE85_5

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	9.05259			
Total mol/hr	0.0704467	0.00124336	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.062553	0.0	0.0	0.0
CO2	3.28772E-12	0.0	0.0	0.0
H2SO4	0.0	0.0	0.0	0.0
HCL	6.49206E-19	0.0	0.0	0.0
HNO3	7.12081E-15	0.0	0.0	0.0
LAURICACID	2.21121E-10	0.0	0.0	0.0
CAH2SIO4	3.55206E-09	0.0	0.0	0.0
CASO4	9.78711E-07	0.0	0.0	0.0
CDCL2	8.07381E-09	0.0	0.0	0.0
CDOH2	6.85181E-15	0.0	0.0	0.0
CDSO4	3.29682E-12	0.0	0.0	0.0
CROH3	6.35838E-10	1.20457E-07	0.0	0.0
CUCL2	4.33221E-12	0.0	0.0	0.0
CUCO3	3.09116E-13	0.0	0.0	0.0
CUNO32	2.65592E-14	0.0	0.0	0.0
CUOH2	3.67567E-09	6.76788E-06	0.0	0.0
FEIICL2	1.35394E-16	0.0	0.0	0.0
FEIICO3	1.11185E-13	0.0	0.0	0.0
FEIIHPO4	3.47537E-18	0.0	0.0	0.0
FEIIOH2	1.65479E-14	0.0	0.0	0.0
ALO2H2CL	0.0	0.0	0.0	0.0
H3PO4	2.20463E-20	0.0	0.0	0.0
ALOH3	1.48677E-12	1.55208E-06	0.0	0.0
BACO3	4.32453E-16	0.0	0.0	0.0
KCL	2.04530E-06	0.0	0.0	0.0
KHSO4	1.71658E-15	0.0	0.0	0.0
BASO4	1.27422E-13	6.66285E-07	0.0	0.0
MGCO3	3.28408E-09	0.0	0.0	0.0
MGH2SIO4	3.10787E-07	0.0	0.0	0.0
MGHPO4	6.53312E-10	0.0	0.0	0.0
MGSO4	1.54409E-05	0.0	0.0	0.0
NAHCO3	1.24969E-09	0.0	0.0	0.0
NAHSIO3	4.11198E-05	0.0	0.0	0.0
NANO3	6.98274E-05	0.0	0.0	0.0
NIOH2	3.93396E-12	1.49830E-06	0.0	0.0
NISO4	6.97991E-11	0.0	0.0	0.0
PBCL2	6.75424E-09	0.0	0.0	0.0
PBHPO4	5.60677E-16	0.0	0.0	0.0
PBNO32	3.77988E-11	0.0	0.0	0.0
PBO	1.92406E-10	0.0	0.0	0.0
CACL2	1.12127E-23	0.0	0.0	0.0
SIO2	1.38466E-06	1.38042E-04	0.0	0.0
CACO3	8.04024E-10	0.0	0.0	0.0
SRHPO4	5.74207E-15	0.0	0.0	0.0

SRNO32	1.50216E-08	0.0	0.0	0.0
SRSO4	2.66985E-08	1.96062E-05	0.0	0.0
UIVOH4	1.43452E-13	0.0	0.0	0.0
ZNCL2	7.33888E-09	0.0	0.0	0.0
ZNHPO4	3.89687E-14	0.0	0.0	0.0
ZNNO32	7.91612E-11	0.0	0.0	0.0
ZNOH2	5.03582E-09	3.81487E-05	0.0	0.0
OHION	1.06480E-08	0.0	0.0	0.0
ALION	6.65409E-23	0.0	0.0	0.0
ALOH2ION	6.99217E-16	0.0	0.0	0.0
ALOH4ION	1.14132E-09	0.0	0.0	0.0
ALOHCLION	1.58044E-18	0.0	0.0	0.0
ALOHION	2.47281E-19	0.0	0.0	0.0
ALSO42ION	1.36220E-22	0.0	0.0	0.0
ALSO4ION	2.13894E-22	0.0	0.0	0.0
BAHCO3ION	7.65875E-16	0.0	0.0	0.0
BAION	5.24773E-09	0.0	0.0	0.0
BAOHION	1.13365E-16	0.0	0.0	0.0
CACLION	5.07311E-11	0.0	0.0	0.0
CAH2PO4ION	1.25490E-13	0.0	0.0	0.0
CAHCO3ION	2.97865E-10	0.0	0.0	0.0
CAHSIO3ION	5.87311E-08	0.0	0.0	0.0
CAION	2.37209E-05	0.0	0.0	0.0
CANO3ION	9.81903E-06	0.0	0.0	0.0
CAOHION	1.30771E-09	0.0	0.0	0.0
CAPO4ION	4.82510E-10	0.0	0.0	0.0
CDCL3ION	3.06687E-09	0.0	0.0	0.0
CDCL4ION	3.47326E-08	0.0	0.0	0.0
CDCLION	5.24888E-10	0.0	0.0	0.0
CDION	2.34515E-11	0.0	0.0	0.0
CDNO3ION	3.47457E-12	0.0	0.0	0.0
CDOH3ION	3.75248E-18	0.0	0.0	0.0
CDOH4ION	1.86288E-22	0.0	0.0	0.0
CDOHION	2.19172E-13	0.0	0.0	0.0
CLION	0.00281321	0.0	0.0	0.0
CO3ION	2.79714E-09	0.0	0.0	0.0
CRIII2ION	8.05741E-18	0.0	0.0	0.0
CRIIIION	7.01586E-18	0.0	0.0	0.0
CRIIH2PO4ION	3.27111E-22	0.0	0.0	0.0
CRIIHPO4ION	1.59035E-14	0.0	0.0	0.0
CRIIION	6.34645E-21	0.0	0.0	0.0
CRIIINO3ION	1.54545E-15	0.0	0.0	0.0
CROH2ION	4.83112E-13	0.0	0.0	0.0
CROH4ION	2.87921E-11	0.0	0.0	0.0
CROHION	3.11504E-11	0.0	0.0	0.0
CRSO4ION	7.83022E-14	0.0	0.0	0.0
CUCL3ION	7.13108E-14	0.0	0.0	0.0
CUCLION	1.31745E-11	0.0	0.0	0.0
CUCO32ION	2.41259E-15	0.0	0.0	0.0
CUION	1.27505E-11	0.0	0.0	0.0
CUNO3ION	2.20233E-12	0.0	0.0	0.0
CUOH3ION	7.31305E-12	0.0	0.0	0.0
CUOH4ION	5.94149E-15	0.0	0.0	0.0
CUOHION	5.20907E-11	0.0	0.0	0.0
DODECION	1.20939E-05	0.0	0.0	0.0
FEIION	5.09073E-14	0.0	0.0	0.0
FEIICO32ION	1.88601E-17	0.0	0.0	0.0
FEIIH2PO4ION	2.47824E-20	0.0	0.0	0.0

FEIIHCO3ION	6.48261E-18	0.0	0.0	0.0
FEIIION	3.83770E-11	0.0	0.0	0.0
FEIIOH3ION	2.40431E-15	0.0	0.0	0.0
FEIIOH4ION	2.70133E-20	0.0	0.0	0.0
FEIIOHION	5.34641E-12	0.0	0.0	0.0
H2P2O7ION	1.03776E-23	0.0	0.0	0.0
H2PO4ION	9.23331E-13	0.0	0.0	0.0
H2SIO4ION	5.12783E-10	0.0	0.0	0.0
H3P2O7ION	0.0	0.0	0.0	0.0
H3SIO4ION	3.55638E-07	0.0	0.0	0.0
HCO3ION	5.96520E-09	0.0	0.0	0.0
HION	9.03027E-13	0.0	0.0	0.0
HP2O7ION	1.58589E-20	0.0	0.0	0.0
HPBO2ION	5.52188E-12	0.0	0.0	0.0
HPO4ION	7.13402E-10	0.0	0.0	0.0
HSO4ION	1.01811E-12	0.0	0.0	0.0
KION	4.88321E-04	0.0	0.0	0.0
KSO4ION	2.98698E-05	0.0	0.0	0.0
MGH2PO4ION	1.45978E-12	0.0	0.0	0.0
MGHCO3ION	6.80274E-09	0.0	0.0	0.0
MGHSIO3ION	9.82248E-07	0.0	0.0	0.0
MGION	8.28893E-05	0.0	0.0	0.0
MGOHION	1.13425E-07	0.0	0.0	0.0
MGP2O7ION	1.52095E-15	0.0	0.0	0.0
MGPO4ION	5.98598E-09	0.0	0.0	0.0
NACO3ION	1.44911E-09	0.0	0.0	0.0
NAION	0.00333203	0.0	0.0	0.0
NASO4ION	9.46937E-05	0.0	0.0	0.0
NICLION	2.17548E-11	0.0	0.0	0.0
NIION	5.92719E-10	0.0	0.0	0.0
NINO3ION	1.41039E-10	0.0	0.0	0.0
NIOH3ION	1.58101E-13	0.0	0.0	0.0
NIOHION	1.38453E-11	0.0	0.0	0.0
NO3ION	6.46007E-04	0.0	0.0	0.0
P2O7ION	1.35323E-18	0.0	0.0	0.0
PBCL3ION	1.70839E-08	0.0	0.0	0.0
PBCL4ION	3.38291E-07	0.0	0.0	0.0
PBCLION	2.58257E-09	0.0	0.0	0.0
PBH2PO4ION	7.96781E-19	0.0	0.0	0.0
PBION	2.22790E-10	0.0	0.0	0.0
PBNO33ION	8.70895E-12	0.0	0.0	0.0
PBNO3ION	4.18650E-10	0.0	0.0	0.0
PBOHION	1.09613E-09	0.0	0.0	0.0
PO4ION	3.77453E-12	0.0	0.0	0.0
SO4ION	2.25790E-04	0.0	0.0	0.0
SRION	1.92270E-06	0.0	0.0	0.0
SRNO3ION	1.18837E-07	0.0	0.0	0.0
SROHION	3.94591E-12	0.0	0.0	0.0
SRPO4ION	3.52245E-14	0.0	0.0	0.0
UIVOH2ION	1.11603E-28	0.0	0.0	0.0
UIVOH3ION	4.52313E-21	0.0	0.0	0.0
UIVOH5ION	2.93625E-14	0.0	0.0	0.0
ZNCL3ION	1.28993E-08	0.0	0.0	0.0
ZNCLION	9.09273E-09	0.0	0.0	0.0
ZNH2PO4ION	4.52374E-17	0.0	0.0	0.0
ZNHCO3ION	2.14235E-13	0.0	0.0	0.0
ZNION	3.47857E-08	0.0	0.0	0.0
ZNNO3ION	3.71692E-09	0.0	0.0	0.0

ZNOH3ION	1.19548E-10	0.0	0.0	0.0
ZNOH4ION	2.56547E-13	0.0	0.0	0.0
ZNOHION	4.56650E-09	0.0	0.0	0.0
CA3PO42	0.0	1.30554E-04	0.0	0.0
CASO4.2H2O	0.0	5.71260E-04	0.0	0.0
CHAMOSITE7A	0.0	5.10752E-05	0.0	0.0
MGOH2	0.0	2.78847E-04	0.0	0.0
PB3PO42	0.0	1.02109E-06	0.0	0.0
UIVO2	0.0	4.20168E-06	0.0	0.0
=====				
Total g/hr	1.41859	0.191307	0.0	0.0
Volume, L/hr	0.00123053	6.28103E-05	0.0	0.0
Enthalpy, cal/hr	-4766.59	-555.986	0.0	0.0
Density, g/L	1152.82	3045.8		
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	186.242			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.195617			
E-Con, cm2/ohm-mol	29.9256			
Abs Visc, cP	1.35031			
Rel Visc	1.51598			
Ionic Strength	3.88973			

ESP V-6.6

PROCESS:AWE85_5

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STREAM: Condensate
 TO :
 FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.32904			
Total mol/hr	27.67727	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	27.6757	0.0	0.0	0.0
CO2	0.00148548	0.0	0.0	0.0
HCL	2.16070E-20	0.0	0.0	0.0
HNO3	3.81185E-16	0.0	0.0	0.0
LAURICACID	3.46073E-05	0.0	0.0	0.0
OHION	1.08744E-10	0.0	0.0	0.0
CLION	7.84405E-10	0.0	0.0	0.0
CO3ION	1.48806E-11	0.0	0.0	0.0
DODECION	9.06042E-06	0.0	0.0	0.0
HCO3ION	1.44987E-05	0.0	0.0	0.0
HION	2.35602E-05	0.0	0.0	0.0
NO3ION	1.64463E-10	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	498.663	0.0	0.0	0.0
Volume, L/hr	0.500216	0.0	0.0	0.0
Enthalpy, cal/hr	-1.89077E+06	0.0	0.0	0.0
Density, g/L	996.894			
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	0.0766734			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	1.88041E-05			
E-Con, cm2/ohm-mol	6.09343			
Abs Visc, cP	0.890748			
Rel Visc	1.00003			
Ionic Strength	4.72543E-05			

=====
Block Heat Duties
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Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	3.08234D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-9.63814D+01
MIX	CONDENSATE MIXER	-3.08128D+05

ESP V-6.6

PROCESS:AWE85_5

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

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Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P,V/F
 V/F (molar) 0.997505

Standard Block Information

Duty, cal/hr 308234.

	In	Out	Rel. Diff.
Total Mass g/hr	500.272	500.272	6.81749E-16
Total Energy cal/hr	-1.89611E+06	-1.58787E+06	0.0

Mix Output

Outlet Temperature, C 103.451
 Outlet Pressure, atm 1.
 Aqueous pH 7.38784
 V/F (molar) 0.997507

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0678153	1.4295	0.00132219	-4719.19
Solid	0.00135427	0.18039	5.48580E-05	-507.005
Vapor	27.6773	498.663	848.335	-1.58265E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	27.7465	500.272	848.337	-1.58787E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap separator
 BLOCK TYPE: Separate
 =====

Separate Input

 Liquid Outlet Stream Bottoms
 Vapor Outlet Stream Overhead
 Suspended Solids, g solid/g liq solution 0.0
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Pressure Specification, atm
 Outlet Pressure = Min Inlet Pressure
 Equilibrium Type Adiabatic
 Duty, cal/hr 0.0

Standard Block Information

 Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	500.272	500.272	0.0
Total Energy cal/hr	-1.58787E+06	-1.58787E+06	0.0

Separate Output

 Outlet Temperature, C 103.451
 Outlet Pressure, atm 1.
 Aqueous pH 7.38784
 Suspended Solids, g solid/g liq solution 0.126191
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Liquid Stream	Bottoms			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0678153	1.4295	0.00132219	-4719.19
Solid	0.00135427	0.18039	5.48580E-05	-507.005
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0691696	1.60989	0.00137705	-5226.2

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	27.6773	498.663	848.335	-1.58265E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	27.6773	498.663	848.335	-1.58265E+06

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -96.3814

	In	Out	Rel. Diff.
Total Mass g/hr	1.60989	1.60989	6.89626E-16
Total Energy cal/hr	-5226.2	-5322.58	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 9.05259
 V/F (molar) 0.0

	Outlet Flow		Outlet Enthalpy	
	-----		-----	
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0667928	1.41859	0.00123053	-4766.59
Solid	0.00124336	0.191307	6.28103E-05	-555.986
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0680362	1.60989	0.00129334	-5322.58

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PROCESS:AWE85_5

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -3.08128E+05

	In	Out	Rel. Diff.
Total Mass g/hr	498.663	498.663	2.27983E-16
Total Energy cal/hr	-1.58265E+06	-1.89077E+06	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.32904
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	27.6773	498.663	0.500216	-1.89077E+06
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	27.6773	498.663	0.500216	-1.89077E+06

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block              Mix: Evap mixer
Control Parameter             Vapor Fraction
Control Parameter Minimum     0.989
Control Parameter Maximum     0.998
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations            20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:    Solution Species
```

Controller Output

```
-----
Specification Stream          Cooled Bottoms
Controlled Block              Evap mixer
Control Parameter Type:      General Process Variable
Convergence:                  Converged
Iterations Completed this Sequence      9.
Total Iterations Completed all Sequences 9.
Last Parameter Value           0.997505
Last DIFF (Computed-Setpoint)  -6.74403E-06
Previous Parameter Value       0.997501
Previous DIFF (Computed-Setpoint) 4.25647E-04
Control Parameter Minimum      0.997501
Control Parameter Maximum      0.997794
Control Parameter Stepsize      0.0
Maximum Iterations             0.0
```

Influent Limit Composition 90% Target pH=8.5
8.5-90

=====

```
      O   O   O           L           I I I I
    O     O           L           I
  O     O     O       L           I
O     O     O     O   L           I
O     O     O     O   L           I
O     O     O     O   L           I
  O     O     O     O   L           I
    O     O     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 September 1, 2002

PROCESS: AWE85_6

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE85_6.LIS

DATE: 12/05/2002

=====

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Overall Process Balances

Inlet	g/hr	cal/hr
FEED	2.50601D+02	-9.48936D+05
Total in	2.50601D+02	-9.48936D+05

Outlet	g/hr	cal/hr
COOLED BOTTOMS	2.33689D+00	-7.66557D+03
CONDENSATE	2.48264D+02	-9.41267D+05
Total out	2.50601D+02	-9.48932D+05

Block Heat Duties	cal/hr
EVAP MIXER	1.53562D+05
EVAP BOTTOMS COOLING MIXER	-1.42231D+02
CONDENSATE MIXER	-1.53416D+05
Total Duty	3.61606D+00

DIFFERENCE	4.37694D-12	0.00000D+00
REL DIFFERENCE	1.74658D-14	0.00000D+00

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	2.77344D+01	2.77344D+01	2.48690D-14	8.96683D-16
K(+1)	8.50332D-04	8.50332D-04	1.08420D-18	1.27503D-15
NA(+1)	5.78237D-03	5.78237D-03	-8.67362D-18	-1.50001D-15
BA(+2)	7.29927D-07	7.29927D-07	1.05879D-22	1.45054D-16
CA(+2)	1.24688D-03	1.24688D-03	0.00000D+00	0.00000D+00
ZN(+2)	5.04587D-05	5.04587D-05	-6.77626D-21	-1.34293D-16
CU(+2)	9.44882D-06	9.44882D-06	0.00000D+00	0.00000D+00
FE(+2)	1.30824D-04	1.30824D-04	2.71051D-20	2.07187D-16
MG(+2)	5.34979D-04	5.34979D-04	0.00000D+00	0.00000D+00
PB(+2)	6.28019D-06	6.28019D-06	2.54110D-21	4.04621D-16
AL(+3)	1.18519D-04	1.18519D-04	0.00000D+00	0.00000D+00
NI(+2)	2.04429D-06	2.04429D-06	-4.23516D-22	-2.07170D-16
O(-2)	1.38836D+01	1.38836D+01	-3.55271D-15	-2.55893D-16
CL(-1)	3.94366D-03	3.94366D-03	-5.20417D-18	-1.31963D-15
C(+4)	1.66667D-03	1.66667D-03	1.32273D-17	7.93636D-15
P(+5)	8.42105D-04	8.42105D-04	0.00000D+00	0.00000D+00
S(+6)	1.25000D-03	1.25000D-03	6.50521D-19	5.20417D-16
N(+5)	1.27419D-03	1.27419D-03	2.16840D-19	1.70178D-16
SI(+4)	2.50000D-04	2.50000D-04	0.00000D+00	0.00000D+00
SR(+2)	2.96804D-05	2.96804D-05	-3.38813D-21	-1.14154D-16

CD (+2)	5.89286D-08	5.89286D-08	-1.32349D-23	-2.24592D-16
CR (+3)	1.84615D-07	1.84615D-07	2.64698D-23	1.43378D-16
U (+4)	7.98319D-06	7.98319D-06	0.00000D+00	0.00000D+00

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DODEC (-1)

7.96599D-05 7.96599D-05 2.20733D-14 2.77094D-10

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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PROCESS:AWE85_6

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STREAM: feed
TO : Evap mixer
FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.32177			
Total mol/hr	13.88262	4.12436E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	13.8662	0.0	0.0	0.0
CO2	7.26281E-04	0.0	0.0	0.0
H2SO4	4.13691E-25	0.0	0.0	0.0
HCL	9.19580E-16	0.0	0.0	0.0
HNO3	2.46275E-11	0.0	0.0	0.0
LAURICACID	2.44827E-06	0.0	0.0	0.0
SO3	5.36047E-29	0.0	0.0	0.0
CAH2SIO4	7.07109E-13	0.0	0.0	0.0
CASO4	1.89817E-05	0.0	0.0	0.0
CDCL2	4.12996E-09	0.0	0.0	0.0
CDOH2	3.66527E-16	0.0	0.0	0.0
CDSO4	9.05159E-09	0.0	0.0	0.0
CROH3	4.03820E-14	0.0	0.0	0.0
CUCL2	1.20344E-12	0.0	0.0	0.0
CUCO3	4.33256E-09	0.0	0.0	0.0
CUNO32	2.60427E-14	0.0	0.0	0.0
CUOH2	1.06779E-10	0.0	0.0	0.0
FEIICL2	3.07143E-14	0.0	0.0	0.0
FEIICO3	1.27261E-06	5.26643E-05	0.0	0.0
FEIIHPO4	1.03020E-07	0.0	0.0	0.0
FEIIOH2	3.92571E-13	0.0	0.0	0.0
ALO2H2CL	1.78081E-28	0.0	0.0	0.0
H3PO4	1.43957E-08	0.0	0.0	0.0
H4P2O7	1.48215E-18	0.0	0.0	0.0
ALOH3	5.96955E-10	1.18517E-04	0.0	0.0
BACO3	1.63223E-12	0.0	0.0	0.0
KCL	7.41701E-08	0.0	0.0	0.0
KHSO4	1.17872E-12	0.0	0.0	0.0
BASO4	5.11616E-11	6.93444E-07	0.0	0.0
MGCO3	5.42266E-08	0.0	0.0	0.0
MGH2SIO4	5.60329E-12	0.0	0.0	0.0
MGHPO4	2.79378E-05	0.0	0.0	0.0
MGSO4	2.71224E-05	0.0	0.0	0.0
NAHCO3	5.42249E-06	0.0	0.0	0.0
NAHSIO3	1.70767E-07	0.0	0.0	0.0
NANO3	1.12889E-06	0.0	0.0	0.0
NIOH2	3.49500E-13	0.0	0.0	0.0
NISO4	3.18271E-07	0.0	0.0	0.0
PBCL2	2.44058E-11	0.0	0.0	0.0
PBHPO4	2.64735E-10	0.0	0.0	0.0
PBNO32	4.82115E-13	0.0	0.0	0.0
PBO	6.37302E-14	0.0	0.0	0.0
CACL2	4.05159E-26	0.0	0.0	0.0
SIO2	2.49734E-04	0.0	0.0	0.0

CACO3	1.46587E-07	0.0	0.0	0.0
SRHPO4	2.37378E-08	0.0	0.0	0.0
SRNO32	1.67750E-09	0.0	0.0	0.0
SRSO4	4.53360E-06	0.0	0.0	0.0
UIVOH4	7.49648E-11	0.0	0.0	0.0
UIVSO42	1.21692E-26	0.0	0.0	0.0
ZNCL2	2.78801E-09	0.0	0.0	0.0
ZNHPO4	1.93447E-06	0.0	0.0	0.0
ZNNO32	1.06153E-10	0.0	0.0	0.0
ZNOH2	2.00065E-10	0.0	0.0	0.0
OHION	6.41241E-09	0.0	0.0	0.0
ALION	1.43697E-12	0.0	0.0	0.0
ALOH2ION	6.36866E-11	0.0	0.0	0.0
ALOH4ION	3.84411E-10	0.0	0.0	0.0
ALOHCLION	2.87117E-13	0.0	0.0	0.0
ALOHION	1.16829E-11	0.0	0.0	0.0
ALSO42ION	1.00786E-13	0.0	0.0	0.0
ALSO4ION	6.46307E-13	0.0	0.0	0.0
BAHCO3ION	4.81968E-10	0.0	0.0	0.0
BAION	3.59496E-08	0.0	0.0	0.0
BAOHION	2.00846E-16	0.0	0.0	0.0
CACLION	9.05747E-11	0.0	0.0	0.0
CAH2PO4ION	9.88602E-06	0.0	0.0	0.0
CAHCO3ION	9.59147E-06	0.0	0.0	0.0
CAHSIO3ION	1.71078E-09	0.0	0.0	0.0
CAION	5.49487E-04	0.0	0.0	0.0
CANO3ION	3.41469E-06	0.0	0.0	0.0
CAOHION	1.11491E-10	0.0	0.0	0.0
CAPO4ION	1.32786E-07	0.0	0.0	0.0
CDCL3ION	3.19120E-12	0.0	0.0	0.0
CDCL4ION	4.20499E-14	0.0	0.0	0.0
CDCLION	1.81243E-08	0.0	0.0	0.0
CDION	2.74455E-08	0.0	0.0	0.0
CDNO3ION	1.71348E-10	0.0	0.0	0.0
CDOH3ION	1.32047E-22	0.0	0.0	0.0
CDOH4ION	2.46651E-30	0.0	0.0	0.0
CDOHION	2.64641E-12	0.0	0.0	0.0
CLION	0.00394332	0.0	0.0	0.0
CO3ION	1.52054E-07	0.0	0.0	0.0
CRIIIICL2ION	7.15983E-19	0.0	0.0	0.0
CRIIIICLION	5.74308E-16	0.0	0.0	0.0
CRIIIH2PO4ION	3.61687E-13	0.0	0.0	0.0
CRIIIHPO4ION	1.84574E-07	0.0	0.0	0.0
CRIIIIION	2.84011E-14	0.0	0.0	0.0
CRIIINO3ION	1.04245E-14	0.0	0.0	0.0
CROH2ION	6.94231E-15	0.0	0.0	0.0
CROH4ION	1.20289E-18	0.0	0.0	0.0
CROHION	2.34235E-12	0.0	0.0	0.0
CRSO4ION	3.90190E-11	0.0	0.0	0.0
CUCL3ION	4.02962E-17	0.0	0.0	0.0
CUCLION	2.47046E-10	0.0	0.0	0.0
CUCO32ION	4.03519E-12	0.0	0.0	0.0
CUION	6.27832E-09	0.0	0.0	0.0
CUNO3ION	5.32405E-11	0.0	0.0	0.0
CUOH3ION	1.48612E-16	0.0	0.0	0.0
CUOH4ION	4.26902E-23	0.0	0.0	0.0
CUOHION	3.41992E-10	0.0	0.0	0.0
DODECION	7.72116E-05	0.0	0.0	0.0

FEIICLION	7.79560E-10	0.0	0.0	0.0
FEIICO32ION	2.56347E-11	0.0	0.0	0.0
FEIIH2PO4ION	1.22569E-07	0.0	0.0	0.0
FEIIHCO3ION	1.76700E-08	0.0	0.0	0.0
FEIIION	7.66149E-05	0.0	0.0	0.0
FEIIOH3ION	3.98161E-17	0.0	0.0	0.0
FEIIOH4ION	1.58503E-25	0.0	0.0	0.0
FEIIOHION	2.86488E-08	0.0	0.0	0.0
H2P2O7ION	1.87455E-09	0.0	0.0	0.0
H2PO4ION	2.62704E-04	0.0	0.0	0.0
H2SIO4ION	2.77297E-14	0.0	0.0	0.0
H3P2O7ION	1.07634E-13	0.0	0.0	0.0
H3SIO4ION	9.11924E-08	0.0	0.0	0.0
HCO3ION	8.43696E-04	0.0	0.0	0.0
HION	1.43201E-07	0.0	0.0	0.0
HP2O7ION	2.58570E-09	0.0	0.0	0.0
HPBO2ION	1.82988E-18	0.0	0.0	0.0
HPO4ION	6.29169E-05	0.0	0.0	0.0
HSO4ION	2.70775E-08	0.0	0.0	0.0
KION	8.37669E-04	0.0	0.0	0.0
KSO4ION	1.25893E-05	0.0	0.0	0.0
MGH2PO4ION	1.04154E-05	0.0	0.0	0.0
MGHCO3ION	2.66726E-05	0.0	0.0	0.0
MGHSIO3ION	2.59133E-09	0.0	0.0	0.0
MGION	4.42601E-04	0.0	0.0	0.0
MGOHION	8.76849E-10	0.0	0.0	0.0
MGP2O7ION	1.76320E-08	0.0	0.0	0.0
MGPO4ION	1.55046E-07	0.0	0.0	0.0
NACO3ION	5.51493E-09	0.0	0.0	0.0
NAION	0.00568165	0.0	0.0	0.0
NASO4ION	9.39968E-05	0.0	0.0	0.0
NICLION	1.24758E-09	0.0	0.0	0.0
NIION	1.71294E-06	0.0	0.0	0.0
NINO3ION	1.15514E-08	0.0	0.0	0.0
NIOH3ION	9.23969E-18	0.0	0.0	0.0
NIOHION	2.78313E-10	0.0	0.0	0.0
NO3ION	0.00126916	0.0	0.0	0.0
P2O7ION	1.10144E-11	0.0	0.0	0.0
PBCL3ION	1.90983E-13	0.0	0.0	0.0
PBCL4ION	2.87853E-15	0.0	0.0	0.0
PBCLION	6.30075E-10	0.0	0.0	0.0
PBH2PO4ION	6.27699E-11	0.0	0.0	0.0
PBION	3.20876E-09	0.0	0.0	0.0
PBNO33ION	4.24531E-16	0.0	0.0	0.0
PBNO3ION	1.45841E-10	0.0	0.0	0.0
PBOHION	9.36094E-11	0.0	0.0	0.0
PO4ION	1.67225E-10	0.0	0.0	0.0
SO4ION	0.00109173	0.0	0.0	0.0
SRION	2.47871E-05	0.0	0.0	0.0
SRNO3ION	3.34225E-07	0.0	0.0	0.0
SROHION	1.91654E-12	0.0	0.0	0.0
SRPO4ION	8.40519E-11	0.0	0.0	0.0
UIVCLION	0.0	0.0	0.0	0.0
UIVION	3.62921E-30	0.0	0.0	0.0
UIVOH2ION	4.48105E-21	0.0	0.0	0.0
UIVOH3ION	4.91737E-16	0.0	0.0	0.0
UIVOH5ION	1.00938E-14	0.0	0.0	0.0
UIVOHION	8.45819E-25	0.0	0.0	0.0

UIVSO4ION	1.88303E-27	0.0	0.0	0.0
ZNCL3ION	1.51608E-11	0.0	0.0	0.0
ZNCLION	2.33179E-07	0.0	0.0	0.0
ZNH2PO4ION	3.74678E-07	0.0	0.0	0.0
ZNHCO3ION	6.85473E-07	0.0	0.0	0.0
ZNION	2.02850E-05	0.0	0.0	0.0
ZNNO3ION	1.36132E-07	0.0	0.0	0.0
ZNOH3ION	5.05294E-15	0.0	0.0	0.0
ZNOH4ION	2.50812E-21	0.0	0.0	0.0
ZNOHION	2.87733E-08	0.0	0.0	0.0
CA3PO42	0.0	2.18414E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.14582E-06	0.0	0.0
PB3PO42	0.0	2.09192E-06	0.0	0.0
UIVO2	0.0	7.98313E-06	0.0	0.0
ZN3PO42.2H2O	0.0	8.92599E-06	0.0	0.0
=====				
Total g/hr	250.509	0.0921869	0.0	0.0
Volume, L/hr	0.250778	2.71286E-05	0.0	0.0
Enthalpy, cal/hr	-9.48666E+05	-270.041	0.0	0.0
Density, g/L	998.929	3398.15		
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	1.62537			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.00365003			
E-Con, cm2/ohm-mol	103.795			
Abs Visc, cP	0.897488			
Rel Visc	1.0076			
Ionic Strength	0.0443675			

ESP V-6.6

PROCESS:AWE85_6

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STREAM: Evap Contents
TO : Evap separator
FROM : Evap mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.746	103.746	103.746	103.746
Pressure, atm	1.	1.	1.	1.
pH	7.47492			
Total mol/hr	0.1029301	0.00122912	13.7779	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.090795	0.0	13.77619	0.0
CO2	1.30195E-09	0.0	0.001666579	0.0
H2SO4	3.02754E-28	0.0	4.84962E-26	0.0
HCL	1.99391E-15	0.0	3.23314E-10	0.0
HNO3	1.90704E-12	0.0	8.25567E-11	0.0
LAURICACID	4.37664E-09	0.0	4.02143E-05	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	2.48939E-11	0.0	0.0	0.0
CASO4	8.56941E-07	4.71845E-04	0.0	0.0
CDCL2	2.43703E-08	0.0	0.0	0.0
CDOH2	1.37168E-13	0.0	0.0	0.0
CDSO4	1.18495E-11	0.0	0.0	0.0
CROH3	5.40884E-11	1.73082E-07	0.0	0.0
CUCL2	9.95579E-11	0.0	0.0	0.0
CUCO3	8.81164E-13	0.0	0.0	0.0
CUNO32	9.24731E-13	0.0	0.0	0.0
CUOH2	1.36724E-08	9.43320E-06	0.0	0.0
FEIICL2	3.48783E-11	0.0	0.0	0.0
FEIICO3	5.39853E-10	0.0	0.0	0.0
FEIIHPO4	6.01788E-13	0.0	0.0	0.0
FEIIOH2	2.70779E-09	1.10937E-05	0.0	0.0
H3PO4	4.01071E-16	0.0	0.0	0.0
H4P2O7	2.79863E-30	0.0	0.0	0.0
ALOH3	1.43328E-14	0.0	0.0	0.0
BACO3	3.77919E-15	0.0	0.0	0.0
KCL	1.24022E-05	0.0	0.0	0.0
KHSO4	4.45225E-12	0.0	0.0	0.0
BASO4	1.60092E-12	7.28878E-07	0.0	0.0
MGCO3	6.81983E-10	0.0	0.0	0.0
MGH2SIO4	2.36277E-09	0.0	0.0	0.0
MGHPO4	3.37811E-09	0.0	0.0	0.0
MGSO4	5.97789E-06	0.0	0.0	0.0
NAHCO3	4.56299E-08	0.0	0.0	0.0
NAHSIO3	4.65300E-06	0.0	0.0	0.0
NANO3	4.07116E-04	0.0	0.0	0.0
NIOH2	3.54178E-12	2.04150E-06	0.0	0.0
NISO4	8.63139E-10	0.0	0.0	0.0
PBCL2	8.39916E-08	0.0	0.0	0.0
PBHPO4	3.57777E-14	0.0	0.0	0.0
PBNO32	3.36690E-09	0.0	0.0	0.0
PBO	1.42002E-09	0.0	0.0	0.0
CACL2	1.28478E-15	0.0	0.0	0.0
SIO2	7.40606E-06	1.77215E-04	0.0	0.0
CACO3	2.17178E-10	0.0	0.0	0.0

SRHPO4	6.11501E-14	0.0	0.0	0.0
SRNO32	3.80408E-08	0.0	0.0	0.0
SRSO4	1.48456E-08	2.94886E-05	0.0	0.0
UIVOH4	1.79148E-12	0.0	0.0	0.0
ZNCL2	2.90958E-06	0.0	0.0	0.0
ZNHPO4	3.79499E-12	0.0	0.0	0.0
ZNNO32	1.62456E-09	0.0	0.0	0.0
ZNOH2	5.60310E-08	0.0	0.0	0.0
OHION	4.26305E-08	0.0	0.0	0.0
ALION	2.57599E-25	0.0	0.0	0.0
ALOH2ION	7.20260E-18	0.0	0.0	0.0
ALOH4ION	4.91951E-12	0.0	0.0	0.0
ALOHCLION	1.13330E-20	0.0	0.0	0.0
ALOHION	2.71153E-21	0.0	0.0	0.0
ALSO42ION	2.91325E-24	0.0	0.0	0.0
ALSO4ION	2.82544E-24	0.0	0.0	0.0
BAHCO3ION	2.54408E-13	0.0	0.0	0.0
BAION	1.04645E-09	0.0	0.0	0.0
BAOHION	1.03338E-14	0.0	0.0	0.0
CACLION	4.64256E-08	0.0	0.0	0.0
CAH2PO4ION	1.17899E-11	0.0	0.0	0.0
CAHCO3ION	3.90574E-10	0.0	0.0	0.0
CAHSIO3ION	1.03707E-08	0.0	0.0	0.0
CAION	1.05658E-05	0.0	0.0	0.0
CANO3ION	3.97499E-06	0.0	0.0	0.0
CAOHION	2.03656E-09	0.0	0.0	0.0
CAPO4ION	9.25742E-11	0.0	0.0	0.0
CDCL3ION	2.54547E-08	0.0	0.0	0.0
CDCL4ION	7.45378E-09	0.0	0.0	0.0
CDCLION	1.59557E-09	0.0	0.0	0.0
CDION	3.14176E-11	0.0	0.0	0.0
CDNO3ION	9.79599E-12	0.0	0.0	0.0
CDOH3ION	3.93498E-17	0.0	0.0	0.0
CDOH4ION	6.48366E-21	0.0	0.0	0.0
CDOHION	1.08969E-12	0.0	0.0	0.0
CLION	0.00389878	0.0	0.0	0.0
CO3ION	1.17057E-09	0.0	0.0	0.0
CRIIIICL2ION	4.29653E-16	0.0	0.0	0.0
CRIIIICLION	8.95011E-17	0.0	0.0	0.0
CRIIIH2PO4ION	1.83883E-20	0.0	0.0	0.0
CRIIIHPO4ION	1.13573E-08	0.0	0.0	0.0
CRIIIIION	4.34833E-21	0.0	0.0	0.0
CRIIINO3ION	2.19364E-13	0.0	0.0	0.0
CROH2ION	7.25861E-13	0.0	0.0	0.0
CROH4ION	2.36483E-13	0.0	0.0	0.0
CROHION	1.10910E-10	0.0	0.0	0.0
CRSO4ION	9.73065E-12	0.0	0.0	0.0
CUCL3ION	1.77798E-12	0.0	0.0	0.0
CUCLION	7.18983E-10	0.0	0.0	0.0
CUCO32ION	3.80102E-15	0.0	0.0	0.0
CUION	1.96220E-10	0.0	0.0	0.0
CUNO3ION	4.04334E-11	0.0	0.0	0.0
CUOH3ION	2.45521E-11	0.0	0.0	0.0
CUOH4ION	9.76650E-14	0.0	0.0	0.0
CUOHION	8.39850E-10	0.0	0.0	0.0
DODECION	3.94412E-05	0.0	0.0	0.0
FEIICLION	8.36379E-09	0.0	0.0	0.0
FEIICO32ION	6.85011E-14	0.0	0.0	0.0

FEIIH2PO4ION	5.04001E-14	0.0	0.0	0.0
FEIIHCO3ION	1.16685E-12	0.0	0.0	0.0
FEIIION	1.05556E-06	0.0	0.0	0.0
FEIIOH3ION	1.01884E-10	0.0	0.0	0.0
FEIIOH4ION	4.62955E-15	0.0	0.0	0.0
FEIIOHION	1.44889E-07	0.0	0.0	0.0
H2P2O7ION	4.34210E-18	0.0	0.0	0.0
H2PO4ION	1.56614E-10	0.0	0.0	0.0
H2SIO4ION	4.08733E-11	0.0	0.0	0.0
H3P2O7ION	2.70101E-24	0.0	0.0	0.0
H3SIO4ION	1.32563E-06	0.0	0.0	0.0
HCO3ION	3.00982E-08	0.0	0.0	0.0
HION	7.03022E-11	0.0	0.0	0.0
HP2O7ION	1.15966E-16	0.0	0.0	0.0
HPBO2ION	2.30770E-11	0.0	0.0	0.0
HPO4ION	2.83619E-09	0.0	0.0	0.0
HSO4ION	7.86710E-10	0.0	0.0	0.0
KION	7.23065E-04	0.0	0.0	0.0
KSO4ION	1.14865E-04	0.0	0.0	0.0
MGH2PO4ION	2.48639E-11	0.0	0.0	0.0
MGHCO3ION	5.43017E-09	0.0	0.0	0.0
MGHSIO3ION	1.28646E-07	0.0	0.0	0.0
MGION	2.08852E-05	0.0	0.0	0.0
MGOHION	1.06621E-07	0.0	0.0	0.0
MGP2O7ION	4.53546E-13	0.0	0.0	0.0
MGPO4ION	6.64250E-10	0.0	0.0	0.0
NACO3ION	1.80894E-10	0.0	0.0	0.0
NAION	0.00537055	0.0	0.0	0.0
NASO4ION	1.04548E-12	0.0	0.0	0.0
NICLION	1.27981E-10	0.0	0.0	0.0
NIION	1.47881E-09	0.0	0.0	0.0
NINO3ION	2.50481E-10	0.0	0.0	0.0
NIOH3ION	1.56572E-14	0.0	0.0	0.0
NIOHION	6.58340E-11	0.0	0.0	0.0
NO3ION	8.62820E-04	0.0	0.0	0.0
P2O7ION	4.85164E-17	0.0	0.0	0.0
PBCL3ION	1.90182E-07	0.0	0.0	0.0
PBCL4ION	1.68331E-06	0.0	0.0	0.0
PBCLION	2.72105E-08	0.0	0.0	0.0
PBH2PO4ION	1.47298E-15	0.0	0.0	0.0
PBION	1.94412E-09	0.0	0.0	0.0
PBNO33ION	1.61992E-10	0.0	0.0	0.0
PBNO3ION	9.01168E-09	0.0	0.0	0.0
PBOHION	2.51963E-08	0.0	0.0	0.0
PO4ION	6.94035E-13	0.0	0.0	0.0
SO4ION	6.26220E-04	0.0	0.0	0.0
SRION	5.39637E-09	0.0	0.0	0.0
SRNO3ION	1.33340E-07	0.0	0.0	0.0
SROHION	1.56583E-11	0.0	0.0	0.0
SRPO4ION	2.10597E-14	0.0	0.0	0.0
UIVOH2ION	4.61336E-26	0.0	0.0	0.0
UIVOH3ION	2.01776E-20	0.0	0.0	0.0
UIVOH5ION	2.94892E-14	0.0	0.0	0.0
UIVOHION	1.01967E-30	0.0	0.0	0.0
ZNCL3ION	3.81445E-06	0.0	0.0	0.0
ZNCLION	7.50177E-06	0.0	0.0	0.0
ZNH2PO4ION	7.57712E-14	0.0	0.0	0.0
ZNHCO3ION	1.41289E-11	0.0	0.0	0.0

ZNION	4.53685E-07	0.0	0.0	0.0
ZNNO3ION	5.39589E-08	0.0	0.0	0.0
ZNOH3ION	3.62949E-09	0.0	0.0	0.0
ZNOH4ION	5.32544E-12	0.0	0.0	0.0
ZNOHION	5.41976E-06	0.0	0.0	0.0
CA3PO42	0.0	2.53192E-04	0.0	0.0
CHAMOSITE7A	0.0	5.92592E-05	0.0	0.0
MG3PO42	0.0	1.56351E-04	0.0	0.0
MGOH2	0.0	3.88163E-05	0.0	0.0
PB3PO42	0.0	1.41812E-06	0.0	0.0
UIVO2	0.0	7.98317E-06	0.0	0.0
ZN3PO42.2H2O	0.0	1.00814E-05	0.0	0.0
	=====	=====	=====	=====
Total g/hr	2.10458	0.232308	248.264	0.0
Volume, L/hr	0.00191896	5.45597E-05	422.644	0.0
Enthalpy, cal/hr	-6853.07	-670.273	-7.87851E+05	0.0
Density, g/L	1096.73	4257.87	0.587407	
Vapor fraction	0.0	0.0	1.	0.0
Solid fraction	0.0	1.	0.0	0.0
Organic fraction	0.0	0.0	0.0	0.0
Osmotic Pres, atm	212.438			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.517329			
E-Con, cm2/ohm-mol	62.3255			
Abs Visc, cP	0.453761			
Rel Visc	1.67516			
Ionic Strength	4.18054			

ESP V-6.6

PROCESS:AWE85_6

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STREAM: Overhead
TO : Condensate mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.746	103.746	103.746	103.746
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	13.7779	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	13.77619	0.0
CO2	0.0	0.0	0.001666579	0.0
H2SO4	0.0	0.0	4.84962E-26	0.0
HCL	0.0	0.0	3.23314E-10	0.0
HNO3	0.0	0.0	8.25567E-11	0.0
LAURICACID	0.0	0.0	4.02143E-05	0.0
SO3	0.0	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	248.264	0.0
Volume, L/hr	0.0	0.0	422.644	0.0
Enthalpy, cal/hr	0.0	0.0	-7.87851E+05	0.0
Density, g/L			0.587407	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

ESP V-6.6

PROCESS:AWE85_6

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STREAM: Bottoms
TO : Evap Bottoms Cooling mixer
FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	103.746	103.746	103.746	103.746
Pressure, atm	1.	1.	1.	1.
pH	7.47492			
Total mol/hr	0.1029301	0.00122912	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.090795	0.0	0.0	0.0
CO2	1.30195E-09	0.0	0.0	0.0
H2SO4	3.02754E-28	0.0	0.0	0.0
HCL	1.99391E-15	0.0	0.0	0.0
HNO3	1.90704E-12	0.0	0.0	0.0
LAURICACID	4.37664E-09	0.0	0.0	0.0
SO3	0.0	0.0	0.0	0.0
CAH2SIO4	2.48939E-11	0.0	0.0	0.0
CASO4	8.56941E-07	4.71845E-04	0.0	0.0
CDCL2	2.43703E-08	0.0	0.0	0.0
CDOH2	1.37168E-13	0.0	0.0	0.0
CDSO4	1.18495E-11	0.0	0.0	0.0
CROH3	5.40884E-11	1.73082E-07	0.0	0.0
CUCL2	9.95579E-11	0.0	0.0	0.0
CUCO3	8.81164E-13	0.0	0.0	0.0
CUNO32	9.24731E-13	0.0	0.0	0.0
CUOH2	1.36724E-08	9.43320E-06	0.0	0.0
FEIICL2	3.48783E-11	0.0	0.0	0.0
FEIICO3	5.39853E-10	0.0	0.0	0.0
FEIIHPO4	6.01788E-13	0.0	0.0	0.0
FEIIOH2	2.70779E-09	1.10937E-05	0.0	0.0
H3PO4	4.01071E-16	0.0	0.0	0.0
H4P2O7	2.79863E-30	0.0	0.0	0.0
ALOH3	1.43328E-14	0.0	0.0	0.0
BACO3	3.77919E-15	0.0	0.0	0.0
KCL	1.24022E-05	0.0	0.0	0.0
KHSO4	4.45225E-12	0.0	0.0	0.0
BASO4	1.60092E-12	7.28878E-07	0.0	0.0
MGCO3	6.81983E-10	0.0	0.0	0.0
MGH2SIO4	2.36277E-09	0.0	0.0	0.0
MGHPO4	3.37811E-09	0.0	0.0	0.0
MGSO4	5.97789E-06	0.0	0.0	0.0
NAHCO3	4.56299E-08	0.0	0.0	0.0
NAHSIO3	4.65300E-06	0.0	0.0	0.0
NANO3	4.07116E-04	0.0	0.0	0.0
NIOH2	3.54178E-12	2.04150E-06	0.0	0.0
NISO4	8.63139E-10	0.0	0.0	0.0
PBCL2	8.39916E-08	0.0	0.0	0.0
PBHPO4	3.57777E-14	0.0	0.0	0.0
PBNO32	3.36690E-09	0.0	0.0	0.0
PBO	1.42002E-09	0.0	0.0	0.0
CACL2	1.28478E-15	0.0	0.0	0.0
SIO2	7.40606E-06	1.77215E-04	0.0	0.0
CACO3	2.17178E-10	0.0	0.0	0.0

SRHPO4	6.11501E-14	0.0	0.0	0.0
SRNO32	3.80408E-08	0.0	0.0	0.0
SRSO4	1.48456E-08	2.94886E-05	0.0	0.0
UIVOH4	1.79148E-12	0.0	0.0	0.0
ZNCL2	2.90958E-06	0.0	0.0	0.0
ZNHPO4	3.79499E-12	0.0	0.0	0.0
ZNNO32	1.62456E-09	0.0	0.0	0.0
ZNOH2	5.60310E-08	0.0	0.0	0.0
OHION	4.26305E-08	0.0	0.0	0.0
ALION	2.57599E-25	0.0	0.0	0.0
ALOH2ION	7.20260E-18	0.0	0.0	0.0
ALOH4ION	4.91951E-12	0.0	0.0	0.0
ALOHCLION	1.13330E-20	0.0	0.0	0.0
ALOHION	2.71153E-21	0.0	0.0	0.0
ALSO42ION	2.91325E-24	0.0	0.0	0.0
ALSO4ION	2.82544E-24	0.0	0.0	0.0
BAHCO3ION	2.54408E-13	0.0	0.0	0.0
BAION	1.04645E-09	0.0	0.0	0.0
BAOHION	1.03338E-14	0.0	0.0	0.0
CACLION	4.64256E-08	0.0	0.0	0.0
CAH2PO4ION	1.17899E-11	0.0	0.0	0.0
CAHCO3ION	3.90574E-10	0.0	0.0	0.0
CAHSIO3ION	1.03707E-08	0.0	0.0	0.0
CAION	1.05658E-05	0.0	0.0	0.0
CANO3ION	3.97499E-06	0.0	0.0	0.0
CAOHION	2.03656E-09	0.0	0.0	0.0
CAPO4ION	9.25742E-11	0.0	0.0	0.0
CDCL3ION	2.54547E-08	0.0	0.0	0.0
CDCL4ION	7.45378E-09	0.0	0.0	0.0
CDCLION	1.59557E-09	0.0	0.0	0.0
CDION	3.14176E-11	0.0	0.0	0.0
CDNO3ION	9.79599E-12	0.0	0.0	0.0
CDOH3ION	3.93498E-17	0.0	0.0	0.0
CDOH4ION	6.48366E-21	0.0	0.0	0.0
CDOHION	1.08969E-12	0.0	0.0	0.0
CLION	0.00389878	0.0	0.0	0.0
CO3ION	1.17057E-09	0.0	0.0	0.0
CRIIIICL2ION	4.29653E-16	0.0	0.0	0.0
CRIIIICLION	8.95011E-17	0.0	0.0	0.0
CRIIIH2PO4ION	1.83883E-20	0.0	0.0	0.0
CRIIIHPO4ION	1.13573E-08	0.0	0.0	0.0
CRIIIIION	4.34833E-21	0.0	0.0	0.0
CRIIINO3ION	2.19364E-13	0.0	0.0	0.0
CROH2ION	7.25861E-13	0.0	0.0	0.0
CROH4ION	2.36483E-13	0.0	0.0	0.0
CROHION	1.10910E-10	0.0	0.0	0.0
CRSO4ION	9.73065E-12	0.0	0.0	0.0
CUCL3ION	1.77798E-12	0.0	0.0	0.0
CUCLION	7.18983E-10	0.0	0.0	0.0
CUCO32ION	3.80102E-15	0.0	0.0	0.0
CUION	1.96220E-10	0.0	0.0	0.0
CUNO3ION	4.04334E-11	0.0	0.0	0.0
CUOH3ION	2.45521E-11	0.0	0.0	0.0
CUOH4ION	9.76650E-14	0.0	0.0	0.0
CUOHION	8.39850E-10	0.0	0.0	0.0
DODECION	3.94412E-05	0.0	0.0	0.0
FEIICLION	8.36379E-09	0.0	0.0	0.0
FEIICO32ION	6.85011E-14	0.0	0.0	0.0

FEIIH2PO4ION	5.04001E-14	0.0	0.0	0.0
FEIIHCO3ION	1.16685E-12	0.0	0.0	0.0
FEIIION	1.05556E-06	0.0	0.0	0.0
FEIIOH3ION	1.01884E-10	0.0	0.0	0.0
FEIIOH4ION	4.62955E-15	0.0	0.0	0.0
FEIIOHION	1.44889E-07	0.0	0.0	0.0
H2P2O7ION	4.34210E-18	0.0	0.0	0.0
H2PO4ION	1.56614E-10	0.0	0.0	0.0
H2SIO4ION	4.08733E-11	0.0	0.0	0.0
H3P2O7ION	2.70101E-24	0.0	0.0	0.0
H3SIO4ION	1.32563E-06	0.0	0.0	0.0
HCO3ION	3.00982E-08	0.0	0.0	0.0
HION	7.03022E-11	0.0	0.0	0.0
HP2O7ION	1.15966E-16	0.0	0.0	0.0
HPBO2ION	2.30770E-11	0.0	0.0	0.0
HPO4ION	2.83619E-09	0.0	0.0	0.0
HSO4ION	7.86710E-10	0.0	0.0	0.0
KION	7.23065E-04	0.0	0.0	0.0
KSO4ION	1.14865E-04	0.0	0.0	0.0
MGH2PO4ION	2.48639E-11	0.0	0.0	0.0
MGHCO3ION	5.43017E-09	0.0	0.0	0.0
MGHSIO3ION	1.28646E-07	0.0	0.0	0.0
MGION	2.08852E-05	0.0	0.0	0.0
MGOHION	1.06621E-07	0.0	0.0	0.0
MGP2O7ION	4.53546E-13	0.0	0.0	0.0
MGPO4ION	6.64250E-10	0.0	0.0	0.0
NACO3ION	1.80894E-10	0.0	0.0	0.0
NAION	0.00537055	0.0	0.0	0.0
NASO4ION	1.04548E-12	0.0	0.0	0.0
NICLION	1.27981E-10	0.0	0.0	0.0
NIION	1.47881E-09	0.0	0.0	0.0
NINO3ION	2.50481E-10	0.0	0.0	0.0
NIOH3ION	1.56572E-14	0.0	0.0	0.0
NIOHION	6.58340E-11	0.0	0.0	0.0
NO3ION	8.62820E-04	0.0	0.0	0.0
P2O7ION	4.85164E-17	0.0	0.0	0.0
PBCL3ION	1.90182E-07	0.0	0.0	0.0
PBCL4ION	1.68331E-06	0.0	0.0	0.0
PBCLION	2.72105E-08	0.0	0.0	0.0
PBH2PO4ION	1.47298E-15	0.0	0.0	0.0
PBION	1.94412E-09	0.0	0.0	0.0
PBNO33ION	1.61992E-10	0.0	0.0	0.0
PBNO3ION	9.01168E-09	0.0	0.0	0.0
PBOHION	2.51963E-08	0.0	0.0	0.0
PO4ION	6.94035E-13	0.0	0.0	0.0
SO4ION	6.26220E-04	0.0	0.0	0.0
SRION	5.39637E-09	0.0	0.0	0.0
SRNO3ION	1.33340E-07	0.0	0.0	0.0
SROHION	1.56583E-11	0.0	0.0	0.0
SRPO4ION	2.10597E-14	0.0	0.0	0.0
UIVOH2ION	4.61336E-26	0.0	0.0	0.0
UIVOH3ION	2.01776E-20	0.0	0.0	0.0
UIVOH5ION	2.94892E-14	0.0	0.0	0.0
UIVOHION	1.01967E-30	0.0	0.0	0.0
ZNCL3ION	3.81445E-06	0.0	0.0	0.0
ZNCLION	7.50177E-06	0.0	0.0	0.0
ZNH2PO4ION	7.57712E-14	0.0	0.0	0.0
ZNHCO3ION	1.41289E-11	0.0	0.0	0.0

ZNION	4.53685E-07	0.0	0.0	0.0
ZNNO3ION	5.39589E-08	0.0	0.0	0.0
ZNOH3ION	3.62949E-09	0.0	0.0	0.0
ZNOH4ION	5.32544E-12	0.0	0.0	0.0
ZNOHION	5.41976E-06	0.0	0.0	0.0
CA3PO42	0.0	2.53192E-04	0.0	0.0
CHAMOSITE7A	0.0	5.92592E-05	0.0	0.0
MG3PO42	0.0	1.56351E-04	0.0	0.0
MGOH2	0.0	3.88163E-05	0.0	0.0
PB3PO42	0.0	1.41812E-06	0.0	0.0
UIVO2	0.0	7.98317E-06	0.0	0.0
ZN3PO42.2H2O	0.0	1.00814E-05	0.0	0.0
=====				
Total g/hr	2.10458	0.232308	0.0	0.0
Volume, L/hr	0.00191896	5.45597E-05	0.0	0.0
Enthalpy, cal/hr	-6853.07	-670.273	0.0	0.0
Density, g/L	1096.73	4257.87		
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	212.438			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.517329			
E-Con, cm2/ohm-mol	62.3255			
Abs Visc, cP	0.453761			
Rel Visc	1.67516			
Ionic Strength	4.18054			

STREAM: Cooled Bottoms
 TO :
 FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	8.45333			
Total mol/hr	0.1038484	7.51503E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0908018	0.0	0.0	0.0
CO2	2.18837E-11	0.0	0.0	0.0
H2SO4	0.0	0.0	0.0	0.0
HCL	3.72844E-18	0.0	0.0	0.0
HNO3	4.61629E-14	0.0	0.0	0.0
LAURICACID	2.45071E-09	0.0	0.0	0.0
CAH2SIO4	5.35734E-11	0.0	0.0	0.0
CASO4	4.73433E-07	0.0	0.0	0.0
CDCL2	6.83966E-09	0.0	0.0	0.0
CDOH2	2.78585E-16	0.0	0.0	0.0
CDSO4	4.29915E-12	0.0	0.0	0.0
CROH3	8.14920E-10	1.83284E-07	0.0	0.0
CUCL2	1.15686E-10	0.0	0.0	0.0
CUCO3	2.09594E-12	0.0	0.0	0.0
CUNO32	9.73156E-13	0.0	0.0	0.0
CUOH2	4.71092E-09	9.28709E-06	0.0	0.0
FEIICL2	1.94820E-11	0.0	0.0	0.0
FEIICO3	4.06223E-09	2.41388E-08	0.0	0.0
FEIIHPO4	1.84567E-11	0.0	0.0	0.0
FEIIOH2	1.14281E-10	0.0	0.0	0.0
H3PO4	2.09400E-17	0.0	0.0	0.0
ALOH3	3.43963E-16	0.0	0.0	0.0
BACO3	9.14242E-17	0.0	0.0	0.0
KCL	2.91411E-06	0.0	0.0	0.0
KHSO4	1.68702E-14	0.0	0.0	0.0
BASO4	1.63310E-13	4.47136E-07	0.0	0.0
MGCO3	3.88152E-09	0.0	0.0	0.0
MGH2SIO4	6.94324E-08	0.0	0.0	0.0
MGHPO4	1.12239E-07	0.0	0.0	0.0
MGSO4	1.10639E-04	0.0	0.0	0.0
NAHCO3	2.16772E-09	0.0	0.0	0.0
NAHSIO3	1.37337E-05	0.0	0.0	0.0
NANO3	1.36905E-04	0.0	0.0	0.0
NIOH2	5.04194E-12	2.01969E-06	0.0	0.0
NISO4	2.86915E-09	0.0	0.0	0.0
PBCL2	2.12250E-09	0.0	0.0	0.0
PBHP04	6.50288E-15	0.0	0.0	0.0
PBNO32	1.62985E-11	0.0	0.0	0.0
PBO	2.95606E-12	0.0	0.0	0.0
CACL2	3.52355E-24	0.0	0.0	0.0
SIO2	1.88682E-06	1.73895E-04	0.0	0.0
CACO3	6.41544E-11	0.0	0.0	0.0
SRHP04	1.76452E-13	0.0	0.0	0.0
SRNO32	1.71613E-08	0.0	0.0	0.0

SRSO4	3.42181E-08	2.91313E-05	0.0	0.0
UIVOH4	1.77184E-13	0.0	0.0	0.0
ZNCL2	1.95975E-07	0.0	0.0	0.0
ZNHPO4	3.84068E-11	0.0	0.0	0.0
ZNNO32	2.90055E-09	0.0	0.0	0.0
ZNOH2	6.45414E-09	4.84409E-05	0.0	0.0
OHION	3.75646E-09	0.0	0.0	0.0
ALION	1.68417E-24	0.0	0.0	0.0
ALOH2ION	7.72335E-19	0.0	0.0	0.0
ALOH4ION	7.44227E-14	0.0	0.0	0.0
ALOHCLION	7.90217E-21	0.0	0.0	0.0
ALOHION	1.19488E-21	0.0	0.0	0.0
ALSO42ION	9.33888E-24	0.0	0.0	0.0
ALSO4ION	7.51685E-24	0.0	0.0	0.0
BAHCO3ION	7.52584E-16	0.0	0.0	0.0
BAION	2.82791E-07	0.0	0.0	0.0
BAOHION	2.16291E-17	0.0	0.0	0.0
CACLION	4.23683E-11	0.0	0.0	0.0
CAH2PO4ION	6.76513E-12	0.0	0.0	0.0
CAHCO3ION	1.18315E-10	0.0	0.0	0.0
CAHSIO3ION	4.19423E-09	0.0	0.0	0.0
CAION	8.57375E-06	0.0	0.0	0.0
CANO3ION	3.70959E-06	0.0	0.0	0.0
CAOHION	9.45090E-11	0.0	0.0	0.0
CAPO4ION	1.66588E-09	0.0	0.0	0.0
CDCL3ION	3.42584E-09	0.0	0.0	0.0
CDCL4ION	4.81624E-08	0.0	0.0	0.0
CDCLION	4.71748E-10	0.0	0.0	0.0
CDION	2.10649E-11	0.0	0.0	0.0
CDNO3ION	3.52498E-12	0.0	0.0	0.0
CDOH3ION	4.40744E-20	0.0	0.0	0.0
CDOH4ION	5.95045E-25	0.0	0.0	0.0
CDOHION	4.26988E-14	0.0	0.0	0.0
CLION	0.00393781	0.0	0.0	0.0
CO3ION	1.53943E-09	0.0	0.0	0.0
CRIIIICL2ION	1.01875E-15	0.0	0.0	0.0
CRIIIICLION	5.17648E-17	0.0	0.0	0.0
CRIIIH2PO4ION	6.67944E-18	0.0	0.0	0.0
CRIIIHPO4ION	7.42140E-11	0.0	0.0	0.0
CRIIIION	9.58176E-21	0.0	0.0	0.0
CRIIIINO3ION	2.10488E-13	0.0	0.0	0.0
CROH2ION	2.95535E-12	0.0	0.0	0.0
CROH4ION	1.06600E-11	0.0	0.0	0.0
CROHION	4.13843E-10	0.0	0.0	0.0
CRSO4ION	1.44227E-11	0.0	0.0	0.0
CUCL3ION	2.51098E-12	0.0	0.0	0.0
CUCLION	3.73244E-10	0.0	0.0	0.0
CUCO32ION	6.82880E-15	0.0	0.0	0.0
CUION	3.51924E-10	0.0	0.0	0.0
CUNO3ION	7.17203E-11	0.0	0.0	0.0
CUOH3ION	2.70013E-12	0.0	0.0	0.0
CUOH4ION	6.00867E-16	0.0	0.0	0.0
CUOHION	3.18656E-10	0.0	0.0	0.0
DODECION	3.94431E-05	0.0	0.0	0.0
FEIICLION	7.77142E-09	0.0	0.0	0.0
FEIICO32ION	2.94832E-13	0.0	0.0	0.0
FEIIH2PO4ION	6.11747E-13	0.0	0.0	0.0
FEIIHCO3ION	1.12598E-12	0.0	0.0	0.0

FEIIION	6.71690E-06	0.0	0.0	0.0
FEIIOH3ION	4.30902E-12	0.0	0.0	0.0
FEIIOH4ION	1.46323E-17	0.0	0.0	0.0
FEIIOHION	1.76917E-07	0.0	0.0	0.0
H2P2O7ION	5.94515E-19	0.0	0.0	0.0
H2PO4ION	2.37478E-10	0.0	0.0	0.0
H2SIO4ION	5.04286E-11	0.0	0.0	0.0
H3P2O7ION	2.12731E-26	0.0	0.0	0.0
H3SIO4ION	1.12575E-07	0.0	0.0	0.0
HCO3ION	1.05655E-08	0.0	0.0	0.0
HION	5.67212E-12	0.0	0.0	0.0
HP2O7ION	2.82958E-16	0.0	0.0	0.0
HPBO2ION	2.36820E-14	0.0	0.0	0.0
HPO4ION	5.52793E-08	0.0	0.0	0.0
HSO4ION	1.02937E-11	0.0	0.0	0.0
KION	7.61191E-04	0.0	0.0	0.0
KSO4ION	8.62274E-05	0.0	0.0	0.0
MGH2PO4ION	1.16567E-09	0.0	0.0	0.0
MGHCO3ION	3.83726E-08	0.0	0.0	0.0
MGHSIO3ION	1.03905E-06	0.0	0.0	0.0
MGION	4.05930E-04	0.0	0.0	0.0
MGOHION	1.21421E-07	0.0	0.0	0.0
MGP2O7ION	1.60805E-11	0.0	0.0	0.0
MGPO4ION	2.69500E-07	0.0	0.0	0.0
NACO3ION	7.15055E-10	0.0	0.0	0.0
NAION	0.00536897	0.0	0.0	0.0
NASO4ION	2.62761E-04	0.0	0.0	0.0
NICLION	6.16331E-10	0.0	0.0	0.0
NIION	1.65129E-08	0.0	0.0	0.0
NINO3ION	4.51036E-09	0.0	0.0	0.0
NIOH3ION	5.85351E-14	0.0	0.0	0.0
NIOHION	8.46959E-11	0.0	0.0	0.0
NO3ION	0.0011333	0.0	0.0	0.0
P2O7ION	7.39577E-15	0.0	0.0	0.0
PBCL3ION	6.84063E-09	0.0	0.0	0.0
PBCL4ION	1.79393E-07	0.0	0.0	0.0
PBCLION	8.61106E-10	0.0	0.0	0.0
PBH2PO4ION	4.29542E-17	0.0	0.0	0.0
PBION	1.43765E-10	0.0	0.0	0.0
PBNO33ION	5.80028E-12	0.0	0.0	0.0
PBNO3ION	1.57552E-10	0.0	0.0	0.0
PBOHION	7.89056E-11	0.0	0.0	0.0
PO4ION	9.31693E-11	0.0	0.0	0.0
SO4ION	7.60284E-04	0.0	0.0	0.0
SRION	3.77430E-07	0.0	0.0	0.0
SRNO3ION	1.20222E-07	0.0	0.0	0.0
SROHION	7.43923E-13	0.0	0.0	0.0
SRPO4ION	3.18865E-13	0.0	0.0	0.0
UIVOH2ION	3.10919E-27	0.0	0.0	0.0
UIVOH3ION	2.71601E-20	0.0	0.0	0.0
UIVOH5ION	1.04767E-14	0.0	0.0	0.0
UIVOHION	0.0	0.0	0.0	0.0
ZNCL3ION	4.38919E-07	0.0	0.0	0.0
ZNCLION	2.57605E-07	0.0	0.0	0.0
ZNH2PO4ION	2.07236E-13	0.0	0.0	0.0
ZNHCO3ION	6.75183E-12	0.0	0.0	0.0
ZNION	9.69682E-07	0.0	0.0	0.0
ZNNO3ION	1.18865E-07	0.0	0.0	0.0

ZNOH3ION	4.26534E-11	0.0	0.0	0.0
ZNOH4ION	2.67470E-14	0.0	0.0	0.0
ZNOHION	2.73122E-08	0.0	0.0	0.0
CA3PO42	0.0	4.11373E-04	0.0	0.0
CHAMOSITE7A	0.0	5.92593E-05	0.0	0.0
CU3PO42.2H2O	0.0	5.19274E-08	0.0	0.0
FEII3PO42.8H2O	0.0	1.79198E-06	0.0	0.0
MG3PO42	0.0	5.58503E-06	0.0	0.0
PB3PO42	0.0	2.03019E-06	0.0	0.0
UIVO2	0.0	7.98319E-06	0.0	0.0
	=====	=====	=====	=====
Total g/hr	2.16101	0.175877	0.0	0.0
Volume, L/hr	0.00181226	4.73683E-05	0.0	0.0
Enthalpy, cal/hr	-7145.9	-519.676	0.0	0.0
Density, g/L	1192.44	3712.97		
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	212.328			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.191752			
E-Con, cm2/ohm-mol	28.9825			
Abs Visc, cP	1.64804			
Rel Visc	1.85024			
Ionic Strength	4.99138			

ESP V-6.6

PROCESS:AWE85_6

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STREAM: Condensate
TO :
FROM : Condensate mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	4.16393			
Total mol/hr	13.77792	0.0	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	13.7762	0.0	0.0	0.0
CO2	0.00165552	0.0	0.0	0.0
HCL	1.30038E-20	0.0	0.0	0.0
HNO3	2.79394E-16	0.0	0.0	0.0
LAURICACID	3.41000E-05	0.0	0.0	0.0
OHION	3.70698E-11	0.0	0.0	0.0
CLION	3.23314E-10	0.0	0.0	0.0
CO3ION	7.80462E-12	0.0	0.0	0.0
DODECION	6.11429E-06	0.0	0.0	0.0
HCO3ION	1.10661E-05	0.0	0.0	0.0
HION	1.71809E-05	0.0	0.0	0.0
NO3ION	8.25564E-11	0.0	0.0	0.0
	=====	=====	=====	=====
Total g/hr	248.264	0.0	0.0	0.0
Volume, L/hr	0.249024	0.0	0.0	0.0
Enthalpy, cal/hr	-9.41267E+05	0.0	0.0	0.0
Density, g/L	996.949			
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	0.16944			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	2.75028E-05			
E-Con, cm2/ohm-mol	4.01269			
Abs Visc, cP	0.890758			
Rel Visc	1.00004			
Ionic Strength	6.92274E-05			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	1.53562D+05
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-1.42231D+02
MIX	CONDENSATE MIXER	-1.53416D+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P,V/F
 V/F (molar) 0.992881

Standard Block Information

Duty, cal/hr 153562.

	In	Out	Rel. Diff.
Total Mass g/hr	250.601	250.601	-3.40243E-16
Total Energy cal/hr	-9.48936E+05	-7.95374E+05	0.0

Mix Output

Outlet Temperature, C 103.746
 Outlet Pressure, atm 1.
 Aqueous pH 7.47492
 V/F (molar) 0.992884

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0975109	2.10458	0.00191896	-6853.07
Solid	0.00122912	0.232308	5.45597E-05	-670.273
Vapor	13.7779	248.264	422.644	-7.87851E+05
2nd Liq	0.0	0.0	0.0	0.0
Total	13.8766	250.601	422.646	-7.95374E+05

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===== BLOCK REPORT =====

BLOCK NAME: Evap separator

BLOCK TYPE: Separate

=====

Separate Input

Liquid Outlet Stream	Bottoms	
Vapor Outlet Stream	Overhead	
Suspended Solids, g solid/g liq solution		0.0
Entrained Liquid, g solid/g vapor		0.0
Dissolved Liquid, g liquid/g solid		0.0
Dissolved Vapor, g vapor/g liq solution		0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution		0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution		0.0

Pressure Specification,atm

Outlet Pressure = Min Inlet Pressure

Equilibrium Type Adiabatic

Duty,cal/hr 0.0

Standard Block Information

Duty, cal/hr	0.0			
		In	Out	Rel. Diff.
Total Mass	g/hr	250.601	250.601	0.0
Total Energy	cal/hr	-7.95374E+05	-7.95374E+05	0.0

Separate Output

Outlet Temperature, C	103.746
Outlet Pressure, atm	1.
Aqueous pH	7.47492
Suspended Solids, g solid/g liq solution	0.110382
Entrained Liquid, g solid/g vapor	0.0
Dissolved Liquid, g liquid/g solid	0.0
Dissolved Vapor, g vapor/g liq solution	0.0
Dissolved Aqueous Liquid in Organic Liquid, g aq liquid/g 2nd liquid solution	0.0
Dissolved 2nd Liquid in Aqueous Liquid, g 2nd liquid/ g aq liquid solution	0.0

Liquid Stream

Bottoms

Outlet Flow

Outlet Enthalpy

	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0975109	2.10458	0.00191896	-6853.07
Solid	0.00122912	0.232308	5.45597E-05	-670.273
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0987401	2.33689	0.00197352	-7523.34

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PROCESS:AWE85_6

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	13.7779	248.264	422.644	-7.87851E+05
2nd Liq	0.0	0.0	0.0	0.0
Total	13.7779	248.264	422.644	-7.87851E+05

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -142.231

	In	Out	Rel. Diff.
Total Mass g/hr	2.33689	2.33689	9.50172E-16
Total Energy cal/hr	-7523.34	-7665.57	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 8.45333
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0979924	2.16101	0.00181226	-7145.9
Solid	7.51503E-04	0.175877	4.73683E-05	-519.676
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0987439	2.33689	0.00185963	-7665.57

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===== BLOCK REPORT =====
 BLOCK NAME: Condensate mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -1.53416E+05

	In	Out	Rel. Diff.
Total Mass g/hr	248.264	248.264	1.79736E-14
Total Energy cal/hr	-7.87851E+05	-9.41267E+05	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 4.16393
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	13.7779	248.264	0.249024	-9.41267E+05
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	13.7779	248.264	0.249024	-9.41267E+05

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===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====

```

Controller Input

Convergence Tolerance	Default Tolerance
Specification Value	
Composition, weight fraction	0.7
Species	
H2O	
Controlled block	Mix: Evap mixer
Control Parameter	Vapor Fraction
Control Parameter Minimum	0.0
Control Parameter Maximum	0.993
Control Parameter Step Size	
Slope Technique with Defaults	
Maximum Iterations	20.
Continue at Maximum Iterations with last try	

Specification Phase:	Total
Specification Composition:	Solution Species

Controller Output

Specification Stream	Cooled Bottoms
Controlled Block	Evap mixer
Control Parameter Type:	General Process Variable
Convergence:	Converged
Iterations Completed this Sequence	13.
Total Iterations Completed all Sequences	13.
Last Parameter Value	0.992881
Last DIFF (Computed-Setpoint)	1.64308E-06
Previous Parameter Value	0.992875
Previous DIFF (Computed-Setpoint)	1.75082E-04
Control Parameter Minimum	0.992875
Control Parameter Maximum	0.992966
Control Parameter Stepsize	0.0
Maximum Iterations	0.0

Influent Limit Composition 95% Target pH=8.5
8.5-95

=====

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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 September 1, 2002

PROCESS: AWE85_7

CHEMISTRY MODEL: RAW

THIS FILE NAME: AWE85_7.LIS

DATE: 12/05/2002

=====

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----- Error Report -----

THE FOLLOWING ERRORS WERE FOUND:

*** ERROR: EQUILIBRIUM COMPUTATION FAILED TO CONVERGE.
EXECUTION WILL BE TERMINATED.

*** ERROR: THE EQUILIBRIUM COMPUTATION DID NOT CONVERGE.
EQUILIBRIUM FUNCTION 9:
PRES, V/F (COMPUTE TEMP)

*** ERROR: THE EQUILIBRIUM COMPUTATION DID NOT CONVERGE
BLOCK NAME: EVAP MIXER
STREAM NAME: EVAP CONTENTS

***** EXECUTION HAS BEEN TERMINATED *****

Overall Process Balances

Inlet	g/hr	cal/hr
FEED	1.00000D+03	-3.79027D+06
Total in	1.00000D+03	-3.79027D+06

Outlet	g/hr	cal/hr
COOLED BOTTOMS	3.63365D+00	-1.23015D+04
CONDENSATE	0.00000D+00	0.00000D+00
Total out	3.63365D+00	-1.23015D+04

Block Heat Duties	cal/hr
EVAP BOTTOMS COOLING MIXER	-2.31165D+02
Total Duty	-2.31165D+02

DIFFERENCE	-9.96366D+02	3.77820D+06
REL DIFFERENCE	-9.96366D-01	-9.96815D-01

Material Code Balances

Code	Input mol/hr	Outlet mol/hr	Difference mol/hr	Rel Diff
H(+1)	1.10908D+02	3.06712D-01	-1.10601D+02	-9.97235D-01
K(+1)	1.08048D-03	1.08048D-03	-2.60209D-18	-2.40828D-15
NA(+1)	7.34738D-03	7.34738D-03	-5.20417D-18	-7.08303D-16
BA(+2)	8.02920D-07	8.02920D-07	1.35525D-20	1.68791D-14
CA(+2)	1.44638D-03	1.44638D-03	2.16840D-19	1.49919D-16
ZN(+2)	5.65749D-05	5.65749D-05	-6.77626D-21	-1.19775D-16
CU(+2)	1.16535D-05	1.16535D-05	-1.69407D-21	-1.45369D-16
FE(+2)	1.46953D-04	1.46953D-04	-2.71051D-20	-1.84447D-16
MG(+2)	5.76132D-04	5.76132D-04	0.00000D+00	0.00000D+00
PB(+2)	1.01449D-05	1.01449D-05	-1.69407D-21	-1.66986D-16
AL(+3)	2.25926D-04	2.25926D-04	0.00000D+00	0.00000D+00
NI(+2)	2.55537D-06	2.55537D-06	-8.47033D-22	-3.31472D-16
O(-2)	5.54751D+01	1.70828D-01	-5.53042D+01	-9.96921D-01
CL(-1)	4.50704D-03	4.50685D-03	-1.93919D-07	-4.30258D-05
C(+4)	1.83333D-03	8.23570D-10	-1.83333D-03	-1.00000D+00
P(+5)	1.15789D-03	1.15789D-03	0.00000D+00	0.00000D+00
S(+6)	1.66667D-03	1.66667D-03	8.67362D-19	5.20417D-16
N(+5)	1.77419D-03	1.77413D-03	-6.74142D-08	-3.79971D-05
SI(+4)	2.66667D-04	2.66667D-04	0.00000D+00	0.00000D+00
SR(+2)	3.08219D-05	3.08219D-05	-6.77626D-21	-2.19852D-16
CD(+2)	6.96429D-08	6.96429D-08	-2.06464D-21	-2.96461D-14
CR(+3)	2.50000D-06	2.50000D-06	7.62330D-21	3.04932D-15

U (+4)	1.17647D-05	1.17647D-05	-1.69407D-21	-1.43996D-16
DODEC (-1)	1.34809D-04	2.31748D-07	-1.34577D-04	-9.98281D-01

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PROCESS BLOCKS

=====

BLOCK NAME	BLOCK TYPE	INLET STREAM(s)	OUTLET STREAM(s)
=====	=====	=====	=====
Evap mixer	Mix	feed	Evap Contents
Evap separator	Separate	Evap Contents	Overhead Bottoms
Evap Bottoms Cooling mixer	Mix	Bottoms	Cooled Bottoms
Condensate mixer	Mix	Overhead	Condensate

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PROCESS:AWE85_7

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STREAM: feed
 TO : Evap mixer
 FROM :

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.60357			
Total mol/hr	55.47341	3.82531E-04	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	55.4523	0.0	0.0	0.0
CO2	5.88079E-04	0.0	0.0	0.0
H2SO4	2.14444E-25	0.0	0.0	0.0
HCL	5.87155E-16	0.0	0.0	0.0
HNO3	1.93306E-11	0.0	0.0	0.0
LAURICACID	2.37575E-06	0.0	0.0	0.0
SO3	2.77646E-29	0.0	0.0	0.0
CAH2SIO4	1.65311E-12	0.0	0.0	0.0
CASO4	2.15063E-05	0.0	0.0	0.0
CDCL2	8.73138E-10	0.0	0.0	0.0
CDOH2	3.06941E-15	0.0	0.0	0.0
CDSO4	9.76996E-09	0.0	0.0	0.0
CROH3	3.66859E-12	0.0	0.0	0.0
CUCL2	2.66926E-13	0.0	0.0	0.0
CUCO3	7.66956E-09	0.0	0.0	0.0
CUNO32	8.70434E-15	0.0	0.0	0.0
CUOH2	9.38132E-10	0.0	0.0	0.0
FEIICL2	6.99770E-15	0.0	0.0	0.0
FEIICO3	2.31403E-06	0.0	0.0	0.0
FEIIHPO4	2.87252E-07	0.0	0.0	0.0
FEIIOH2	3.54278E-12	0.0	0.0	0.0
ALO2H2CL	1.13614E-28	0.0	0.0	0.0
H3PO4	1.78881E-08	0.0	0.0	0.0
H4P2O7	5.69496E-19	0.0	0.0	0.0
ALOH3	2.39696E-09	2.25921E-04	0.0	0.0
BACO3	1.02454E-11	0.0	0.0	0.0
KCL	3.12107E-08	0.0	0.0	0.0
KHSO4	4.02679E-13	0.0	0.0	0.0
BASO4	2.05430E-10	5.96795E-07	0.0	0.0
MGCO3	5.76744E-08	0.0	0.0	0.0
MGH2SIO4	7.86632E-12	0.0	0.0	0.0
MGHPO4	4.55648E-05	0.0	0.0	0.0
MGSO4	1.84531E-05	0.0	0.0	0.0
NAHCO3	2.88488E-06	0.0	0.0	0.0
NAHSIO3	1.19823E-07	0.0	0.0	0.0
NANO3	5.77473E-07	0.0	0.0	0.0
NIOH2	2.26487E-12	0.0	0.0	0.0
NISO4	2.65836E-07	0.0	0.0	0.0
PBCL2	5.41616E-12	0.0	0.0	0.0
PBHPO4	7.19010E-10	0.0	0.0	0.0
PBNO32	1.61226E-13	0.0	0.0	0.0
PBO	5.59764E-13	0.0	0.0	0.0
CACL2	8.99132E-27	0.0	0.0	0.0
SIO2	2.66369E-04	0.0	0.0	0.0

CACO3	2.59629E-07	0.0	0.0	0.0
SRHPO4	3.89643E-08	0.0	0.0	0.0
SRNO32	3.39037E-10	0.0	0.0	0.0
SRSO4	3.10437E-06	0.0	0.0	0.0
UIVOH4	3.01492E-10	0.0	0.0	0.0
UIVSO42	8.13058E-28	0.0	0.0	0.0
ZNCL2	6.18387E-10	0.0	0.0	0.0
ZNHPO4	5.25114E-06	0.0	0.0	0.0
ZNNO32	3.54800E-11	0.0	0.0	0.0
ZNOH2	1.75771E-09	0.0	0.0	0.0
OHION	4.60240E-08	0.0	0.0	0.0
ALION	4.52770E-13	0.0	0.0	0.0
ALOH2ION	1.24146E-10	0.0	0.0	0.0
ALOH4ION	2.74052E-09	0.0	0.0	0.0
ALOHCLION	8.83684E-14	0.0	0.0	0.0
ALOHION	9.77565E-12	0.0	0.0	0.0
ALSO42ION	1.19020E-14	0.0	0.0	0.0
ALSO4ION	1.61581E-13	0.0	0.0	0.0
BAHCO3ION	1.46170E-09	0.0	0.0	0.0
BAION	2.04448E-07	0.0	0.0	0.0
BAOHION	3.04033E-15	0.0	0.0	0.0
CACLION	6.44274E-11	0.0	0.0	0.0
CAH2PO4ION	1.29656E-05	0.0	0.0	0.0
CAHCO3ION	8.25846E-06	0.0	0.0	0.0
CAHSIO3ION	1.92946E-09	0.0	0.0	0.0
CAION	0.00100232	0.0	0.0	0.0
CANO3ION	2.83133E-06	0.0	0.0	0.0
CAOHION	4.76212E-10	0.0	0.0	0.0
CAPO4ION	6.38928E-07	0.0	0.0	0.0
CDCL3ION	1.89631E-13	0.0	0.0	0.0
CDCL4ION	6.06681E-16	0.0	0.0	0.0
CDCLION	1.16788E-08	0.0	0.0	0.0
CDION	4.71749E-08	0.0	0.0	0.0
CDNO3ION	1.35168E-10	0.0	0.0	0.0
CDOH3ION	1.95615E-21	0.0	0.0	0.0
CDOH4ION	5.58342E-29	0.0	0.0	0.0
CDOHION	1.07667E-11	0.0	0.0	0.0
CLION	0.00450684	0.0	0.0	0.0
CO3ION	3.37226E-07	0.0	0.0	0.0
CRIIIICL2ION	7.92186E-19	0.0	0.0	0.0
CRIIIICLION	1.57855E-15	0.0	0.0	0.0
CRIIIH2PO4ION	2.04458E-12	0.0	0.0	0.0
CRIIIHPO4ION	2.49973E-06	0.0	0.0	0.0
CRIIIIION	1.86127E-13	0.0	0.0	0.0
CRIIINO3ION	3.73731E-14	0.0	0.0	0.0
CROH2ION	3.05820E-13	0.0	0.0	0.0
CROH4ION	1.93312E-16	0.0	0.0	0.0
CROHION	4.18799E-11	0.0	0.0	0.0
CRSO4ION	2.21003E-10	0.0	0.0	0.0
CUCL3ION	2.51216E-18	0.0	0.0	0.0
CUCLION	1.67009E-10	0.0	0.0	0.0
CUCO32ION	3.89477E-12	0.0	0.0	0.0
CUION	1.12996E-08	0.0	0.0	0.0
CUNO3ION	4.40196E-11	0.0	0.0	0.0
CUOH3ION	2.31147E-15	0.0	0.0	0.0
CUOH4ION	1.01496E-21	0.0	0.0	0.0
CUOHION	1.45801E-09	0.0	0.0	0.0
DODECION	1.32433E-04	0.0	0.0	0.0

FEIICLION	5.41330E-10	0.0	0.0	0.0
FEIICO32ION	2.55857E-11	0.0	0.0	0.0
FEIIH2PO4ION	1.65032E-07	0.0	0.0	0.0
FEIIHCO3ION	1.55723E-08	0.0	0.0	0.0
FEIIION	1.44045E-04	0.0	0.0	0.0
FEIIOH3ION	6.38887E-16	0.0	0.0	0.0
FEIIOH4ION	3.86809E-24	0.0	0.0	0.0
FEIIOHION	1.25535E-07	0.0	0.0	0.0
H2P2O7ION	1.97284E-09	0.0	0.0	0.0
H2PO4ION	5.79503E-04	0.0	0.0	0.0
H2SIO4ION	8.11052E-14	0.0	0.0	0.0
H3P2O7ION	7.39390E-14	0.0	0.0	0.0
H3SIO4ION	1.74147E-07	0.0	0.0	0.0
HCO3ION	0.00121675	0.0	0.0	0.0
HION	2.81373E-07	0.0	0.0	0.0
HP2O7ION	3.71199E-09	0.0	0.0	0.0
HPBO2ION	2.85838E-17	0.0	0.0	0.0
HPO4ION	2.13262E-04	0.0	0.0	0.0
HSO4ION	2.50925E-08	0.0	0.0	0.0
KION	0.00107284	0.0	0.0	0.0
KSO4ION	7.60891E-06	0.0	0.0	0.0
MGH2PO4ION	8.20271E-06	0.0	0.0	0.0
MGHCO3ION	1.37777E-05	0.0	0.0	0.0
MGHSIO3ION	1.75499E-09	0.0	0.0	0.0
MGION	4.89600E-04	0.0	0.0	0.0
MGOHION	2.24740E-09	0.0	0.0	0.0
MGP2O7ION	2.39980E-08	0.0	0.0	0.0
MGPO4ION	4.48086E-07	0.0	0.0	0.0
NACO3ION	5.21340E-09	0.0	0.0	0.0
NAION	0.00728684	0.0	0.0	0.0
NASO4ION	5.69499E-05	0.0	0.0	0.0
NICLION	6.22085E-10	0.0	0.0	0.0
NIION	2.28098E-06	0.0	0.0	0.0
NINO3ION	7.05143E-09	0.0	0.0	0.0
NIOH3ION	1.05921E-16	0.0	0.0	0.0
NIOHION	8.74541E-10	0.0	0.0	0.0
NO3ION	0.0017705	0.0	0.0	0.0
P2O7ION	1.82366E-11	0.0	0.0	0.0
PBCL3ION	1.19764E-14	0.0	0.0	0.0
PBCL4ION	4.39223E-17	0.0	0.0	0.0
PBCLION	4.26175E-10	0.0	0.0	0.0
PBH2PO4ION	8.23231E-11	0.0	0.0	0.0
PBION	5.71629E-09	0.0	0.0	0.0
PBNO33ION	4.89837E-17	0.0	0.0	0.0
PBNO3ION	1.20764E-10	0.0	0.0	0.0
PBOHION	3.99297E-10	0.0	0.0	0.0
PO4ION	7.67244E-10	0.0	0.0	0.0
SO4ION	0.00155815	0.0	0.0	0.0
SRION	2.75109E-05	0.0	0.0	0.0
SRNO3ION	1.67075E-07	0.0	0.0	0.0
SROHION	4.91284E-12	0.0	0.0	0.0
SRPO4ION	2.43898E-10	0.0	0.0	0.0
UIVCLION	0.0	0.0	0.0	0.0
UIVION	0.0	0.0	0.0	0.0
UIVOH2ION	3.74688E-21	0.0	0.0	0.0
UIVOH3ION	9.59876E-16	0.0	0.0	0.0
UIVOH5ION	7.18116E-14	0.0	0.0	0.0
UIVOHION	2.62284E-25	0.0	0.0	0.0

UIVSO4ION	1.97515E-28	0.0	0.0	0.0
ZNCL3ION	9.50209E-13	0.0	0.0	0.0
ZNCLION	1.57635E-07	0.0	0.0	0.0
ZNH2PO4ION	4.91130E-07	0.0	0.0	0.0
ZNHCO3ION	5.85854E-07	0.0	0.0	0.0
ZNION	3.64782E-05	0.0	0.0	0.0
ZNNO3ION	1.12664E-07	0.0	0.0	0.0
ZNOH3ION	7.90121E-14	0.0	0.0	0.0
ZNOH4ION	6.00796E-20	0.0	0.0	0.0
ZNOHION	1.22109E-07	0.0	0.0	0.0
CA3PO42	0.0	1.32534E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.87732E-06	0.0	0.0
PB3PO42	0.0	3.37915E-06	0.0	0.0
UIVO2	0.0	1.17644E-05	0.0	0.0
ZN3PO42.2H2O	0.0	4.45792E-06	0.0	0.0
=====				
Total g/hr	999.932	0.0682873	0.0	0.0
Volume, L/hr	1.00238	2.08656E-05	0.0	0.0
Enthalpy, cal/hr	-3.79006E+06	-206.797	0.0	0.0
Density, g/L	997.561	3272.72		
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	0.536462			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.00128076			
E-Con, cm2/ohm-mol	121.201			
Abs Visc, cP	0.893498			
Rel Visc	1.00312			
Ionic Strength	0.0153053			

STREAM: Overhead
 TO : Condensate mixer
 FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.758	102.758	102.758	102.758
Pressure, atm	1.	1.	1.	1.
pH	0.0			
Total mol/hr	0.0	0.0	55.3025	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.0	0.0	55.30053	0.0
CO2	0.0	0.0	0.001833328	0.0
H2SO4	0.0	0.0	1.31523E-20	0.0
HCL	0.0	0.0	1.93919E-07	0.0
HNO3	0.0	0.0	6.74141E-08	0.0
LAURICACID	0.0	0.0	1.34577E-04	0.0
SO3	0.0	0.0	3.36954E-26	0.0
	=====	=====	=====	=====
Total g/hr	0.0	0.0	996.366	0.0
Volume, L/hr	0.0	0.0	1691.89	0.0
Enthalpy, cal/hr	0.0	0.0	-3.16259E+06	0.0
Density, g/L			0.588909	
Vapor fraction	0.0	0.0	1.	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	0.0			
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	0.0			

STREAM: Bottoms

TO : Evap Bottoms Cooling mixer

FROM : Evap separator

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	102.758	102.758	102.758	102.758
Pressure, atm	1.	1.	1.	1.
pH	5.08263			
Total mol/hr	0.1682612	0.0015345	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.152852	0.0	0.0	0.0
CO2	6.69204E-10	0.0	0.0	0.0
H2SO4	4.41457E-23	0.0	0.0	0.0
HCL	5.98412E-13	0.0	0.0	0.0
HNO3	8.86463E-10	0.0	0.0	0.0
LAURICACID	7.67677E-09	0.0	0.0	0.0
SO3	3.10456E-26	0.0	0.0	0.0
CAH2SIO4	6.85742E-16	0.0	0.0	0.0
CASO4	1.69342E-06	4.54313E-04	0.0	0.0
CDCL2	3.99162E-08	0.0	0.0	0.0
CDOH2	8.77107E-18	0.0	0.0	0.0
CDSO4	5.90676E-11	0.0	0.0	0.0
CROH3	3.17377E-18	0.0	0.0	0.0
CUCL2	3.02637E-10	0.0	0.0	0.0
CUCO3	3.08637E-17	0.0	0.0	0.0
CUNO32	5.29776E-12	0.0	0.0	0.0
CUOH2	1.68246E-12	0.0	0.0	0.0
FEIICL2	3.43290E-10	0.0	0.0	0.0
FEIICO3	6.18316E-14	0.0	0.0	0.0
FEIIHPO4	5.11030E-09	0.0	0.0	0.0
FEIIOH2	1.05483E-12	0.0	0.0	0.0
ALO2H2CL	2.17602E-27	0.0	0.0	0.0
H3PO4	1.66267E-08	0.0	0.0	0.0
H4P2O7	2.32381E-15	0.0	0.0	0.0
ALOH3	9.73109E-11	0.0	0.0	0.0
BACO3	2.71059E-20	0.0	0.0	0.0
KCL	1.13076E-05	0.0	0.0	0.0
KHSO4	1.89592E-09	0.0	0.0	0.0
BASO4	3.01780E-12	8.01051E-07	0.0	0.0
MGCO3	5.24374E-15	0.0	0.0	0.0
MGH2SIO4	6.67419E-14	0.0	0.0	0.0
MGHPO4	1.92050E-06	0.0	0.0	0.0
MGSO4	1.25320E-05	0.0	0.0	0.0
NAHCO3	7.76085E-11	0.0	0.0	0.0
NAHSIO3	2.85542E-08	0.0	0.0	0.0
NANO3	4.21807E-04	0.0	0.0	0.0
NIOH2	1.61452E-14	0.0	0.0	0.0
NISO4	2.92528E-07	0.0	0.0	0.0
PBCL2	5.36046E-08	0.0	0.0	0.0
PBHPO4	1.93828E-11	0.0	0.0	0.0
PBNO32	3.98408E-09	0.0	0.0	0.0
PBO	3.49688E-14	0.0	0.0	0.0
CACL2	7.14548E-16	0.0	0.0	0.0
SIO2	1.35224E-05	2.53106E-04	0.0	0.0

CACO3	1.61750E-15	0.0	0.0	0.0
SRHPO4	3.38548E-11	0.0	0.0	0.0
SRNO32	4.67742E-08	0.0	0.0	0.0
SRSO4	2.88560E-08	3.05916E-05	0.0	0.0
UIVOH4	3.69153E-12	0.0	0.0	0.0
UIVSO42	2.07856E-23	0.0	0.0	0.0
ZNCL2	1.82490E-06	0.0	0.0	0.0
ZNHPO4	2.09271E-09	0.0	0.0	0.0
ZNNO32	1.98934E-09	0.0	0.0	0.0
ZNOH2	1.45141E-12	0.0	0.0	0.0
OHION	3.07451E-10	0.0	0.0	0.0
ALION	4.05163E-14	0.0	0.0	0.0
ALOH2ION	1.09963E-11	0.0	0.0	0.0
ALOH4ION	1.09430E-10	0.0	0.0	0.0
ALOHCLION	2.49880E-12	0.0	0.0	0.0
ALOHION	1.30805E-12	0.0	0.0	0.0
ALSO42ION	3.94181E-13	0.0	0.0	0.0
ALSO4ION	2.98638E-13	0.0	0.0	0.0
BAHCO3ION	3.70181E-16	0.0	0.0	0.0
BAION	1.86794E-09	0.0	0.0	0.0
BAOHION	5.75384E-17	0.0	0.0	0.0
CACLION	3.18549E-08	0.0	0.0	0.0
CAH2PO4ION	1.33480E-06	0.0	0.0	0.0
CAHCO3ION	7.19440E-13	0.0	0.0	0.0
CAHSIO3ION	5.56821E-11	0.0	0.0	0.0
CAION	1.76439E-05	0.0	0.0	0.0
CANO3ION	4.62890E-06	0.0	0.0	0.0
CAOHION	1.18284E-11	0.0	0.0	0.0
CAPO4ION	1.73479E-10	0.0	0.0	0.0
CDCL3ION	2.20064E-08	0.0	0.0	0.0
CDCL4ION	3.80307E-09	0.0	0.0	0.0
CDCLION	3.72126E-09	0.0	0.0	0.0
CDION	1.08292E-10	0.0	0.0	0.0
CDNO3ION	2.85790E-11	0.0	0.0	0.0
CDOH3ION	8.54299E-24	0.0	0.0	0.0
CDOH4ION	5.09705E-30	0.0	0.0	0.0
CDOHION	1.59765E-14	0.0	0.0	0.0
CLION	0.00447894	0.0	0.0	0.0
CO3ION	8.66006E-15	0.0	0.0	0.0
CRIIIICL2ION	1.21326E-16	0.0	0.0	0.0
CRIIIICLION	6.56247E-16	0.0	0.0	0.0
CRIIIH2PO4ION	9.98496E-16	0.0	0.0	0.0
CRIIIHPO4ION	2.49999E-06	0.0	0.0	0.0
CRIIIIION	1.40014E-18	0.0	0.0	0.0
CRIIINO3ION	1.16513E-13	0.0	0.0	0.0
CROH2ION	9.30201E-18	0.0	0.0	0.0
CROH4ION	4.83299E-23	0.0	0.0	0.0
CROHION	1.54433E-13	0.0	0.0	0.0
CRSO4ION	8.17423E-12	0.0	0.0	0.0
CUCL3ION	2.87514E-12	0.0	0.0	0.0
CUCLION	3.09150E-09	0.0	0.0	0.0
CUCO32ION	4.71388E-25	0.0	0.0	0.0
CUION	1.15074E-09	0.0	0.0	0.0
CUNO3ION	2.18339E-10	0.0	0.0	0.0
CUOH3ION	1.02973E-17	0.0	0.0	0.0
CUOH4ION	1.45949E-22	0.0	0.0	0.0
CUOHION	2.30264E-11	0.0	0.0	0.0
DODECION	2.24071E-07	0.0	0.0	0.0

FEIICLION	1.17722E-07	0.0	0.0	0.0
FEIICO32ION	2.80230E-23	0.0	0.0	0.0
FEIIH2PO4ION	8.77411E-08	0.0	0.0	0.0
FEIIHCO3ION	2.99634E-14	0.0	0.0	0.0
FEIIION	2.32445E-05	0.0	0.0	0.0
FEIIOH3ION	1.34161E-16	0.0	0.0	0.0
FEIIOH4ION	2.20440E-23	0.0	0.0	0.0
FEIIOHION	1.29778E-08	0.0	0.0	0.0
H2P2O7ION	4.61453E-08	0.0	0.0	0.0
H2PO4ION	2.09966E-05	0.0	0.0	0.0
H2SIO4ION	1.05073E-15	0.0	0.0	0.0
H3P2O7ION	8.42216E-12	0.0	0.0	0.0
H3SIO4ION	9.82710E-09	0.0	0.0	0.0
HCO3ION	6.63714E-11	0.0	0.0	0.0
HION	3.53386E-08	0.0	0.0	0.0
HP2O7ION	6.45615E-09	0.0	0.0	0.0
HPBO2ION	2.12330E-18	0.0	0.0	0.0
HPO4ION	1.41284E-06	0.0	0.0	0.0
HSO4ION	4.25872E-07	0.0	0.0	0.0
KION	8.96648E-04	0.0	0.0	0.0
KSO4ION	1.72519E-04	0.0	0.0	0.0
MGH2PO4ION	2.94029E-06	0.0	0.0	0.0
MGHCO3ION	9.53608E-12	0.0	0.0	0.0
MGHSIO3ION	7.11339E-10	0.0	0.0	0.0
MGION	4.40300E-05	0.0	0.0	0.0
MGOHION	6.38780E-10	0.0	0.0	0.0
MGP2O7ION	6.33897E-08	0.0	0.0	0.0
MGPO4ION	1.27839E-09	0.0	0.0	0.0
NACO3ION	1.16510E-15	0.0	0.0	0.0
NAION	0.00692554	0.0	0.0	0.0
NASO4ION	1.34775E-09	0.0	0.0	0.0
NICLION	2.04376E-08	0.0	0.0	0.0
NIION	3.77255E-07	0.0	0.0	0.0
NINO3ION	5.05988E-08	0.0	0.0	0.0
NIOH3ION	2.47291E-19	0.0	0.0	0.0
NIOHION	6.65740E-11	0.0	0.0	0.0
NO3ION	0.00134731	0.0	0.0	0.0
P2O7ION	9.93175E-12	0.0	0.0	0.0
PBCL3ION	7.15029E-08	0.0	0.0	0.0
PBCL4ION	3.48423E-07	0.0	0.0	0.0
PBCLION	2.47255E-08	0.0	0.0	0.0
PBH2PO4ION	1.62179E-10	0.0	0.0	0.0
PBION	3.54662E-09	0.0	0.0	0.0
PBNO33ION	1.42914E-10	0.0	0.0	0.0
PBNO3ION	1.01521E-08	0.0	0.0	0.0
PBOHION	1.43266E-10	0.0	0.0	0.0
PO4ION	1.59596E-12	0.0	0.0	0.0
SO4ION	9.93468E-04	0.0	0.0	0.0
SRION	4.32871E-12	0.0	0.0	0.0
SRNO3ION	1.54787E-07	0.0	0.0	0.0
SROHION	8.22292E-14	0.0	0.0	0.0
SRPO4ION	3.91153E-14	0.0	0.0	0.0
UIVCLION	2.90894E-27	0.0	0.0	0.0
UIVION	1.74929E-29	0.0	0.0	0.0
UIVOH2ION	6.55200E-21	0.0	0.0	0.0
UIVOH3ION	9.58016E-18	0.0	0.0	0.0
UIVOH5ION	2.14115E-16	0.0	0.0	0.0
UIVOHION	4.98634E-23	0.0	0.0	0.0

UIVSO4ION	1.36358E-24	0.0	0.0	0.0
ZNCL3ION	1.40665E-06	0.0	0.0	0.0
ZNCLION	6.65518E-06	0.0	0.0	0.0
ZNH2PO4ION	8.53166E-09	0.0	0.0	0.0
ZNHCO3ION	2.14254E-14	0.0	0.0	0.0
ZNION	5.57964E-07	0.0	0.0	0.0
ZNNO3ION	6.23505E-08	0.0	0.0	0.0
ZNOH3ION	3.50168E-16	0.0	0.0	0.0
ZNOH4ION	1.76265E-21	0.0	0.0	0.0
ZNOHION	2.73823E-08	0.0	0.0	0.0
ALPO4	0.0	1.04450E-05	0.0	0.0
ALOOH	0.0	2.15482E-04	0.0	0.0
CA3PO42	0.0	3.22247E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.88293E-06	0.0	0.0
FEII3PO42.8H2O	0.0	4.11618E-05	0.0	0.0
MG3PO42	0.0	1.71548E-04	0.0	0.0
NI3PO42	0.0	6.04829E-07	0.0	0.0
PB3PO42	0.0	3.20952E-06	0.0	0.0
UIVO2	0.0	1.17647E-05	0.0	0.0
ZN3PO42.2H2O	0.0	1.53426E-05	0.0	0.0
=====				
Total g/hr	3.3568	0.276855	0.0	0.0
Volume, L/hr	0.00313217	7.40418E-05	0.0	0.0
Enthalpy, cal/hr	-11260.2	-810.201	0.0	0.0
Density, g/L	1071.71	3739.17		
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	155.499			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.43356			
E-Con, cm2/ohm-mol	68.1584			
Abs Visc, cP	0.199162			
Rel Visc	0.72786			
Ionic Strength	3.30246			

ESP V-6.6

PROCESS:AWE85_7

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STREAM: Cooled Bottoms
TO :
FROM : Evap Bottoms Cooling mixer

Phases----->	Aqueous	Solid	Vapor	Organic
Temperature, C	25.	25.	25.	25.
Pressure, atm	1.	1.	1.	1.
pH	6.38737			
Total mol/hr	0.1688008	0.00104875	0.0	0.0
-----	mol/hr-----	mol/hr-----	mol/hr-----	mol/hr-----
H2O	0.15256	0.0	0.0	0.0
CO2	7.49846E-11	0.0	0.0	0.0
H2SO4	1.54162E-26	0.0	0.0	0.0
HCL	5.41641E-16	0.0	0.0	0.0
HNO3	9.53223E-12	0.0	0.0	0.0
LAURICACID	2.10157E-09	0.0	0.0	0.0
SO3	2.21849E-30	0.0	0.0	0.0
CAH2SIO4	6.34926E-15	0.0	0.0	0.0
CASO4	6.31234E-07	0.0	0.0	0.0
CDCL2	2.17858E-08	0.0	0.0	0.0
CDOH2	1.93141E-19	0.0	0.0	0.0
CDSO4	3.35318E-11	0.0	0.0	0.0
CROH3	1.31259E-13	0.0	0.0	0.0
CUCL2	6.11149E-11	0.0	0.0	0.0
CUCO3	3.85348E-16	0.0	0.0	0.0
CUNO32	9.12732E-13	0.0	0.0	0.0
CUOH2	5.41687E-13	0.0	0.0	0.0
FEIICL2	9.39954E-12	0.0	0.0	0.0
FEIICO3	6.82097E-13	0.0	0.0	0.0
FEIIHPO4	4.60792E-09	0.0	0.0	0.0
FEIIOH2	1.20011E-14	0.0	0.0	0.0
ALO2H2CL	1.16492E-28	0.0	0.0	0.0
H3PO4	1.11647E-10	0.0	0.0	0.0
H4P2O7	1.51436E-20	0.0	0.0	0.0
ALOH3	3.90291E-12	2.25926E-04	0.0	0.0
BACO3	2.66141E-20	0.0	0.0	0.0
KCL	2.86969E-06	0.0	0.0	0.0
KHSO4	2.88531E-12	0.0	0.0	0.0
BASO4	3.34496E-13	6.21775E-07	0.0	0.0
MGCO3	4.39523E-13	0.0	0.0	0.0
MGH2SIO4	4.91712E-12	0.0	0.0	0.0
MGHPO4	1.88970E-05	0.0	0.0	0.0
MGSO4	8.81484E-05	0.0	0.0	0.0
NAHCO3	4.75115E-11	0.0	0.0	0.0
NAHSIO3	1.79910E-07	0.0	0.0	0.0
NANO3	1.24533E-04	0.0	0.0	0.0
NIOH2	5.16589E-14	0.0	0.0	0.0
NISO4	3.30719E-07	0.0	0.0	0.0
PBCL2	1.15570E-09	0.0	0.0	0.0
PBHPO4	1.83223E-12	0.0	0.0	0.0
PBNO32	1.57557E-11	0.0	0.0	0.0
PBO	3.34805E-16	0.0	0.0	0.0
CACL2	1.91857E-24	0.0	0.0	0.0
SIO2	3.64135E-06	2.62837E-04	0.0	0.0

CACO3	1.21572E-14	0.0	0.0	0.0
SRHPO4	5.95778E-11	0.0	0.0	0.0
SRNO32	1.98804E-08	0.0	0.0	0.0
SRSO4	5.46729E-08	0.0	0.0	0.0
UIVOH4	3.97369E-13	0.0	0.0	0.0
UIVSO42	3.18806E-27	0.0	0.0	0.0
ZNCL2	1.41585E-07	0.0	0.0	0.0
ZNHPO4	1.43582E-08	0.0	0.0	0.0
ZNNO32	3.72041E-09	0.0	0.0	0.0
ZNOH2	1.01492E-12	0.0	0.0	0.0
OHION	6.65317E-11	0.0	0.0	0.0
ALION	3.93307E-14	0.0	0.0	0.0
ALOH2ION	8.58320E-13	0.0	0.0	0.0
ALOH4ION	6.41764E-12	0.0	0.0	0.0
ALOHCLION	5.34303E-13	0.0	0.0	0.0
ALOHION	1.94275E-13	0.0	0.0	0.0
ALSO42ION	9.66066E-14	0.0	0.0	0.0
ALSO4ION	8.41188E-14	0.0	0.0	0.0
BAHCO3ION	2.01537E-17	0.0	0.0	0.0
BAION	1.81143E-07	0.0	0.0	0.0
BAOHION	3.85501E-19	0.0	0.0	0.0
CACLION	1.68298E-11	0.0	0.0	0.0
CAH2PO4ION	1.75268E-07	0.0	0.0	0.0
CAHCO3ION	2.08004E-12	0.0	0.0	0.0
CAHSIO3ION	4.37003E-11	0.0	0.0	0.0
CAION	1.37632E-05	0.0	0.0	0.0
CANO3ION	3.51001E-06	0.0	0.0	0.0
CAOHION	1.09424E-12	0.0	0.0	0.0
CAPO4ION	3.18657E-09	0.0	0.0	0.0
CDCL3ION	5.25474E-09	0.0	0.0	0.0
CDCL4ION	4.02542E-08	0.0	0.0	0.0
CDCLION	2.15479E-09	0.0	0.0	0.0
CDION	1.40152E-10	0.0	0.0	0.0
CDNO3ION	1.96073E-11	0.0	0.0	0.0
CDOH3ION	2.17088E-25	0.0	0.0	0.0
CDOH4ION	0.0	0.0	0.0	0.0
CDOHION	2.89330E-15	0.0	0.0	0.0
CLION	0.00450254	0.0	0.0	0.0
CO3ION	2.81457E-13	0.0	0.0	0.0
CRIIIICL2ION	6.62759E-14	0.0	0.0	0.0
CRIIIICLION	3.57067E-13	0.0	0.0	0.0
CRIIIH2PO4ION	2.32962E-11	0.0	0.0	0.0
CRIIIHPO4ION	2.49720E-06	0.0	0.0	0.0
CRIIIIION	6.64638E-15	0.0	0.0	0.0
CRIIINO3ION	2.78132E-11	0.0	0.0	0.0
CROH2ION	4.67326E-14	0.0	0.0	0.0
CROH4ION	1.21968E-17	0.0	0.0	0.0
CROHION	4.14073E-10	0.0	0.0	0.0
CRSO4ION	2.33191E-09	0.0	0.0	0.0
CUCL3ION	6.38784E-13	0.0	0.0	0.0
CUCLION	2.82756E-10	0.0	0.0	0.0
CUCO32ION	1.14095E-22	0.0	0.0	0.0
CUION	3.62526E-10	0.0	0.0	0.0
CUNO3ION	6.53035E-11	0.0	0.0	0.0
CUOH3ION	2.23638E-18	0.0	0.0	0.0
CUOH4ION	3.92677E-24	0.0	0.0	0.0
CUOHION	3.59719E-12	0.0	0.0	0.0
DODECION	2.29646E-07	0.0	0.0	0.0

FEIICLION	5.37684E-09	0.0	0.0	0.0
FEIICO32ION	4.36860E-21	0.0	0.0	0.0
FEIIH2PO4ION	1.40434E-08	0.0	0.0	0.0
FEIIHCO3ION	1.92298E-14	0.0	0.0	0.0
FEIIION	8.69185E-06	0.0	0.0	0.0
FEIIOH3ION	3.38176E-18	0.0	0.0	0.0
FEIIOH4ION	8.77628E-26	0.0	0.0	0.0
FEIIOHION	1.81503E-09	0.0	0.0	0.0
H2P2O7ION	3.98159E-10	0.0	0.0	0.0
H2PO4ION	8.26242E-06	0.0	0.0	0.0
H2SIO4ION	5.78523E-15	0.0	0.0	0.0
H3P2O7ION	2.24978E-15	0.0	0.0	0.0
H3SIO4ION	2.00177E-09	0.0	0.0	0.0
HCO3ION	2.57512E-10	0.0	0.0	0.0
HION	1.37164E-09	0.0	0.0	0.0
HP2O7ION	1.83562E-09	0.0	0.0	0.0
HPBO2ION	2.11654E-20	0.0	0.0	0.0
HPO4ION	1.37372E-05	0.0	0.0	0.0
HSO4ION	2.07573E-09	0.0	0.0	0.0
KION	9.76881E-04	0.0	0.0	0.0
KSO4ION	1.00726E-04	0.0	0.0	0.0
MGH2PO4ION	1.80459E-05	0.0	0.0	0.0
MGHCO3ION	4.39772E-10	0.0	0.0	0.0
MGHSIO3ION	6.46907E-09	0.0	0.0	0.0
MGION	4.50358E-04	0.0	0.0	0.0
MGOHION	8.40062E-10	0.0	0.0	0.0
MGP2O7ION	3.51310E-07	0.0	0.0	0.0
MGPO4ION	3.23603E-07	0.0	0.0	0.0
NACO3ION	1.18179E-13	0.0	0.0	0.0
NAION	0.00674452	0.0	0.0	0.0
NASO4ION	4.78149E-04	0.0	0.0	0.0
NICLION	4.16043E-08	0.0	0.0	0.0
NIION	1.81219E-06	0.0	0.0	0.0
NINO3ION	3.70768E-07	0.0	0.0	0.0
NIOH3ION	4.25884E-18	0.0	0.0	0.0
NIOHION	8.51938E-11	0.0	0.0	0.0
NO3ION	0.00164538	0.0	0.0	0.0
P2O7ION	3.04621E-10	0.0	0.0	0.0
PBCL3ION	1.99221E-09	0.0	0.0	0.0
PBCL4ION	2.47665E-08	0.0	0.0	0.0
PBCLION	6.72434E-10	0.0	0.0	0.0
PBH2PO4ION	1.11284E-12	0.0	0.0	0.0
PBION	1.94608E-10	0.0	0.0	0.0
PBNO33ION	3.59776E-12	0.0	0.0	0.0
PBNO3ION	1.49810E-10	0.0	0.0	0.0
PBOHION	9.18108E-13	0.0	0.0	0.0
PO4ION	1.99423E-10	0.0	0.0	0.0
SO4ION	9.98001E-04	0.0	0.0	0.0
SRION	3.06117E-05	0.0	0.0	0.0
SRNO3ION	1.35567E-07	0.0	0.0	0.0
SROHION	9.30352E-15	0.0	0.0	0.0
SRPO4ION	7.25223E-13	0.0	0.0	0.0
UIVCLION	6.32402E-30	0.0	0.0	0.0
UIVION	0.0	0.0	0.0	0.0
UIVOH2ION	9.53054E-23	0.0	0.0	0.0
UIVOH3ION	5.88885E-18	0.0	0.0	0.0
UIVOH5ION	1.66927E-16	0.0	0.0	0.0
UIVOHION	9.45181E-26	0.0	0.0	0.0

UIVSO4ION	8.88058E-28	0.0	0.0	0.0
ZNCL3ION	1.69605E-07	0.0	0.0	0.0
ZNCLION	2.66885E-07	0.0	0.0	0.0
ZNH2PO4ION	7.12375E-09	0.0	0.0	0.0
ZNHCO3ION	1.56169E-13	0.0	0.0	0.0
ZNION	1.31954E-06	0.0	0.0	0.0
ZNNO3ION	1.49966E-07	0.0	0.0	0.0
ZNOH3ION	5.36613E-17	0.0	0.0	0.0
ZNOH4ION	2.30984E-22	0.0	0.0	0.0
ZNOHION	3.81361E-10	0.0	0.0	0.0
CA3PO42	0.0	4.76099E-04	0.0	0.0
CU3PO42.2H2O	0.0	3.88424E-06	0.0	0.0
FEII3PO42.8H2O	0.0	4.60785E-05	0.0	0.0
PB3PO42	0.0	3.37198E-06	0.0	0.0
UIVO2	0.0	1.17647E-05	0.0	0.0
ZN3PO42.2H2O	0.0	1.81673E-05	0.0	0.0
=====				
Total g/hr	3.4141	0.21955	0.0	0.0
Volume, L/hr	0.00296175	7.05313E-05	0.0	0.0
Enthalpy, cal/hr	-11634.2	-667.301	0.0	0.0
Density, g/L	1152.73	3112.8		
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	147.94			
Redox Pot, volts	0.0			
E-Con, 1/ohm-cm	0.163989			
E-Con, cm2/ohm-mol	31.8205			
Abs Visc, cP	1.41151			
Rel Visc	1.58469			
Ionic Strength	3.74			

=====
Block Heat Duties
=====

Positive sign - heat added to the unit
Negative sign - heat removed from the unit

Block Type	Unit Name	Duty, cal/hr
MIX	EVAP MIXER	0.00000D+00
SEPARATE	EVAP SEPARATOR	0.00000D+00
MIX	EVAP BOTTOMS COOLING MIXER	-2.31165D+02

===== BLOCK REPORT =====

BLOCK NAME: Evap mixer

BLOCK TYPE: Mix

=====

Mix Input

Pressure Specification, atm

Outlet Pressure = 1.

Equilibrium Type P, V/F
 V/F (molar) 0.998558

Standard Block Information

Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	0.0	-1.
Total Energy cal/hr	-3.79027E+06	0.0	0.0

Mix Output

Outlet Temperature, C 0.0
 Outlet Pressure, atm 0.0
 Aqueous pH 0.0
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0

===== BLOCK REPORT =====
 BLOCK NAME: Evap separator
 BLOCK TYPE: Separate
 =====

Separate Input

 Liquid Outlet Stream Bottoms
 Vapor Outlet Stream Overhead
 Suspended Solids, g solid/g liq solution 0.0
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Pressure Specification, atm
 Outlet Pressure = Min Inlet Pressure
 Equilibrium Type Adiabatic
 Duty, cal/hr 0.0

Standard Block Information

 Duty, cal/hr 0.0

	In	Out	Rel. Diff.
Total Mass g/hr	1000.	1000.	0.0
Total Energy cal/hr	-3.17466E+06	-3.17466E+06	0.0

Separate Output

 Outlet Temperature, C 102.758
 Outlet Pressure, atm 1.
 Aqueous pH 5.08263
 Suspended Solids, g solid/g liq solution 0.0824759
 Entrained Liquid, g solid/g vapor 0.0
 Dissolved Liquid, g liquid/g solid 0.0
 Dissolved Vapor, g vapor/g liq solution 0.0
 Dissolved Aqueous Liquid in Organic Liquid,
 g aq liquid/g 2nd liquid solution 0.0
 Dissolved 2nd Liquid in Aqueous Liquid,
 g 2nd liquid/ g aq liquid solution 0.0

Liquid Stream	Bottoms			Outlet Enthalpy
	Outlet Flow			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.161445	3.3568	0.00313217	-11260.2
Solid	0.0015345	0.276855	7.40418E-05	-810.201
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.162979	3.63365	0.00320622	-12070.4

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Vapor Stream	Overhead			Outlet Enthalpy
	Outlet Flow			
	-----			-----
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.0	0.0	0.0	0.0
Solid	0.0	0.0	0.0	0.0
Vapor	55.3025	996.366	1691.89	-3.16259E+06
2nd Liq	0.0	0.0	0.0	0.0
Total	55.3025	996.366	1691.89	-3.16259E+06

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PROCESS:AWE85_7

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===== BLOCK REPORT =====
 BLOCK NAME: Evap Bottoms Cooling mixer
 BLOCK TYPE: Mix
 =====

Mix Input

 Pressure Specification, atm
 Outlet Pressure = 1.
 Equilibrium Type T, P
 Temp, C 25.

Standard Block Information

 Duty, cal/hr -231.165

	In	Out	Rel. Diff.
Total Mass g/hr	3.63365	3.63365	-1.22216E-16
Total Energy cal/hr	-12070.4	-12301.5	0.0

Mix Output

 Outlet Temperature, C 25.
 Outlet Pressure, atm 1.
 Aqueous pH 6.38737
 V/F (molar) 0.0

	Outlet Flow			Outlet Enthalpy
	mol/hr	g/hr	L/hr	cal/hr
Aqueous	0.161659	3.4141	0.00296175	-11634.2
Solid	0.00104875	0.21955	7.05313E-05	-667.301
Vapor	0.0	0.0	0.0	0.0
2nd Liq	0.0	0.0	0.0	0.0
Total	0.162708	3.63365	0.00303228	-12301.5

```
===== BLOCK REPORT =====
BLOCK NAME: Solids FB controller
BLOCK TYPE: Controller
=====
```

Controller Input

```
-----
Convergence Tolerance          Default Tolerance
Specification Value
  Composition,weight fraction   0.7
  Species
  H2O
Controlled block              Mix: Evap mixer
Control Parameter             Vapor Fraction
Control Parameter Minimum     0.0
Control Parameter Maximum     0.9999
Control Parameter Step Size
  Slope Technique with Defaults
Maximum Iterations            20.
  Continue at Maximum Iterations with last try
```

```
Specification Phase:          Total
Specification Composition:    Solution Species
```

Controller Output

```
-----
Specification Stream          Cooled Bottoms
Controlled Block              Evap mixer
Control Parameter Type:      General Process Variable
Convergence:                  Not Converged
Iterations Completed this Sequence      7.
Total Iterations Completed all Sequences 7.
Last Parameter Value           0.997059
Last DIFF (Computed-Setpoint)  0.0563804
Previous Parameter Value       0.994219
Previous DIFF (Computed-Setpoint)  0.163234
Control Parameter Minimum      0.997059
Control Parameter Maximum      0.9999
Control Parameter Stepsize     0.0
Maximum Iterations             0.0
```