



Turkey Point Plant

Comprehensive Post-Uprate

Monitoring Report

Units 3 & 4 Uprate Project

March 31, 2016



Prepared for:



Prepared by:



May 2015 and encompasses the Post-Uprate period. This period of time includes the increases in both CCS salinity and temperature (that were observed to begin in fall 2013), the drop in salinity due to the addition of L-31E water in the fall of 2014, and the subsequent rebound in salinity in the CCS.

The conceptual model and associated calculations are predominantly unchanged since last presented in the 2012 Comprehensive Pre-Uprate Monitoring Report. As such, only a brief summary of the model is provided below. In addition, model results and corresponding conclusions regarding the operation of the CCS, based on the current calibrated water and salt balance model, are provided herein. The Excel spreadsheet that comprises the model is provided in a separate data file.

5.3.1 Model Summary

As Figure 5.3-1 depicts, the water balance of the control volume (i.e., the CCS) is comprised of seepage (lateral through the sides and vertical through the bottom), blowdown (additional water pumped from other units to the CCS), precipitation (including runoff from earth berms between canals), and evaporation. Other than evaporation and precipitation, these are the same mechanisms by which salt flows into and out of the CCS. The means by which water and/or salt is transferred (e.g., seepage, evaporation) is calculated using various equations provided in the 2012 Comprehensive Pre-Uprate Monitoring Report. Calculations were performed for a 57-month period from September 2010 through May 2015. Average flows of water and salt into and out of the control volume were calculated for each day of this period using hydrologic, water quality, and meteorological data measured within, beneath, and adjacent to the CCS. The average daily flows were summed to estimate the amount of water and salt that enters or exits the control volume during each month and the entire 57-month period. These calculations demonstrate and validate the conceptual model of the CCS and, in so doing, illustrate the hydrologic mechanisms by which the CCS functions.

Calculated water flows are reported in 10^6 gallons per day (mgd). The mass flux into or out of the control volume is calculated by multiplying the volumetric flow by the salinity of the body of water from which the water is flowing. Salinity from the same groundwater and surface water monitoring stations used in the 2012 Comprehensive Pre Uprate Report (FPL 2012a) were used in the calculations and reported in the practical salinity scale (PSS-78), which is equivalent to grams per liter (g/L). Calculated mass fluxes are reported in thousands of pounds per day (lb x 1,000/day).

Over time, the gain/loss of water and salt mass within the control volume results in a change in the control volume's water and salt mass storage. Increased water storage, for instance, occurs when more water enters the control volume than exits. Storage, then, can be estimated by summing all of the components of the water (and salt) balance. When the net flow is positive (into the control volume) during a specified period of time, the storage of control volume increases. Conversely, a net negative (out of the control volume) flow implies a decrease in storage during a specified time period.

Another manner in which a change in storage can be estimated relies on direct measurements of water elevations and salinities within the control volume. A change in water elevation within the control volume can be calculated as a difference between water elevations at the beginning and end of a specified time period. The product of this change in water elevations and the surface area of the control volume provides an estimate of the change in the volume of water contained in the control volume during that period of time. Estimates of daily storage changes derived from this method are used to further calibrate the water and salt balance model to ensure an accurate simulation of temporal trends in CCS water elevation and salinity.

5.3.2 Model Calibration

The individual components of the water and salt balance were simulated daily and summed for each month from September 2010 through May 2015, as well as for the collective 57-month period. The individual components of flow are summed in order to calculate a simulated change in volume for each month and for the 57-month period. These simulated changes in storage were compared with observed changes in CCS water and salt storage for each month and the entire calibration period. Errors between the simulated and observed monthly storage changes were minimized by adjusting key variables associated with the flow balance model; this process is called calibration. The calibration process ensures that the model can accurately reflect the average changes in CCS storage over the 57-month time frame while also effectively capturing day-to-day changes in CCS water and mass storage. Calibration of the water and salt balance model was achieved by adjusting hydraulic conductivities of the aquifer materials adjacent to and beneath the CCS that factor into the calculation of seepage to/from groundwater and Biscayne Bay. Additional adjustable parameters include the coefficients in the wind function (FPL 2012a), the amount of runoff that enters the control volume as a percentage of precipitation, the amount of Unit 5 cooling tower water that is lost to evaporation before entering the CCS, and the salinity of the Unit 5 blowdown as a percentage of seawater. The calibrated model parameter values are provided in Table 5.3-1.

The horizontal hydraulic conductivities laterally adjacent to the control volume were calibrated to range between 500 ft/day and 900 ft/day. The calibrated vertical conductivities beneath the control volume ranged from 0.1 ft/day to 4 ft/day. The horizontal hydraulic conductivities of the side faces of the CCS are relatively high due to the assumed incising of highly permeable material that underlies the muck and Miami limestone by deeper canals. For the same reason, the northern discharge canals and return canals were calibrated to relatively high vertical hydraulic conductivities (4 ft/day and 3.8 ft/day, respectively). Lower vertical hydraulic conductivities were calibrated for the middle and southern portions of the discharge canals, as well as the southern portion of the return canals (0.1 ft/day).

A notable deviation from the conceptual CCS water and salt flow balance is the recognition of reduced flow in the plant discharge canals. In early 2014, FPL noted that water flow was quite low in some plant discharge canals. In some cases, it was observed that CCS water did not flow in parts of individual canals. The lack of flow in certain individual canals limits the intended function of the CCS as a radiator, such that water preferentially flows through other canals at a faster rate than normal. The greater rate of flow of CCS water in some canals inhibits the

process of evaporation and the cooling effect that evaporation provides to the CCS. This phenomenon was simulated by reducing the CCS discharge canals' surface area between January 2014 and May 2015 by between 16% and 20%. Though coarse, this approximation accounts for both a physical reduction in surface area as well as the related limits on the evaporative process.

5.3.3 Model Results and Discussion

Results of the simulated 57-month water and salt balance model are provided in Tables 5.3-2 and 5.3-3, respectively. Monthly balance results follow in Tables 5.3-4 and 5.3-5. The modeled net flow of water, as calculated by the summing the components of the water balance for the 57-month calibration period, is denoted as the "Modeled Change in CCS Storage" and was calculated to be an average outflow of 0.22 mgd over the 57-month calibration period (Table 5.3-2). The observed change in storage, which is the difference in the volume of water in the CCS between the final and first days of the calibration period, divided by the number of days in the period, was observed to be 0.54 mgd. Though the model underestimated a net outflow of water from the CCS over the whole time period, the residual error between the simulated and observed flow is very small (0.32 mgd). This error is small (0.3%) relative to the monthly net observed flows, which range from a net outflow of 46.6 mgd (October 2010) and a net inflow of 52.1 mgd (September 2010).

The model simulated a net influx of salt over the 57-month period at rate of 597 (lb x 1,000)/day. The corresponding observed rate of salt inflow was calculated by multiplying the average observed salinity in the CCS on the final and first day of the calibration period by the corresponding CCS volumes on those days. The difference between these two products, divided by the number of days in the calibration period, shows that the net inflow of salt is about 405 (lb x 1,000)/day. The error associated with the mass flux is an overestimation by approximately 192 (lb x 1,000)/day. As in the case of water balance simulation, the magnitude of this overestimation is small (0.9%) relative to the range in monthly average flows; the monthly net mass fluxes range from an outflow of 13,790 (lb x 1,000)/day (October 2010) to an inflow of 8,659 (lb x 1,000)/day (June 2011). This error marks an improvement over an earlier version of the model (discussed in the 2014 Annual Post-Uprate Monitoring Report [FPL 2014a]).

Figures 5.3-2 and 5.3-3 illustrate the model's ability to match the magnitude and direction of net monthly flows of water and salt, respectively. Figure 5.3-2 compares observed and modeled net monthly flows of water into and out of the CCS. There is a seasonal trend in observed flows to/from the CCS, where inflows are generally associated with the wet season and outflows are generally associated with the dry season. The model is able to replicate this trend reasonably well. However, there are isolated periods of time where the model does not accurately simulate the magnitude or direction of the net flow (e.g., March to July 2011, October 2013, January 2015). Figure 5.3-3 compares observed and modeled net monthly flows of salt into and out of the CCS. Like the modeled water flows, estimated salt mass fluxes generally match observed fluxes well, although there are individual months where the estimated mass flux is less accurate.

Implicit in the model's ability to simulate monthly net water and salt mass flows is the accurate simulation of daily flows to and from the CCS. Because the model is able to characterize the daily flows of water and salt, the model is able to estimate the daily changes in CCS water and salt storage. As previously mentioned, these changes in storage are associated with daily changes in CCS water levels and salinity. Figure 5.3-4 shows the model-calculated water level in the CCS, which varies over the period of record. These modeled water levels range between approximately -1.63 ft NAVD 88 and 0.81 ft NAVD 88 and reflect an average water level throughout the entire CCS. The observed CCS water levels over time are also shown in this figure; the observed values reflect the mean of daily-averaged water elevations across the seven sensors in the CCS. The daily-averaged observed water levels vary across a range similar to that of the simulated water levels (-1.71 ft NAVD 88 to 0.63 ft NAVD 88). Simulated water elevations are calculated by dividing the simulated daily change in CCS storage by the average daily CCS surface area and adding the resulting value (which reflects a change in water level) to the previous day's simulated water elevation. It is evident from this figure that the model effectively captures the general trend in CCS water elevations over the 57-month period and accurately simulates average CCS water elevations throughout much of the calibration period. Nevertheless, there were periods of time where the model either generally under-simulated observed water levels (late 2011 and 2013) or, conversely, over-simulated water levels (mid-2014 through May 2015).

Though the model over-simulated water levels toward the end of the model simulation, this error is relatively small. Moreover, the temporal fluctuations in water levels are reasonably well-matched. This is particularly relevant since this period of time includes fall 2014, when 914 million gallons of L-31E Canal water were pumped into the CCS over a 21-day duration. During this addition, the simulated increase in water levels (approximately 0.5 ft) closely matched the observed water level increase in the CCS (approximately 0.4 ft). The model also accounted for water pumped into the CCS from the Floridan Aquifer (PTF5 well #3) and Biscayne Aquifer (PW-1) and the associated changes in stage since July 2013 and January 2015, respectively.

Similar to the calculation of CCS water levels, changes in salt mass storage within the CCS can be used to calculate average CCS salinity changes over time. The simulated daily net flow of salt is divided by the simulated volume of water in the CCS, which results in a change in salinity. This change in salinity is added to the simulated salinity calculated for the previous day to produce a simulated salinity for the current day. Like the simulated CCS water level, the model salinity reflects a representative daily salinity throughout the CCS. Figure 5.3-5 compares the simulated salinities to those observed in the CCS over the period of record. Observed salinities are the mean of daily averaged salinities measured in the CCS monitoring stations. The model under-simulated salinity between May 2012 and December 2013 and over-simulated between June 2014 and May 2015. However, these under- and over-simulations were generally small. Moreover, the simulated temporal trends in salinity throughout much of the 57-month timeframe matched the temporal trends in the average observed CCS salinity.

As in the case of the simulation of water levels in the CCS, it is important to note that the model simulated salinity and daily changes during the November 2013 through September 2014 timeframe, when salinity increased from about 60 g/L to approximately 90 g/L. Moreover, the

modeled drop in salinity (11 g/L) due to the addition of L-31E Canal water from September to October 2014 closely matched the observed drop in salinity (13 g/L). In addition, the subsequent increase in salinity (October 2014 through April 2015) was replicated by the model, as was the subsequent significant drop in salinity attributable to a late-April rainfall event. The fact that the model matches these notable fluctuations in CCS salinity reinforces the conceptual model, which suggests that changes in CCS salinity are predicated solely on changes in the flow of water into and out of the CCS. Again, changes attributable to the addition of Floridan Aquifer water from PTF5 #3 and Biscayne Aquifer water from PW-1 are accounted for by the model with reasonable accuracy.

Given that the simulated timeframe is nearly evenly partitioned into the Pre-Uprate, Interim, and Post-Uprate periods, it is appropriate to discuss the water and salt balance model results in terms of these operational periods. Inspection of Figure 5.3-2 does not reveal a marked difference in water changes in water storage (inflows and outflows) among the three operating periods. Perhaps the only distinguishing characteristic is a significant decrease in storage (outflow) that occurs at the inception of the Post-Uprate period in June 2013. This outflow is attributable to increase in seepage to groundwater and in evaporative losses. Figure 5.3-3, however, suggests that mass accrues at a greater rate during the Post-Uprate period than in the other two operating periods. This is consistent with the increase in CCS salinity during this timeframe.

Tables 5.3-6 and 5.3-7 summarize the simulated water and salt flow balances for the Pre-Uprate, Interim, and Post-Uprate periods. Though the net water and salt balances are on the same order of magnitude for each of the three operating periods, the magnitude of the inflows and outflows are fairly different. For instance, the magnitude of water inflows and outflows are greater during the Pre-Uprate and Post-Uprate periods than in the Interim period. Likewise, the exchanges of salt are generally greater in the Pre-Uprate and Post-Uprate periods than in the Interim period. The modeled water balances match the corresponding observed balances reasonably well in each of the operating periods. Though the match between modeled and observed salt mass balances appears to be slightly degraded when compared to the water balance match, in fact the associated salt mass balance error is relatively low in the context of the range of the individual mass balance components (e.g. maximum inflow minus maximum outflow). Additionally, relative to the variability in observed monthly net salt mass flows, the error between the simulated and observed mass balance for these three periods is fairly low.

The accurate simulation of changing CCS inflows, outflows, water elevations, and salinities is complex due to the different components of the balance model and their varying impacts upon CCS water and salt storage. For instance, vertical flows into and out of the control volume are generally larger than horizontal flows and have a greater impact on CCS water elevation. The salinity of inflowing water, however, can vary depending upon the source of the water. For example, horizontal flow from the west (L-31E Canal) is non-saline and has a pronounced mitigating impact upon CCS salinities; vertical flow from groundwater beneath portions of the plant discharge canals is saline to hyper-saline and generally increases the salinity of the CCS. The correct balance of both water and salt mass flow is difficult to estimate in the model. In addition, the simulated timeframe encompasses Pre-Uprate, Interim, and Post-Uprate periods, during which CCS water salinity and temperatures fluctuate significantly. The model addresses

associated impacts on the CCS by explicitly simulating the effects of water/air temperature gradients on evaporation. Whereas numerous sources and sinks of water, varying salinities, and changes in water temperature do increase model complexity, the need to accurately simulate these different components of CCS operation constrains the number of possible solutions.

Though the model is able to simulate the complex dynamics associated with the CCS over a 57-month timeframe with reasonable accuracy, there are periods of time where the simulated flows of water and salt do not accurately reflect observed conditions. Consequently, the simulated water level and salinities in the CCS deviate from those that have been observed at various times in the simulation period. However, the overall performance of the model reinforces its utility as a tool for understanding how the CCS has and will operate under varying meteorological, hydrological, and operational conditions. This is best demonstrated by the fact that the same conceptual model employed to characterize changes in CCS storage of water and salt during the Pre-Uprate period is used to explain changes in water and salt storage during the Post-Uprate period, a period of time during which water levels have generally decreased, salinities have dramatically increased, water temperatures have risen, and algal blooms have developed within the CCS. Nevertheless, the exchanges of flows between the CCS and surrounding environment during Post-Uprate period are governed by the same hydrologic principles as during the Pre-Uprate period.

This robustness and accuracy in the model underpins FPL's understanding of processes that control the CCS and the manner in which the CCS interacts with the adjacent aquifer and water bodies. This accuracy in simulating the historical changes within the CCS bolsters confidence in the model's utility as a tool to evaluate the sensitivity of CCS operations to certain factors, such as changes in operation, drought conditions, storm events, added water, and other potential environmental stresses. Additionally, the model accuracy validates the fact that the most appropriate data are being collected to effectively capture CCS operations, identify interactions between the CCS and the surrounding environment, and support FPL's comprehension of historical and future operations of the CCS. This model continues to be refined and improved with further information on the CCS.

TABLES

Table 5.3-1. Calibration Parameters.

Parameter Name	Calibrated Value	Units
Vertical Hydraulic Conductivity (Zone A)	4.0	ft/day
Vertical Hydraulic Conductivity (Zone B)	0.1	ft/day
Vertical Hydraulic Conductivity (Zone C)	0.1	ft/day
Vertical Hydraulic Conductivity (Zone D)	3.0	ft/day
West Face Hydraulic Conductivity	825	ft/day
East Face Hydraulic Conductivity	900	ft/day
North Face Hydraulic Conductivity	500	ft/day
South Face Hydraulic Conductivity	675	ft/day
Evaporation Modifier (Factor Multiplier)	0.71	
Runoff Modifier (as % of Precipitation)	32%	
Blowdown Evaporation Factor	40%	
Blowdown Concentration (as % of Seawater)	0.25	

Table 5.3-2. Calculated Fluid Flows from Water Budget Components.

September 2010 to May 2015			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.77	1329.68
	E. Seepage	13.59	23557.82
	N. Seepage	0.01	16.37
	S. Seepage	3.30	5730.53
	Bottom Seepage	8.87	15378.74
	Precipitation and Runoff	19.52	33846.97
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.49	851.01
	Unit 5 Blowdown	1.96	3393.11
	ID Pumping	3.58	6206.00
	Added Water (e.g. L-31E)	1.93	3352.82
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	54.02	93663.04
Out of CCS	W. Seepage	-0.06	-4.67
	E. Seepage	-1.77	-5941.48
	N. Seepage	-0.01	-10.45
	S. Seepage	0.00	-44.05
	Bottom Seepage	-11.09	-19504.75
	Precipitation and Runoff	0.00	0.00
	Evaporation	-31.49	-68542.75
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-44.43	-94047.87
Modeled Change in CCS Storage:		-0.22	-384.83
Observed Change		-0.54	-938.00

Key:

CCS = Cooling Canal System.

gal = Gallon.

ID = Interceptor Ditch.

MGD = Million gallons per day.

Table 5.3-3. Calculated Mass Flows from Salt Budget Components.

September 2010 to May 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.12	10617.41
	E. Seepage	3874.04	6717584.84
	N. Seepage	1.90	3288.71
	S. Seepage	664.37	1152011.09
	Bottom Seepage	2471.89	4286258.31
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	142.89	247772.59
	ID Pumped Water	360.30	624756.49
	Added Water (e.g. L-31E)	219.43	380491.12
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7740.93	13422780.57
Out of CCS	W. Seepage	-46.15	-80019.11
	E. Seepage	-1467.02	-2543816.50
	N. Seepage	-3.32	-5753.07
	S. Seepage	-11.44	-19830.75
	Bottom Seepage	-5615.47	-9737218.65
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-7143.39	-12386638.08
Modeled Change in CCS Storage:		597.54	1036142.49
Observed Change		404.70	701742.27

Key:

CCS = Cooling Canal System.

ID = Interceptor Ditch.

lb = Pound(s).

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

September 2010		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.63
	E. Seepage	11.48
	N. Seepage	0.02
	S. Seepage	3.43
	Bottom Seepage	8.21
	Precipitation and Runoff	77.48
	Evaporation	0.00
	Unit 3, 4 Added Water	0.29
	Unit 5 Blowdown	1.96
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	103.49
Out of CCS	W. Seepage	0.00
	E. Seepage	-5.01
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-6.05
	Precipitation and Runoff	0.00
	Evaporation	-39.24
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-50.30
Modeled Change in CCS Storage:		53.19
Observed Change		1595.60
		1564.08

Key:

CCS = Cooling Canal System.

gal = Gallon.

ID = Interceptor Ditch.

MGD = Million gallons per day.

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

October 2010			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.22	6.82
	E. Seepage	0.72	22.35
	N. Seepage	0.00	0.15
	S. Seepage	2.75	85.32
	Bottom Seepage	5.48	169.95
	Precipitation and Runoff	13.40	415.34
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.29	8.93
	Blowdown	1.49	46.21
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	24.36	755.07
Out of CCS	W. Seepage	-0.01	-0.28
	E. Seepage	-21.35	-661.91
	N. Seepage	-0.01	-0.19
	S. Seepage	-0.05	-1.53
	Bottom Seepage	-19.27	-597.45
	Precipitation and Runoff	0.00	0.00
	Evaporation	-30.81	-955.14
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-71.50	-2216.51
Modeled Change in CCS Storage:		-47.14	-1461.45
Observed Change		-46.60	-1444.52

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

November 2010		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.26
	E. Seepage	4.72
	N. Seepage	0.00
	S. Seepage	2.39
	Bottom Seepage	1.43
	Precipitation and Runoff	26.53
	Evaporation	0.00
	Unit 3, 4 Added Water	0.29
	Blowdown	1.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	36.63
Out of CCS	W. Seepage	-0.06
	E. Seepage	-6.82
	N. Seepage	0.00
	S. Seepage	-0.03
	Bottom Seepage	-13.30
	Precipitation and Runoff	0.00
	Evaporation	-30.18
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-50.38
Modeled Change in CCS Storage:		-13.76
Observed Change		-5.02

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

December 2010			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.74	22.85
	E. Seepage	16.54	512.73
	N. Seepage	0.00	0.00
	S. Seepage	2.17	67.16
	Bottom Seepage	1.58	48.88
	Precipitation and Runoff	3.74	115.80
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.29	8.93
	Blowdown	1.44	44.66
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	26.48	821.00
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.44	-13.72
	N. Seepage	-0.01	-0.41
	S. Seepage	-0.01	-0.18
	Bottom Seepage	-15.96	-494.83
	Precipitation and Runoff	0.00	0.00
	Evaporation	-28.78	-892.12
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-45.20	-1401.25
Modeled Change in CCS Storage:		-18.72	-580.25
Observed Change		-12.72	-394.29

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

January 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.53
	E. Seepage	9.42
	N. Seepage	0.00
	S. Seepage	1.87
	Bottom Seepage	2.08
	Precipitation and Runoff	19.13
	Evaporation	0.00
	Unit 3, 4 Added Water	0.29
	Blowdown	1.64
	ID Pumping	4.91
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	40.86
Out of CCS		1266.58
	W. Seepage	0.00
	E. Seepage	-3.70
	N. Seepage	-0.01
	S. Seepage	0.00
	Bottom Seepage	-18.51
	Precipitation and Runoff	0.00
	Evaporation	-27.80
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-50.02
Modeled Change in CCS Storage:		-9.17
Observed Change		-2.54
		-1550.70
		-284.12
		-78.88

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

February 2011			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.09	30.53
	E. Seepage	23.22	650.20
	N. Seepage	0.00	0.00
	S. Seepage	3.78	105.80
	Bottom Seepage	7.17	200.74
	Precipitation and Runoff	0.69	19.22
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.29	8.06
	Blowdown	1.39	38.92
	ID Pumping	2.25	63.03
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	39.87	1116.49
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.35	-9.70
	N. Seepage	-0.02	-0.56
	S. Seepage	0.00	0.00
	Bottom Seepage	-20.78	-581.75
	Precipitation and Runoff	0.00	0.00
	Evaporation	-33.42	-935.67
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-54.56	-1527.68
Modeled Change in CCS Storage:		-14.69	-411.19
Observed Change		-14.26	-399.40

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

March 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.22
	E. Seepage	18.92
	N. Seepage	0.00
	S. Seepage	4.14
	Bottom Seepage	7.82
	Precipitation and Runoff	7.02
	Evaporation	0.00
	Unit 3, 4 Added Water	0.29
	Blowdown	1.33
	ID Pumping	9.37
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	50.09
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.28
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-18.45
	Precipitation and Runoff	0.00
	Evaporation	-34.86
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-53.59
Modeled Change in CCS Storage:		-3.50
Observed Change		99.02

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

April 2011			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.97	29.01
	E. Seepage	26.45	793.57
	N. Seepage	0.00	0.10
	S. Seepage	5.07	152.07
	Bottom Seepage	12.05	361.43
	Precipitation and Runoff	10.21	306.21
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.29	8.64
	Blowdown	2.26	67.89
	ID Pumping	7.46	223.80
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	64.76	1942.71
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	0.00	-0.08
	S. Seepage	0.00	0.00
	Bottom Seepage	-19.71	-591.19
	Precipitation and Runoff	0.00	0.00
	Evaporation	-36.05	-1081.54
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-55.76	-1672.82
Modeled Change in CCS Storage:		9.00	269.90
Observed Change		-7.85	-235.45

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

May 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.25
	E. Seepage	42.98
	N. Seepage	0.00
	S. Seepage	5.91
	Bottom Seepage	20.72
	Precipitation and Runoff	6.82
	Evaporation	0.00
	Unit 3, 4 Added Water	0.29
	Blowdown	2.32
	ID Pumping	14.81
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	95.09
Out of CCS	W. Seepage	0.00
	E. Seepage	0.00
	N. Seepage	-0.04
	S. Seepage	0.00
	Bottom Seepage	-52.85
	Precipitation and Runoff	0.00
	Evaporation	-42.55
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-95.44
Modeled Change in CCS Storage:		-0.35
Observed Change		11.51

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

June 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.38
	E. Seepage	34.62
	N. Seepage	0.00
	S. Seepage	5.76
	Bottom Seepage	21.40
	Precipitation and Runoff	7.90
	Evaporation	0.00
	Unit 3, 4 Added Water	0.53
	Blowdown	2.04
	ID Pumping	16.13
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	89.76
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.01
	N. Seepage	-0.03
	S. Seepage	0.00
	Bottom Seepage	-44.27
	Precipitation and Runoff	0.00
	Evaporation	-45.18
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-89.48
Modeled Change in CCS Storage:		0.28
Observed Change		10.30

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

July 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.70
	E. Seepage	4.33
	N. Seepage	0.00
	S. Seepage	1.79
	Bottom Seepage	4.26
	Precipitation and Runoff	44.51
	Evaporation	0.00
	Unit 3, 4 Added Water	0.54
	Blowdown	2.26
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	59.39
Out of CCS	W. Seepage	0.00
	E. Seepage	-10.96
	N. Seepage	-0.01
	S. Seepage	-0.12
	Bottom Seepage	-14.71
	Precipitation and Runoff	0.00
	Evaporation	-46.46
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-72.26
Modeled Change in CCS Storage:		-12.87
Observed Change		9.24

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

August 2011			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	1.01	31.42
	E. Seepage	12.59	390.34
	N. Seepage	0.00	0.13
	S. Seepage	3.46	107.17
	Bottom Seepage	4.96	153.82
	Precipitation and Runoff	37.20	1153.08
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.53	16.36
	Blowdown	2.08	64.50
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	61.83	1916.83
Out of CCS	W. Seepage	0.00	-0.05
	E. Seepage	-2.36	-73.13
	N. Seepage	0.00	-0.03
	S. Seepage	0.00	0.00
	Bottom Seepage	-4.17	-129.14
	Precipitation and Runoff	0.00	0.00
	Evaporation	-44.38	-1375.79
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-50.91	-1578.14
Modeled Change in CCS Storage:		10.93	338.68
Observed Change		20.17	625.23

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

September 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.72
	E. Seepage	9.09
	N. Seepage	0.00
	S. Seepage	2.83
	Bottom Seepage	2.74
	Precipitation and Runoff	36.97
	Evaporation	0.00
	Unit 3, 4 Added Water	0.55
	Blowdown	1.96
	ID Pumping	5.74
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	60.59
Out of CCS	W. Seepage	-0.02
	E. Seepage	-1.84
	N. Seepage	-0.01
	S. Seepage	0.00
	Bottom Seepage	-8.50
	Precipitation and Runoff	0.00
	Evaporation	-44.71
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-55.08
Modeled Change in CCS Storage:		5.51
Observed Change		-5.14

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

October 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.65
	E. Seepage	5.60
	N. Seepage	0.00
	S. Seepage	3.35
	Bottom Seepage	5.71
	Precipitation and Runoff	52.19
	Evaporation	0.00
	Unit 3, 4 Added Water	0.52
	Blowdown	1.49
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	69.51
Out of CCS	W. Seepage	0.00
	E. Seepage	-8.89
	N. Seepage	-0.01
	S. Seepage	0.00
	Bottom Seepage	-10.32
	Precipitation and Runoff	0.00
	Evaporation	-32.80
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-52.02
Modeled Change in CCS Storage:		17.49
Observed Change		272.51

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

November 2011		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.41
	E. Seepage	13.09
	N. Seepage	0.01
	S. Seepage	3.05
	Bottom Seepage	5.29
	Precipitation and Runoff	1.22
	Evaporation	0.00
	Unit 3, 4 Added Water	0.47
	Blowdown	1.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	24.53
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.97
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-3.87
	Precipitation and Runoff	0.00
	Evaporation	-34.49
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-39.33
Modeled Change in CCS Storage:		-14.80
Observed Change		-25.56

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

December 2011			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.89	27.63
	E. Seepage	19.03	589.82
	N. Seepage	0.01	0.16
	S. Seepage	3.40	105.51
	Bottom Seepage	5.84	180.97
	Precipitation and Runoff	1.75	54.20
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.61	18.76
	Blowdown	1.44	44.66
	ID Pumping	9.14	283.37
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	42.10	1305.07
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.20	-6.09
	N. Seepage	0.00	-0.13
	S. Seepage	0.00	0.00
	Bottom Seepage	-13.18	-408.58
	Precipitation and Runoff	0.00	0.00
	Evaporation	-30.95	-959.30
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-44.33	-1374.09
Modeled Change in CCS Storage:		-2.23	-69.03
Observed Change		-11.66	-361.51

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

January 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.44
	E. Seepage	22.89
	N. Seepage	0.00
	S. Seepage	3.76
	Bottom Seepage	8.86
	Precipitation and Runoff	2.78
	Evaporation	0.00
	Unit 3, 4 Added Water	0.59
	Blowdown	1.77
	ID Pumping	15.39
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	57.49
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.03
	N. Seepage	-0.02
	S. Seepage	0.00
	Bottom Seepage	-29.29
	Precipitation and Runoff	0.00
	Evaporation	-32.66
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-62.00
Modeled Change in CCS Storage:		-4.51
Observed Change		-9.98

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

February 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.08
	E. Seepage	10.96
	N. Seepage	0.01
	S. Seepage	2.75
	Bottom Seepage	5.10
	Precipitation and Runoff	34.97
	Evaporation	0.00
	Unit 3, 4 Added Water	0.52
	Blowdown	1.56
	ID Pumping	1.50
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	58.46
Out of CCS		1695.22
	W. Seepage	0.00
	E. Seepage	-1.48
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-8.57
	Precipitation and Runoff	0.00
	Evaporation	-31.99
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-42.04
Modeled Change in CCS Storage:		16.42
Observed Change		12.36
		476.15
		358.44

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

March 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.79
	E. Seepage	16.36
	N. Seepage	0.02
	S. Seepage	3.86
	Bottom Seepage	10.20
	Precipitation and Runoff	2.38
	Evaporation	0.00
	Unit 3, 4 Added Water	0.35
	Blowdown	1.97
	ID Pumping	4.10
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	40.04
Out of CCS		1241.16
	W. Seepage	0.00
	E. Seepage	-0.48
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-7.38
	Precipitation and Runoff	0.00
	Evaporation	-33.30
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-41.16
Modeled Change in CCS Storage:		-1.12
Observed Change		-34.87
		-348.30

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

April 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.26
	E. Seepage	16.15
	N. Seepage	0.01
	S. Seepage	3.78
	Bottom Seepage	11.02
	Precipitation and Runoff	50.10
	Evaporation	0.00
	Unit 3, 4 Added Water	0.39
	Blowdown	1.96
	ID Pumping	9.76
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	94.43
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.25
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-13.01
	Precipitation and Runoff	0.00
	Evaporation	-35.26
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-48.52
Modeled Change in CCS Storage:		45.91
Observed Change		1010.73

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

May 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.06
	E. Seepage	0.50
	N. Seepage	0.02
	S. Seepage	1.26
	Bottom Seepage	11.57
	Precipitation and Runoff	40.57
	Evaporation	0.00
	Unit 3, 4 Added Water	0.41
	Blowdown	1.94
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	57.32
Out of CCS	W. Seepage	0.00
	E. Seepage	-13.27
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-9.28
	Precipitation and Runoff	0.00
	Evaporation	-33.70
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-56.26
Modeled Change in CCS Storage:		1.06
Observed Change		-2.89

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

June 2012			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.57	17.18
	E. Seepage	3.39	101.59
	N. Seepage	0.02	0.50
	S. Seepage	2.23	66.92
	Bottom Seepage	8.87	265.96
	Precipitation and Runoff	30.36	910.93
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.29	8.66
	Blowdown	2.07	61.95
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	47.79	1433.70
Out of CCS	W. Seepage	0.00	-0.06
	E. Seepage	-9.13	-273.94
	N. Seepage	0.00	-0.02
	S. Seepage	0.00	0.00
	Bottom Seepage	-7.01	-210.24
	Precipitation and Runoff	0.00	0.00
	Evaporation	-34.00	-1019.97
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-50.14	-1504.23
Modeled Change in CCS Storage:		-2.35	-70.53
Observed Change		-3.50	-105.04

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

July 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.92
	E. Seepage	0.02
	N. Seepage	0.02
	S. Seepage	1.41
	Bottom Seepage	14.13
	Precipitation and Runoff	29.22
	Evaporation	0.00
	Unit 3, 4 Added Water	0.34
	Blowdown	2.13
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	48.20
Out of CCS	W. Seepage	0.00
	E. Seepage	-11.08
	N. Seepage	0.00
	S. Seepage	-0.06
	Bottom Seepage	-9.56
	Precipitation and Runoff	0.00
	Evaporation	-40.50
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-61.21
Modeled Change in CCS Storage:		-13.01
Observed Change		-7.97

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

August 2012			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.94	29.28
	E. Seepage	5.79	179.38
	N. Seepage	0.02	0.64
	S. Seepage	2.52	77.97
	Bottom Seepage	12.31	381.65
	Precipitation and Runoff	39.51	1224.70
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.27	8.51
	Blowdown	2.20	68.22
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	63.56	1970.35
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-6.13	-190.09
	N. Seepage	0.00	0.00
	S. Seepage	-0.03	-0.91
	Bottom Seepage	-6.38	-197.72
	Precipitation and Runoff	0.00	0.00
	Evaporation	-39.72	-1231.38
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-52.26	-1620.10
Modeled Change in CCS Storage:		11.30	350.25
Observed Change		21.72	673.22

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

September 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.64
	E. Seepage	2.51
	N. Seepage	0.01
	S. Seepage	2.29
	Bottom Seepage	7.77
	Precipitation and Runoff	29.60
	Evaporation	0.00
	Unit 3, 4 Added Water	0.73
	Blowdown	1.93
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	45.47
Out of CCS	W. Seepage	-0.01
	E. Seepage	-10.00
	N. Seepage	0.00
	S. Seepage	-0.03
	Bottom Seepage	-10.96
	Precipitation and Runoff	0.00
	Evaporation	-39.33
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-60.33
Modeled Change in CCS Storage:		-14.86
Observed Change		-5.35

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

October 2012			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.27	8.34
	E. Seepage	19.18	594.67
	N. Seepage	0.02	0.62
	S. Seepage	3.54	109.70
	Bottom Seepage	14.06	435.85
	Precipitation and Runoff	14.07	436.27
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.89	27.69
	Blowdown	1.89	58.47
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	53.92	1671.61
Out of CCS	W. Seepage	-0.02	-0.48
	E. Seepage	-4.46	-138.26
	N. Seepage	0.00	-0.06
	S. Seepage	-0.02	-0.54
	Bottom Seepage	-5.43	-168.36
	Precipitation and Runoff	0.00	0.00
	Evaporation	-39.07	-1211.07
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-48.99	-1518.76
Modeled Change in CCS Storage:		4.93	152.85
Observed Change		7.58	235.01

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

November 2012		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.37
	E. Seepage	7.77
	N. Seepage	0.03
	S. Seepage	2.97
	Bottom Seepage	13.66
	Precipitation and Runoff	1.70
	Evaporation	0.00
	Unit 3, 4 Added Water	0.79
	Blowdown	1.31
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	28.61
Out of CCS	W. Seepage	0.00
	E. Seepage	-2.49
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-2.45
	Precipitation and Runoff	0.00
	Evaporation	-28.57
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-33.50
Modeled Change in CCS Storage:		-4.89
Observed Change		-3.88

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

December 2012			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.73	22.60
	E. Seepage	0.43	13.27
	N. Seepage	0.02	0.57
	S. Seepage	1.38	42.89
	Bottom Seepage	7.59	235.25
	Precipitation and Runoff	1.84	56.99
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.50	15.62
	Blowdown	1.49	46.34
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	13.98	433.51
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-8.03	-248.97
	N. Seepage	0.00	0.00
	S. Seepage	0.00	-0.02
	Bottom Seepage	-5.51	-170.70
	Precipitation and Runoff	0.00	0.00
	Evaporation	-23.23	-720.01
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-36.76	-1139.70
Modeled Change in CCS Storage:		-22.78	-706.18
Observed Change		-28.66	-888.55

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

January 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.83
	E. Seepage	7.15
	N. Seepage	0.02
	S. Seepage	3.21
	Bottom Seepage	8.15
	Precipitation and Runoff	1.04
	Evaporation	0.00
	Unit 3, 4 Added Water	0.52
	Blowdown	1.74
	ID Pumping	2.40
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	25.05
Out of CCS	W. Seepage	0.00
	E. Seepage	-2.40
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-1.69
	Precipitation and Runoff	0.00
	Evaporation	-24.23
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-28.32
Modeled Change in CCS Storage:		-3.26
Observed Change		-10.70

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

February 2013			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.93	26.13
	E. Seepage	9.75	273.11
	N. Seepage	0.01	0.37
	S. Seepage	3.44	96.40
	Bottom Seepage	7.50	209.97
	Precipitation and Runoff	5.37	150.43
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.34	9.50
	Blowdown	1.63	45.65
	ID Pumping	8.45	236.52
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	37.43	1048.09
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-2.76	-77.32
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-6.60	-184.72
	Precipitation and Runoff	0.00	0.00
	Evaporation	-23.28	-651.88
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-32.64	-913.92
Modeled Change in CCS Storage:		4.79	134.17
Observed Change		1.10	30.86

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

March 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.77
	E. Seepage	20.14
	N. Seepage	0.01
	S. Seepage	4.28
	Bottom Seepage	12.61
	Precipitation and Runoff	5.13
	Evaporation	0.00
	Unit 3, 4 Added Water	0.52
	Blowdown	1.92
	ID Pumping	7.41
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	52.78
Out of CCS	W. Seepage	0.00
	E. Seepage	0.00
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-11.51
	Precipitation and Runoff	0.00
	Evaporation	-27.64
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-39.16
Modeled Change in CCS Storage:		13.62
Observed Change		3.84

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

April 2013			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.95	28.47
	E. Seepage	23.12	693.51
	N. Seepage	0.00	0.00
	S. Seepage	3.52	105.47
	Bottom Seepage	7.55	226.58
	Precipitation and Runoff	22.71	681.31
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.71	21.24
	Blowdown	1.91	57.39
	ID Pumping	9.24	277.20
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	69.71	2091.16
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.15	-4.51
	N. Seepage	-0.02	-0.66
	S. Seepage	0.00	0.00
	Bottom Seepage	-26.60	-798.04
	Precipitation and Runoff	0.00	0.00
	Evaporation	-38.01	-1140.28
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-64.78	-1943.49
	Modeled Change in CCS Storage:		4.92
Observed Change		12.76	382.66

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

May 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.88
	E. Seepage	12.95
	N. Seepage	0.00
	S. Seepage	2.52
	Bottom Seepage	2.83
	Precipitation and Runoff	48.92
	Evaporation	0.00
	Unit 3, 4 Added Water	0.93
	Blowdown	2.15
	ID Pumping	6.15
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	77.33
Out of CCS	W. Seepage	0.00
	E. Seepage	-1.71
	N. Seepage	-0.01
	S. Seepage	-0.03
	Bottom Seepage	-17.48
	Precipitation and Runoff	0.00
	Evaporation	-42.96
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-62.20
Modeled Change in CCS Storage:		15.13
Observed Change		22.68

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

June 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.93
	E. Seepage	6.33
	N. Seepage	0.00
	S. Seepage	1.42
	Bottom Seepage	1.58
	Precipitation and Runoff	18.28
	Evaporation	0.00
	Unit 3, 4 Added Water	0.56
	Blowdown	1.99
	ID Pumping	0.68
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	31.78
Out of CCS	W. Seepage	0.00
	E. Seepage	-14.22
	N. Seepage	-0.02
	S. Seepage	-0.85
	Bottom Seepage	-21.98
	Precipitation and Runoff	0.00
	Evaporation	-51.32
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-88.39
Modeled Change in CCS Storage:		-56.61
Observed Change		-31.07

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

July 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.80
	E. Seepage	13.88
	N. Seepage	0.00
	S. Seepage	2.75
	Bottom Seepage	5.10
	Precipitation and Runoff	47.74
	Evaporation	0.00
	Unit 3, 4 Added Water	0.55
	Blowdown	2.05
	ID Pumping	0.70
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	73.56
Out of CCS	W. Seepage	0.00
	E. Seepage	-2.71
	N. Seepage	-0.01
	S. Seepage	0.00
	Bottom Seepage	-9.67
	Precipitation and Runoff	0.00
	Evaporation	-51.21
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-63.60
Modeled Change in CCS Storage:		9.96
Observed Change		19.61

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

August 2013			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.68	21.23
	E. Seepage	19.87	615.97
	N. Seepage	0.01	0.16
	S. Seepage	3.37	104.42
	Bottom Seepage	6.45	200.05
	Precipitation and Runoff	32.21	998.49
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.70	21.73
	Blowdown	2.57	79.64
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	65.86	2041.70
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-2.72	-84.23
	N. Seepage	-0.01	-0.29
	S. Seepage	-0.03	-1.05
	Bottom Seepage	-6.99	-216.74
	Precipitation and Runoff	0.00	0.00
	Evaporation	-72.85	-2258.31
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-82.60	-2560.62
Modeled Change in CCS Storage:		-16.74	-518.92
Observed Change		-6.11	-189.45

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

September 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.23
	E. Seepage	14.72
	N. Seepage	0.01
	S. Seepage	2.50
	Bottom Seepage	11.17
	Precipitation and Runoff	20.70
	Evaporation	0.00
	Unit 3, 4 Added Water	0.36
	Blowdown	1.45
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	51.15
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.25
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-0.44
	Precipitation and Runoff	0.00
	Evaporation	-34.36
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-35.05
Modeled Change in CCS Storage:		16.10
Observed Change		10.23

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

October 2013			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.28	8.69
	E. Seepage	18.85	584.33
	N. Seepage	0.03	1.02
	S. Seepage	3.97	122.97
	Bottom Seepage	24.88	771.30
	Precipitation and Runoff	7.33	227.12
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.55	16.96
	Blowdown	2.25	69.88
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	58.14	1802.26
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.63	-19.39
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-0.17	-5.12
	Precipitation and Runoff	0.00	0.00
	Evaporation	-53.09	-1645.78
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-53.88	-1670.29
Modeled Change in CCS Storage:		4.26	131.97
Observed Change		-5.40	-167.52

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

November 2013		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.26
	E. Seepage	15.80
	N. Seepage	0.03
	S. Seepage	3.45
	Bottom Seepage	19.90
	Precipitation and Runoff	32.18
	Evaporation	0.00
	Unit 3, 4 Added Water	0.49
	Blowdown	1.79
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	73.90
Out of CCS		2216.99
	W. Seepage	0.00
	E. Seepage	-0.87
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-0.96
	Precipitation and Runoff	0.00
	Evaporation	-43.14
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-44.97
Modeled Change in CCS Storage:		28.93
Observed Change		419.29

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

December 2013			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.33	10.11
	E. Seepage	5.00	155.06
	N. Seepage	0.01	0.21
	S. Seepage	2.10	65.18
	Bottom Seepage	3.84	118.90
	Precipitation and Runoff	4.42	137.06
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.50	15.50
	Blowdown	1.79	55.54
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	17.99	557.56
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-3.65	-113.07
	N. Seepage	0.00	-0.03
	S. Seepage	0.00	0.00
	Bottom Seepage	-4.99	-154.79
	Precipitation and Runoff	0.00	0.00
	Evaporation	-40.83	-1265.84
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-49.48	-1533.74
Modeled Change in CCS Storage:		-31.49	-976.18
Observed Change		-21.47	-665.45

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

January 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.57
	E. Seepage	10.12
	N. Seepage	0.02
	S. Seepage	3.20
	Bottom Seepage	7.97
	Precipitation and Runoff	8.44
	Evaporation	0.00
	Unit 3, 4 Added Water	0.47
	Blowdown	1.67
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	32.46
Out of CCS	W. Seepage	0.00
	E. Seepage	-1.25
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-1.80
	Precipitation and Runoff	0.00
	Evaporation	-31.70
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-34.75
Modeled Change in CCS Storage:		-2.29
Observed Change		-6.40

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

January 2014			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.57	17.81
	E. Seepage	10.12	313.58
	N. Seepage	0.02	0.48
	S. Seepage	3.20	99.10
	Bottom Seepage	7.97	247.10
	Precipitation and Runoff	8.44	261.68
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.47	14.68
	Blowdown	1.67	51.80
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	32.46	1006.24
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1.25	-38.73
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-1.80	-55.73
	Precipitation and Runoff	0.00	0.00
	Evaporation	-31.70	-982.74
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-34.75	-1077.21
Modeled Change in CCS Storage:		-2.29	-70.98
Observed Change		-6.40	-198.28

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

February 2014			
Water Budget Component		Flow (MGD)	Volume (gal x 10^6)
Into CCS	W. Seepage	0.69	19.25
	E. Seepage	13.84	387.43
	N. Seepage	0.02	0.57
	S. Seepage	4.71	131.95
	Bottom Seepage	11.54	323.12
	Precipitation and Runoff	10.25	287.10
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.48	13.58
	Blowdown	1.63	45.52
	ID Pumping	1.35	37.89
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	44.51	1246.42
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.37	-10.25
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-0.75	-21.08
	Precipitation and Runoff	0.00	0.00
	Evaporation	-43.10	-1206.67
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-44.21	-1238.00
Modeled Change in CCS Storage:		0.30	8.42
Observed Change		-7.95	-222.68

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

March 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.68
	E. Seepage	14.42
	N. Seepage	0.02
	S. Seepage	4.31
	Bottom Seepage	11.74
	Precipitation and Runoff	6.77
	Evaporation	0.00
	Unit 3, 4 Added Water	0.39
	Blowdown	2.02
	ID Pumping	1.93
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	42.27
Out of CCS		1310.49
	W. Seepage	0.00
	E. Seepage	-0.01
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-1.01
	Precipitation and Runoff	0.00
	Evaporation	-41.51
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-42.53
Modeled Change in CCS Storage:		-7.96
Observed Change		-243.70

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

April 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.66
	E. Seepage	25.03
	N. Seepage	0.02
	S. Seepage	5.29
	Bottom Seepage	17.23
	Precipitation and Runoff	2.36
	Evaporation	0.00
	Unit 3, 4 Added Water	0.33
	Blowdown	2.42
	ID Pumping	3.19
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	56.53
Out of CCS	W. Seepage	0.00
	E. Seepage	0.00
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-3.73
	Precipitation and Runoff	0.00
	Evaporation	-42.72
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-46.46
Modeled Change in CCS Storage:		10.08
Observed Change		1.08

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

May 2014			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.68	20.99
	E. Seepage	33.43	1036.20
	N. Seepage	0.00	0.14
	S. Seepage	4.99	154.57
	Bottom Seepage	21.15	655.73
	Precipitation and Runoff	6.93	214.70
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.46	14.40
	Blowdown	2.21	68.43
	ID Pumping	7.00	217.08
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	76.85	2382.24
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	0.00	-0.13
	S. Seepage	0.00	0.00
	Bottom Seepage	-9.78	-303.28
	Precipitation and Runoff	0.00	0.00
	Evaporation	-56.21	-1742.62
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-66.00	-2046.03
Modeled Change in CCS Storage:		10.85	336.20
Observed Change		0.67	20.77

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

June 2014			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.80	24.00
	E. Seepage	20.49	614.66
	N. Seepage	0.00	0.05
	S. Seepage	4.21	126.29
	Bottom Seepage	10.99	329.66
	Precipitation and Runoff	26.04	781.25
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.62	18.70
	Blowdown	2.53	76.02
	ID Pumping	2.77	83.16
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	68.46	2053.78
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	0.00	-0.12
	S. Seepage	0.00	0.00
	Bottom Seepage	-2.07	-62.12
	Precipitation and Runoff	0.00	0.00
	Evaporation	-54.47	-1634.13
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-56.55	-1696.36
Modeled Change in CCS Storage:		11.91	357.42
Observed Change		7.55	226.42

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

July 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	1.01
	E. Seepage	11.05
	N. Seepage	0.00
	S. Seepage	4.44
	Bottom Seepage	6.53
	Precipitation and Runoff	31.02
	Evaporation	0.00
	Unit 3, 4 Added Water	0.62
	Blowdown	2.78
	ID Pumping	0.00
	Added Water (e.g. L-31E)	3.97
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	61.41
Out of CCS	W. Seepage	0.00
	E. Seepage	-0.40
	N. Seepage	-0.01
	S. Seepage	0.00
	Bottom Seepage	-2.34
	Precipitation and Runoff	0.00
	Evaporation	-54.12
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-56.88
	Modeled Change in CCS Storage:	4.53
Observed Change		12.49
		387.09

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

August 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.71
	E. Seepage	23.67
	N. Seepage	0.00
	S. Seepage	4.97
	Bottom Seepage	12.62
	Precipitation and Runoff	15.64
	Evaporation	0.00
	Unit 3, 4 Added Water	0.61
	Blowdown	2.85
	ID Pumping	0.00
	Added Water (e.g. L-31E)	4.09
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	65.18
Out of CCS	W. Seepage	0.00
	E. Seepage	0.00
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-0.08
	Precipitation and Runoff	0.00
	Evaporation	-58.35
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-58.44
Modeled Change in CCS Storage:		6.75
Observed Change		4.13

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

September 2014			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.32	9.58
	E. Seepage	13.56	406.91
	N. Seepage	0.01	0.30
	S. Seepage	4.53	135.80
	Bottom Seepage	12.04	361.16
	Precipitation and Runoff	19.02	570.46
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.53	15.82
	Blowdown	2.66	79.83
	ID Pumping	0.00	0.00
	Added Water (e.g. L-31E)	9.45	283.54
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	62.11	1863.40
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.45	-13.42
	N. Seepage	0.00	-0.03
	S. Seepage	0.00	0.00
	Bottom Seepage	-0.28	-8.49
	Precipitation and Runoff	0.00	0.00
	Evaporation	-48.30	-1448.86
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-49.03	-1470.80
Modeled Change in CCS Storage:		13.09	392.60
Observed Change		13.46	403.84

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

October 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.40
	E. Seepage	0.42
	N. Seepage	0.01
	S. Seepage	1.54
	Bottom Seepage	4.00
	Precipitation and Runoff	32.55
	Evaporation	0.00
	Unit 3, 4 Added Water	0.46
	Blowdown	2.40
	ID Pumping	13.66
	Added Water (e.g. L-31E)	25.28
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	80.72
Out of CCS	W. Seepage	-0.04
	E. Seepage	-16.02
	N. Seepage	-0.01
	S. Seepage	-0.14
	Bottom Seepage	-16.88
	Precipitation and Runoff	0.00
	Evaporation	-38.09
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-71.17
	Modeled Change in CCS Storage:	9.55
	Observed Change	24.22
		2502.37
		-2206.42
		295.95
		750.70

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

November 2014			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.71	21.39
	E. Seepage	4.63	138.85
	N. Seepage	0.01	0.15
	S. Seepage	2.19	65.78
	Bottom Seepage	1.95	58.61
	Precipitation and Runoff	2.44	73.23
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.55	16.60
	Blowdown	1.89	56.81
	ID Pumping	9.89	296.55
	Added Water (e.g. L-31E)	5.22	156.58
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	29.49	884.56
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-5.95	-178.35
	N. Seepage	0.00	-0.09
	S. Seepage	-0.04	-1.26
	Bottom Seepage	-11.24	-337.13
	Precipitation and Runoff	0.00	0.00
	Evaporation	-36.40	-1091.88
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-53.62	-1608.71
	Modeled Change in CCS Storage:	-24.14	-724.16
	Observed Change	-25.31	-759.36

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

December 2014		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.39
	E. Seepage	7.13
	N. Seepage	0.01
	S. Seepage	3.66
	Bottom Seepage	6.27
	Precipitation and Runoff	12.37
	Evaporation	0.00
	Unit 3, 4 Added Water	0.48
	Blowdown	1.93
	ID Pumping	0.66
	Added Water (e.g. L-31E)	3.26
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	36.16
Out of CCS	W. Seepage	0.00
	E. Seepage	-2.57
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-2.91
	Precipitation and Runoff	0.00
	Evaporation	-32.64
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-38.13
	Modeled Change in CCS Storage:	-1.97
	Observed Change	-9.52
		-1120.99
		-1181.93
		-60.95
		-295.24

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

January 2015		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.40
	E. Seepage	8.10
	N. Seepage	0.01
	S. Seepage	3.72
	Bottom Seepage	7.62
	Precipitation and Runoff	11.00
	Evaporation	0.00
	Unit 3, 4 Added Water	0.55
	Blowdown	2.15
	ID Pumping	0.00
	Added Water (e.g. L-31E)	11.26
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	44.82
Out of CCS	W. Seepage	0.00
	E. Seepage	-1.43
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-1.58
	Precipitation and Runoff	0.00
	Evaporation	-38.11
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-41.12
	Modeled Change in CCS Storage:	3.71
	Observed Change	-9.62
		1344.69
		-1233.50
		111.20
		-298.36

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

February 2015		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.62
	E. Seepage	12.33
	N. Seepage	0.01
	S. Seepage	3.70
	Bottom Seepage	4.12
	Precipitation and Runoff	5.68
	Evaporation	0.00
	Unit 3, 4 Added Water	0.51
	Blowdown	1.89
	ID Pumping	5.20
	Added Water (e.g. L-31E)	13.46
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	47.53
Out of CCS	W. Seepage	0.00
	E. Seepage	-1.34
	N. Seepage	0.00
	S. Seepage	0.00
	Bottom Seepage	-9.72
	Precipitation and Runoff	0.00
	Evaporation	-34.02
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-45.08
Modeled Change in CCS Storage:		75.69
Observed Change		68.30

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

March 2015		
Water Budget Component	Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.73
	E. Seepage	8.63
	N. Seepage	0.00
	S. Seepage	2.81
	Bottom Seepage	0.51
	Precipitation and Runoff	10.46
	Evaporation	0.00
	Unit 3, 4 Added Water	0.61
	Blowdown	2.36
	ID Pumping	9.45
	Added Water (e.g. L-31E)	15.40
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total In:	50.96
Out of CCS	W. Seepage	0.00
	E. Seepage	-2.13
	N. Seepage	-0.01
	S. Seepage	0.00
	Bottom Seepage	-28.51
	Precipitation and Runoff	0.00
	Evaporation	-47.34
	Unit 3, 4 Added Water	0.00
	Unit 5 Blowdown	0.00
	ID Pumping	0.00
	Plant Outflow	Equal to Intake
	Plant Intake	Equal to Outflow
	Total Out:	-77.98
	Modeled Change in CCS Storage:	-27.02
	Observed Change	-12.11
		-375.50

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

April 2015			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.89	27.54
	E. Seepage	26.72	828.47
	N. Seepage	0.00	0.00
	S. Seepage	2.88	89.24
	Bottom Seepage	10.17	315.32
	Precipitation and Runoff	34.63	1073.50
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.53	16.42
	Blowdown	2.39	74.24
	ID Pumping	12.06	374.01
	Added Water (e.g. L-31E)	13.99	433.76
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	104.27	3232.50
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.06	-1.84
	N. Seepage	-0.01	-0.46
	S. Seepage	0.00	0.00
	Bottom Seepage	-29.22	-905.96
	Precipitation and Runoff	0.00	0.00
	Evaporation	-49.98	-1549.30
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-79.28	-2457.57
Modeled Change in CCS Storage:		25.00	774.93
Observed Change		22.43	672.93

Table 5.3-4. Calculated Fluid Flows from Water Budget Components.

May 2015			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.81	24.34
	E. Seepage	14.49	434.74
	N. Seepage	0.00	0.15
	S. Seepage	3.91	117.29
	Bottom Seepage	5.15	154.41
	Precipitation and Runoff	4.47	134.06
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.56	16.87
	Blowdown	2.98	89.47
	ID Pumping	1.14	34.20
	Added Water (e.g. L-31E)	4.25	127.38
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	37.76	1132.93
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.08	-2.26
	N. Seepage	0.00	-0.06
	S. Seepage	0.00	0.00
	Bottom Seepage	-10.40	-311.85
	Precipitation and Runoff	0.00	0.00
	Evaporation	-46.15	-1384.62
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-56.63	-1698.79
	Modeled Change in CCS Storage:	-18.86	-565.87
	Observed Change	-23.99	-743.60

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

September 2010			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.32	39.74
	E. Seepage	2367.81	71034.23
	N. Seepage	3.26	97.90
	S. Seepage	141.52	4245.59
	Bottom Seepage	1757.29	52718.75
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	142.95	4288.51
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	4414.16	132424.73
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-2107.47	-63224.09
	N. Seepage	-1.00	-30.03
	S. Seepage	0.00	0.00
	Bottom Seepage	-3148.36	-94450.90
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-5256.83	-157705.02
Modeled Change in CCS Storage:		-842.68	-157705.02
Observed Change		1464.29	43928.58

Key:

CCS = Cooling Canal System.

ID = Interceptor Ditch.

lb = Pound.

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

October 2010			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	0.42	13.07
	E. Seepage	145.46	4509.21
	N. Seepage	1.03	32.01
	S. Seepage	9.79	303.49
	Bottom Seepage	1578.86	48944.78
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	108.85	3374.49
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	1844.42	57177.05
Out of CCS	W. Seepage	-90.08	-2792.56
	E. Seepage	-8248.71	-255710.08
	N. Seepage	-2.35	-72.84
	S. Seepage	-19.82	-614.51
	Bottom Seepage	-7351.71	-227902.88
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-15712.67	-487092.89
Modeled Change in CCS Storage:		-13868.25	-429915.84
Observed Change		-13790.42	-427502.87

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

November 2010			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	0.62	18.65
	E. Seepage	1112.86	33385.66
	N. Seepage	1.02	30.47
	S. Seepage	86.35	2590.47
	Bottom Seepage	448.66	13459.68
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	72.95	2188.41
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	1722.44	51673.35
Out of CCS	W. Seepage	-561.32	-16839.75
	E. Seepage	-2562.68	-76880.51
	N. Seepage	-1.36	-40.70
	S. Seepage	-11.76	-352.92
	Bottom Seepage	-4970.49	-149114.70
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-8107.62	-243228.57
Modeled Change in CCS Storage:		-6385.17	-191555.23
Observed Change		-2876.16	-86284.89

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

December 2010			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.64	81.97
	E. Seepage	4285.67	132855.83
	N. Seepage	0.00	0.00
	S. Seepage	408.74	12670.94
	Bottom Seepage	453.49	14058.10
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	105.19	3260.84
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5255.73	162927.68
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-162.55	-5039.00
	N. Seepage	-4.76	-147.53
	S. Seepage	-2.38	-73.76
	Bottom Seepage	-5813.63	-180222.52
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-5983.32	-185482.82
Modeled Change in CCS Storage:		-727.59	-22555.14
Observed Change		-1555.92	-48233.42

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

January 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	5.82	180.56
	E. Seepage	2552.32	79121.95
	N. Seepage	0.02	0.72
	S. Seepage	351.22	10887.84
	Bottom Seepage	583.72	18095.32
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	119.67	3709.91
	ID Pumped Water	185.05	5736.69
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	3797.84	117732.99
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1442.13	-44705.99
	N. Seepage	-5.83	-180.58
	S. Seepage	0.00	0.00
	Bottom Seepage	-7389.58	-229076.98
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-8837.53	-273963.56
Modeled Change in CCS Storage:		-5039.70	-156230.57
Observed Change		-910.35	-28220.95

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

February 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	3.72	104.03
	E. Seepage	6193.40	173415.07
	N. Seepage	0.00	0.00
	S. Seepage	633.20	17729.66
	Bottom Seepage	2001.44	56040.28
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	101.50	2842.14
	ID Pumped Water	73.70	2063.56
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	9006.95	252194.73
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-152.30	-4264.37
	N. Seepage	-9.05	-253.36
	S. Seepage	0.00	0.00
	Bottom Seepage	-9382.55	-262711.31
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-9543.89	-267229.04
Modeled Change in CCS Storage:		-536.94	-15034.31
Observed Change		1264.60	35408.76

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

March 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.30	195.21
	E. Seepage	5635.93	174713.82
	N. Seepage	0.54	16.89
	S. Seepage	843.27	26141.22
	Bottom Seepage	2189.25	67866.90
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	96.82	3001.46
	ID Pumped Water	774.24	24001.46
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	9546.35	295936.97
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-133.36	-4134.31
	N. Seepage	-2.15	-66.72
	S. Seepage	0.00	0.00
	Bottom Seepage	-8496.44	-263389.76
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-8631.96	-267590.80
Modeled Change in CCS Storage:		914.39	28346.17
Observed Change		2504.94	77653.08

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

April 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.92	207.58
	E. Seepage	8457.74	253732.07
	N. Seepage	0.69	20.75
	S. Seepage	1325.65	39769.41
	Bottom Seepage	3391.45	101743.46
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	165.25	4957.53
	ID Pumped Water	751.05	22531.49
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	14098.74	422962.29
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	-1.16	-34.89
	S. Seepage	0.00	0.00
	Bottom Seepage	-8372.65	-251179.64
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-8373.82	-251214.54
Modeled Change in CCS Storage:		5724.93	171747.75
Observed Change		-4057.29	-121718.78

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

May 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	22.76	705.69
	E. Seepage	14314.76	443757.52
	N. Seepage	0.00	0.00
	S. Seepage	1950.48	60464.95
	Bottom Seepage	5815.91	180293.08
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	169.25	5246.87
	ID Pumped Water	3405.55	105571.94
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	25678.71	796040.04
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	-18.40	-570.36
	S. Seepage	0.00	0.00
	Bottom Seepage	-25285.18	-783840.65
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-25303.58	-784411.01
Modeled Change in CCS Storage:		375.13	11629.03
Observed Change		6228.37	193079.32

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

June 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	34.43	1032.86
	E. Seepage	12237.99	367139.73
	N. Seepage	0.00	0.00
	S. Seepage	2011.79	60353.71
	Bottom Seepage	6058.29	181748.84
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	148.97	4469.00
	ID Pumped Water	4597.36	137920.85
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	25088.83	752665.00
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-4.13	-123.93
	N. Seepage	-16.95	-508.47
	S. Seepage	0.00	0.00
	Bottom Seepage	-21821.28	-654638.29
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-21842.36	-655270.68
Modeled Change in CCS Storage:		3246.48	97394.32
Observed Change		8658.55	259756.64

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

July 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	19.96	618.77
	E. Seepage	1467.54	45493.62
	N. Seepage	0.00	0.00
	S. Seepage	542.84	16828.19
	Bottom Seepage	1464.15	45388.73
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	164.90	5111.87
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	3659.39	113441.18
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-5149.44	-159632.70
	N. Seepage	-6.85	-212.23
	S. Seepage	-59.11	-1832.49
	Bottom Seepage	-8619.80	-267213.76
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-13835.20	-428891.19
Modeled Change in CCS Storage:		-10175.81	-315450.01
Observed Change		3237.34	100357.40

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

August 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.44	199.73
	E. Seepage	4818.73	149380.50
	N. Seepage	0.98	30.43
	S. Seepage	500.29	15508.86
	Bottom Seepage	2143.75	66456.30
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	151.94	4710.17
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7622.13	236285.99
Out of CCS	W. Seepage	-57.15	-1771.69
	E. Seepage	-57.86	-1793.76
	N. Seepage	-0.60	-18.59
	S. Seepage	0.00	0.00
	Bottom Seepage	-1809.39	-56091.02
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1925.00	-59675.06
Modeled Change in CCS Storage:		5697.13	176610.93
Observed Change		4028.64	124887.94

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

September 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.46	73.74
	E. Seepage	2518.16	75544.84
	N. Seepage	0.12	3.49
	S. Seepage	365.74	10972.20
	Bottom Seepage	867.21	26016.23
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	142.95	4288.51
	ID Pumped Water	406.90	12207.06
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	4303.54	129106.06
Out of CCS	W. Seepage	-681.83	-20454.85
	E. Seepage	-725.18	-21755.44
	N. Seepage	-3.46	-103.68
	S. Seepage	0.00	0.00
	Bottom Seepage	-4157.26	-124717.89
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-5567.73	-167031.86
Modeled Change in CCS Storage:		-1264.19	-37925.80
Observed Change		-3663.57	-109906.97

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

October 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.29	39.99
	E. Seepage	2800.88	86827.20
	N. Seepage	0.39	12.19
	S. Seepage	219.37	6800.38
	Bottom Seepage	4150.65	128670.25
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	108.85	3374.49
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7281.44	225724.50
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-990.71	-30712.12
	N. Seepage	-3.96	-122.70
	S. Seepage	0.00	0.00
	Bottom Seepage	-38.92	-1206.45
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1033.59	-32041.28
Modeled Change in CCS Storage:		6247.85	193683.22
Observed Change		-3871.33	-120011.08

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

November 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.32	39.50
	E. Seepage	2309.02	69270.64
	N. Seepage	1.24	37.31
	S. Seepage	415.72	12471.49
	Bottom Seepage	1942.59	58277.79
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	72.95	2188.41
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	4742.84	142285.15
Out of CCS	W. Seepage	-2.60	-77.88
	E. Seepage	-395.12	-11853.47
	N. Seepage	-1.38	-41.50
	S. Seepage	0.00	0.00
	Bottom Seepage	-1464.94	-43948.27
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1864.04	-55921.12
Modeled Change in CCS Storage:		2878.80	86364.02
Observed Change		-3673.05	-110191.36

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

December 2011			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.55	79.07
	E. Seepage	3595.66	111465.45
	N. Seepage	1.01	31.46
	S. Seepage	701.00	21730.94
	Bottom Seepage	1765.94	54744.18
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	105.19	3260.84
	ID Pumped Water	431.13	13365.08
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6602.48	204677.00
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-99.37	-3080.36
	N. Seepage	-2.01	-62.16
	S. Seepage	0.00	0.00
	Bottom Seepage	-6333.22	-196329.83
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-6434.59	-199472.35
Modeled Change in CCS Storage:		167.89	5204.65
Observed Change		-3828.22	-118674.85

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

January 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	5.92	183.39
	E. Seepage	5523.45	171226.89
	N. Seepage	0.16	4.83
	S. Seepage	824.99	25574.55
	Bottom Seepage	2720.16	84324.88
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	129.55	4016.08
	ID Pumped Water	2219.37	68800.40
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	11423.58	354131.01
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-14.38	-445.70
	N. Seepage	-8.30	-257.31
	S. Seepage	0.00	0.00
	Bottom Seepage	-13952.78	-432536.10
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-13975.46	-433239.11
Modeled Change in CCS Storage:		-2551.87	-79108.10
Observed Change		-2625.35	-81385.79

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

February 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	4.80	139.07
	E. Seepage	2717.89	78818.90
	N. Seepage	1.78	51.48
	S. Seepage	627.76	18204.99
	Bottom Seepage	3039.98	88159.42
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	114.21	3312.10
	ID Pumped Water	189.46	5494.29
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6695.87	194180.25
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-713.59	-20694.17
	N. Seepage	-0.50	-14.61
	S. Seepage	0.00	0.00
	Bottom Seepage	-4974.71	-144266.56
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-5688.80	-164975.34
Modeled Change in CCS Storage:		1007.07	29204.91
Observed Change		3362.46	97511.42

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

March 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	3.50	108.45
	E. Seepage	4722.94	146411.22
	N. Seepage	4.94	153.03
	S. Seepage	899.57	27886.53
	Bottom Seepage	3412.96	105801.72
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	143.97	4463.00
	ID Pumped Water	187.62	5816.11
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	9375.49	290640.06
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-243.93	-7561.81
	N. Seepage	-0.21	-6.62
	S. Seepage	0.00	0.00
	Bottom Seepage	-3587.83	-111222.82
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-3831.98	-118791.24
Modeled Change in CCS Storage:		5543.51	171848.81
Observed Change		-500.48	-15514.87

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

April 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	12.67	380.17
	E. Seepage	5083.99	152519.68
	N. Seepage	1.97	59.07
	S. Seepage	1027.09	30812.75
	Bottom Seepage	3222.55	96676.59
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	143.15	4294.46
	ID Pumped Water	1035.51	31065.19
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	10526.93	315807.89
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-121.57	-3647.20
	N. Seepage	-0.98	-29.32
	S. Seepage	0.00	0.00
	Bottom Seepage	-7106.70	-213201.07
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-7229.25	-216877.58
Modeled Change in CCS Storage:		3297.68	98930.31
Observed Change		4132.59	123977.58

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

May 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	7.32	226.98
	E. Seepage	150.38	4661.72
	N. Seepage	5.55	172.14
	S. Seepage	162.56	5039.38
	Bottom Seepage	2945.99	91325.68
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	141.53	4387.54
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	3413.34	105813.44
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-5714.04	-177135.24
	N. Seepage	-0.30	-9.32
	S. Seepage	-0.83	-25.76
	Bottom Seepage	-3916.75	-121419.13
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-9631.92	-298589.45
Modeled Change in CCS Storage:		-6218.58	-192776.01
Observed Change		-4664.11	-144587.53

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

June 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.77	53.22
	E. Seepage	743.75	22312.43
	N. Seepage	3.89	116.62
	S. Seepage	314.62	9438.70
	Bottom Seepage	2478.26	74347.84
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	150.80	4524.00
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	3693.09	110792.82
Out of CCS	W. Seepage	-32.19	-965.63
	E. Seepage	-3706.73	-111201.98
	N. Seepage	-0.27	-7.97
	S. Seepage	0.00	0.00
	Bottom Seepage	-2818.78	-84563.47
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-6557.97	-196739.05
Modeled Change in CCS Storage:		-2864.87	-85946.23
Observed Change		-2740.38	-82211.41

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

July 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.29	71.09
	E. Seepage	4.53	140.39
	N. Seepage	5.42	167.89
	S. Seepage	90.89	2817.55
	Bottom Seepage	3358.12	104101.82
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	155.80	4829.81
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	3617.05	112128.55
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-4476.42	-138769.10
	N. Seepage	0.00	0.00
	S. Seepage	-25.83	-800.83
	Bottom Seepage	-3810.46	-118124.27
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-8312.72	-257694.20
Modeled Change in CCS Storage:		-4695.67	-145565.65
Observed Change		-2497.19	-77412.85

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

August 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.22	68.82
	E. Seepage	1315.71	40787.10
	N. Seepage	4.79	148.53
	S. Seepage	164.61	5102.99
	Bottom Seepage	2923.81	90638.04
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	160.70	4981.80
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	4571.85	141727.27
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-2322.51	-71997.77
	N. Seepage	0.00	0.00
	S. Seepage	-11.91	-369.31
	Bottom Seepage	-2437.96	-75576.61
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-4772.38	-147943.69
Modeled Change in CCS Storage:		-200.53	-6216.42
Observed Change		1642.83	50927.78

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

September 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.28	38.29
	E. Seepage	561.40	16841.87
	N. Seepage	2.87	85.98
	S. Seepage	36.55	1096.39
	Bottom Seepage	1640.38	49211.44
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	140.84	4225.23
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2383.31	71499.20
Out of CCS	W. Seepage	-67.28	-2018.37
	E. Seepage	-3779.14	-113374.23
	N. Seepage	-0.02	-0.64
	S. Seepage	-13.36	-400.94
	Bottom Seepage	-4064.05	-121921.62
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-7923.86	-237715.80
Modeled Change in CCS Storage:		-5540.55	-166216.60
Observed Change		-2600.46	-78013.94

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

October 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	0.75	23.18
	E. Seepage	3404.60	105542.53
	N. Seepage	3.25	100.85
	S. Seepage	612.24	18979.43
	Bottom Seepage	3429.20	106305.29
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	137.73	4269.50
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7587.77	235220.78
Out of CCS	W. Seepage	-163.09	-5055.73
	E. Seepage	-1660.10	-51462.95
	N. Seepage	-1.16	-35.89
	S. Seepage	-6.52	-202.27
	Bottom Seepage	-1982.01	-61442.38
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-3812.88	-118199.24
Modeled Change in CCS Storage:		3774.89	117021.55
Observed Change		6379.02	197749.67

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

November 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.70	80.98
	E. Seepage	1784.00	53520.07
	N. Seepage	4.16	124.84
	S. Seepage	684.72	20541.49
	Bottom Seepage	3275.44	98263.10
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	95.89	2876.57
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5846.90	175407.05
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-980.36	-29410.67
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-958.69	-28760.77
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1939.05	-58171.43
Modeled Change in CCS Storage:		3907.85	117235.62
Observed Change		2368.82	71064.75

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

December 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.22	192.82
	E. Seepage	108.87	3375.04
	N. Seepage	4.21	130.51
	S. Seepage	276.39	8568.06
	Bottom Seepage	1940.48	60154.80
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	109.16	3383.97
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2445.33	75805.20
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-3354.85	-104000.43
	N. Seepage	0.00	0.00
	S. Seepage	-0.23	-7.11
	Bottom Seepage	-2072.95	-64261.37
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-5428.03	-168268.92
Modeled Change in CCS Storage:		-2982.70	-92463.72
Observed Change		-7753.08	-240345.33

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

January 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.20	192.05
	E. Seepage	1924.13	59647.96
	N. Seepage	4.36	135.08
	S. Seepage	687.26	21305.13
	Bottom Seepage	2256.99	69966.81
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	126.94	3935.07
	ID Pumped Water	60.40	1872.54
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5066.28	157054.65
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1075.17	-33330.31
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-722.42	-22395.07
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1797.59	-55725.38
Modeled Change in CCS Storage:		3268.69	101329.27
Observed Change		525.54	16291.69

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

February 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	8.45	236.61
	E. Seepage	2663.89	74589.03
	N. Seepage	3.16	88.59
	S. Seepage	894.66	25050.34
	Bottom Seepage	2063.41	57775.55
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	119.06	3333.75
	ID Pumped Water	324.14	9075.87
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6076.78	170149.75
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1306.60	-36584.73
	N. Seepage	-0.08	-2.20
	S. Seepage	0.00	0.00
	Bottom Seepage	-3429.98	-96039.49
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-4736.66	-132626.43
Modeled Change in CCS Storage:		1340.12	37523.32
Observed Change		1710.98	47907.57

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

March 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	9.49	294.09
	E. Seepage	6181.90	191639.04
	N. Seepage	1.42	44.00
	S. Seepage	1225.74	37997.99
	Bottom Seepage	2066.77	64069.78
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	140.55	4356.98
	ID Pumped Water	347.21	10763.51
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	9973.08	309165.38
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	-2.06	-63.94
	S. Seepage	0.00	0.00
	Bottom Seepage	-4851.44	-150394.72
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-4853.51	-150458.66
Modeled Change in CCS Storage:		5119.57	158706.72
Observed Change		4065.17	126020.42

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

April 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	11.54	346.20
	E. Seepage	6804.14	204124.17
	N. Seepage	0.00	0.00
	S. Seepage	838.93	25168.01
	Bottom Seepage	2205.58	66167.30
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	139.68	4190.40
	ID Pumped Water	478.94	14368.08
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	10478.81	314364.17
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-72.08	-2162.45
	N. Seepage	-10.84	-325.20
	S. Seepage	0.00	0.00
	Bottom Seepage	-13020.92	-390627.55
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-13103.84	-393115.19
Modeled Change in CCS Storage:		-2625.03	-78751.02
Observed Change		4774.59	143237.63

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

May 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	5.61	174.03
	E. Seepage	3676.69	113977.27
	N. Seepage	0.00	0.00
	S. Seepage	618.85	19184.31
	Bottom Seepage	827.40	25649.44
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	157.13	4871.04
	ID Pumped Water	287.40	8909.54
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5573.08	172765.63
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-746.77	-23149.74
	N. Seepage	-6.57	-203.76
	S. Seepage	-12.70	-393.70
	Bottom Seepage	-8403.65	-260513.06
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-9169.69	-284260.25
Modeled Change in CCS Storage:		-3596.60	-111494.63
Observed Change		1237.57	38364.62

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

June 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	3.59	107.83
	E. Seepage	1935.70	58071.12
	N. Seepage	0.00	0.00
	S. Seepage	260.17	7805.20
	Bottom Seepage	466.22	13986.52
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	145.05	4351.64
	ID Pumped Water	18.96	568.88
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2829.71	84891.18
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-6156.68	-184700.28
	N. Seepage	-10.10	-303.10
	S. Seepage	-367.26	-11017.89
	Bottom Seepage	-9970.74	-299122.23
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-16504.78	-495143.50
Modeled Change in CCS Storage:		-13675.08	-410252.31
Observed Change		-4607.17	-138215.25

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

July 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.60	80.51
	E. Seepage	3940.49	122155.33
	N. Seepage	0.00	0.00
	S. Seepage	520.65	16140.17
	Bottom Seepage	1521.54	47167.79
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	149.46	4633.21
	ID Pumped Water	20.32	629.86
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6155.06	190806.87
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1223.74	-37935.92
	N. Seepage	-6.19	-191.85
	S. Seepage	0.00	0.00
	Bottom Seepage	-4747.42	-147169.99
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-5977.35	-185297.76
Modeled Change in CCS Storage:		177.71	5509.11
Observed Change		4833.38	149834.84

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

August 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.65	51.06
	E. Seepage	3909.73	121201.56
	N. Seepage	0.40	12.37
	S. Seepage	436.28	13524.78
	Bottom Seepage	1229.28	38107.54
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	136.24	4223.30
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5713.57	177120.59
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1196.82	-37101.49
	N. Seepage	-6.00	-186.11
	S. Seepage	-16.17	-501.24
	Bottom Seepage	-3601.96	-111660.71
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-4820.95	-149449.56
Modeled Change in CCS Storage:		892.61	27671.04
Observed Change		3101.52	96147.08

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

September 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.25	37.54
	E. Seepage	4990.46	149713.86
	N. Seepage	3.92	117.62
	S. Seepage	743.84	22315.07
	Bottom Seepage	3869.36	116080.74
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	159.20	4775.91
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	10969.13	329073.89
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-134.55	-4036.48
	N. Seepage	-0.19	-5.75
	S. Seepage	0.00	0.00
	Bottom Seepage	-263.07	-7892.07
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-397.81	-11934.30
Modeled Change in CCS Storage:		9370.21	281106.43
Observed Change		5122.20	153666.00

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

October 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	0.96	29.76
	E. Seepage	3904.36	121035.14
	N. Seepage	7.80	241.71
	S. Seepage	761.95	23620.31
	Bottom Seepage	6513.91	201931.11
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	164.60	5102.72
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	11353.57	351960.75
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-316.00	-9795.90
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-86.56	-2683.26
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-402.55	-12479.17
Modeled Change in CCS Storage:		10951.02	339481.59
Observed Change		5172.10	160335.08

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

November 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.34	40.07
	E. Seepage	3405.86	102175.90
	N. Seepage	6.40	192.02
	S. Seepage	808.83	24265.00
	Bottom Seepage	3906.18	117185.38
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	131.07	3932.08
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	8259.68	247790.45
Out of CCS	W. Seepage	-21.40	-641.98
	E. Seepage	-470.60	-14117.90
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-769.53	-23085.79
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1261.52	-37845.66
Modeled Change in CCS Storage:		6998.16	209944.79
Observed Change		3117.41	93522.19

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

December 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.50	46.37
	E. Seepage	1005.24	31162.38
	N. Seepage	1.41	43.82
	S. Seepage	320.93	9948.86
	Bottom Seepage	1003.58	31111.07
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	130.83	4055.70
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2463.49	76368.21
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1924.84	-59669.92
	N. Seepage	-0.72	-22.30
	S. Seepage	0.00	0.00
	Bottom Seepage	-2688.32	-83337.81
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-4613.87	-143030.02
Modeled Change in CCS Storage:		-2150.38	-143030.02
Observed Change		-6529.12	-202402.80

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

January 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.36	73.19
	E. Seepage	2226.86	69032.53
	N. Seepage	3.76	116.46
	S. Seepage	462.15	14326.61
	Bottom Seepage	2102.48	65176.86
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	122.02	3782.67
	ID Pumped Water	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	4919.62	152508.32
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-660.45	-20473.93
	N. Seepage	-0.11	-3.52
	S. Seepage	0.00	0.00
	Bottom Seepage	-953.71	-29565.14
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1614.28	-50042.59
Modeled Change in CCS Storage:		3305.35	102465.73
Observed Change		-445.87	-13822.03

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

February 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.99	83.81
	E. Seepage	3608.33	101033.25
	N. Seepage	4.91	137.49
	S. Seepage	412.57	11551.82
	Bottom Seepage	3078.46	86196.88
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	118.73	3324.34
	ID Pumped Water	31.99	895.74
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7257.98	203223.33
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-195.05	-5461.33
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-419.64	-11749.95
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-614.69	-17211.28
Modeled Change in CCS Storage:		6643.29	186012.05
Observed Change		625.60	17516.93

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

March 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	3.36	104.31
	E. Seepage	4067.78	126101.17
	N. Seepage	5.56	172.22
	S. Seepage	381.87	11837.92
	Bottom Seepage	3172.67	98352.74
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	147.23	4563.98
	ID Pumped Water	58.78	1822.19
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7837.24	242954.52
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-6.43	-199.21
	N. Seepage	-0.08	-2.45
	S. Seepage	0.00	0.00
	Bottom Seepage	-686.46	-21280.39
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-692.97	-21482.06
Modeled Change in CCS Storage:		7144.27	221472.46
Observed Change		3657.01	113367.46

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

April 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	5.61	168.39
	E. Seepage	8221.78	246653.26
	N. Seepage	5.79	173.62
	S. Seepage	910.11	27303.36
	Bottom Seepage	4988.04	149641.17
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	176.97	5309.23
	ID Pumped Water	100.96	3028.93
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	14409.26	432277.95
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	0.00	0.00
	S. Seepage	0.00	0.00
	Bottom Seepage	-2828.19	-84845.68
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-2828.19	-84845.68
Modeled Change in CCS Storage:		11581.08	347432.27
Observed Change		5846.87	175406.11

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

May 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	19.51	604.92
	E. Seepage	11455.78	355129.18
	N. Seepage	0.97	30.19
	S. Seepage	1663.96	51582.86
	Bottom Seepage	6357.27	197075.45
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	161.19	4996.88
	ID Pumped Water	376.82	11681.42
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	20035.51	621100.89
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	-3.53	-109.40
	S. Seepage	0.00	0.00
	Bottom Seepage	-7474.33	-231704.37
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-7477.86	-231813.77
	Modeled Change in CCS Storage:	12557.65	-231813.77
Observed Change		1599.21	49575.59

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

June 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	23.70	710.97
	E. Seepage	6914.35	207430.40
	N. Seepage	0.41	12.17
	S. Seepage	1226.07	36781.98
	Bottom Seepage	3144.95	94348.42
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	185.05	5551.44
	ID Pumped Water	146.27	4388.23
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	11640.79	349223.61
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	-3.08	-92.33
	S. Seepage	0.00	0.00
	Bottom Seepage	-1625.15	-48754.54
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1628.23	-48846.87
Modeled Change in CCS Storage:		10012.56	300376.73
Observed Change		8607.32	258219.46

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

July 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	14.93	462.74
	E. Seepage	3538.20	109684.24
	N. Seepage	0.10	3.20
	S. Seepage	715.30	22174.33
	Bottom Seepage	1643.69	50954.52
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	202.80	6286.80
	ID Pumped Water	0.00	0.00
	Added Water (e.g. L-31E)	72.82	2257.51
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6187.85	191823.34
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-293.89	-9110.44
	N. Seepage	-7.68	-237.97
	S. Seepage	0.00	0.00
	Bottom Seepage	-1708.02	-52948.49
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-2009.58	-62296.90
Modeled Change in CCS Storage:		4178.27	129526.44
Observed Change		5113.71	158525.04

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

August 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	5.46	169.33
	E. Seepage	7697.88	238634.27
	N. Seepage	0.36	11.21
	S. Seepage	780.04	24181.32
	Bottom Seepage	3275.25	101532.74
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	208.36	6459.04
	ID Pumped Water	0.00	0.00
	Added Water (e.g. L-31E)	75.08	2327.35
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	12042.43	373315.27
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	0.00	0.00
	N. Seepage	-3.14	-97.39
	S. Seepage	0.00	0.00
	Bottom Seepage	-61.22	-1897.75
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-64.36	-1995.14
Modeled Change in CCS Storage:		11978.07	371320.13
Observed Change		7731.72	239683.45

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

September 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.92	57.51
	E. Seepage	4382.24	131467.29
	N. Seepage	1.15	34.56
	S. Seepage	1016.29	30488.73
	Bottom Seepage	2953.06	88591.95
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	194.31	5829.15
	ID Pumped Water	0.00	0.00
	Added Water (e.g. L-31E)	86.86	2605.80
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	8635.83	259074.99
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-324.60	-9738.11
	N. Seepage	-0.95	-28.50
	S. Seepage	0.00	0.00
	Bottom Seepage	-211.28	-6338.26
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-536.83	-16104.87
Modeled Change in CCS Storage:		8099.00	242970.11
Observed Change		1833.21	54996.24

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

October 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.83	87.86
	E. Seepage	103.09	3195.74
	N. Seepage	0.50	15.42
	S. Seepage	332.18	10297.71
	Bottom Seepage	893.37	27694.54
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	175.24	5432.40
	ID Pumped Water	592.23	18359.04
	Added Water (e.g. L-31E)	90.13	2793.93
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2189.57	67876.64
Out of CCS	W. Seepage	-948.41	-29400.67
	E. Seepage	-9654.91	-299302.19
	N. Seepage	-7.75	-240.29
	S. Seepage	-81.25	-2518.86
	Bottom Seepage	-9834.43	-304867.45
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-20526.76	-636329.47
	Modeled Change in CCS Storage:	-18337.19	-568452.83
	Observed Change	-12726.02	-394506.69

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

November 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	4.38	135.93
	E. Seepage	914.73	28356.77
	N. Seepage	1.21	37.58
	S. Seepage	473.29	14672.03
	Bottom Seepage	517.41	16039.64
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	133.82	4148.48
	ID Pumped Water	694.15	21518.73
	Added Water (e.g. L-31E)	92.73	2874.76
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2831.74	87783.92
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-3191.19	-98926.85
	N. Seepage	-1.57	-48.81
	S. Seepage	-23.20	-719.15
	Bottom Seepage	-6108.72	-189370.45
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-9324.69	-289065.26
Modeled Change in CCS Storage:		-6492.95	-201281
Observed Change		-9424.38	-282731.28

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

December 2014			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.98	92.26
	E. Seepage	1559.53	48345.42
	N. Seepage	0.00	0.00
	S. Seepage	881.57	27328.52
	Bottom Seepage	1696.12	52579.83
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	140.97	4370.16
	ID Pumped Water	26.26	814.17
	Added Water (e.g. L-31E)	59.81	1853.98
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	4367.24	135384.33
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1487.27	-46105.22
	N. Seepage	-1.54	-47.88
	S. Seepage	0.00	0.00
	Bottom Seepage	-1719.22	-53295.82
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-3208.03	-99448.92
Modeled Change in CCS Storage:		1159.21	35935.42
Observed Change		611.65	18961.30

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

January 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.78	86.16
	E. Seepage	1889.33	58569.13
	N. Seepage	0.00	0.00
	S. Seepage	773.79	23987.45
	Bottom Seepage	2010.64	62329.98
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	151.96	4710.77
	ID Pumped Water	0.00	0.00
	Added Water (e.g. L-31E)	1906.00	59086.05
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6734.50	208769.55
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-826.80	-25630.88
	N. Seepage	-1.31	-40.72
	S. Seepage	0.00	0.00
	Bottom Seepage	-917.38	-28438.86
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1745.50	-54110.46
Modeled Change in CCS Storage:		4989.00	154659.08
Observed Change		-870.42	-26983.15

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

February 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	4.84	150.08
	E. Seepage	3093.63	95902.56
	N. Seepage	0.00	0.00
	S. Seepage	955.91	29633.23
	Bottom Seepage	1270.26	39378.13
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	138.29	4286.90
	ID Pumped Water	236.74	7339.05
	Added Water (e.g. L-31E)	2784.16	86308.84
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	8483.83	262998.80
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-896.00	-27775.96
	N. Seepage	-1.48	-46.03
	S. Seepage	0.00	0.00
	Bottom Seepage	-6247.18	-193662.57
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-7144.66	-221484.56
Modeled Change in CCS Storage:		1339.17	41514.24
Observed Change		4227.51	118370.20

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

March 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	6.84	211.99
	E. Seepage	2514.31	77943.47
	N. Seepage	0.00	0.00
	S. Seepage	736.80	22840.77
	Bottom Seepage	150.96	4679.72
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	166.66	5166.45
	ID Pumped Water	679.17	21054.32
	Added Water (e.g. L-31E)	3082.46	95556.22
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	7337.19	227452.93
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-1398.29	-43347.03
	N. Seepage	-7.42	-230.11
	S. Seepage	0.00	0.00
	Bottom Seepage	-19423.49	-602128.07
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-20829.20	-645705.21
	Modeled Change in CCS Storage:	-13492.01	-418252.28
	Observed Change	-2936.23	-91023.19

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

April 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	10.69	331.39
	E. Seepage	8653.51	268258.95
	N. Seepage	0.03	0.84
	S. Seepage	822.92	25510.60
	Bottom Seepage	3021.01	93651.27
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	174.87	5420.98
	ID Pumped Water	1658.22	51404.67
	Added Water (e.g. L-31E)	2860.71	88682.03
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	17201.96	533260.73
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-36.09	-1118.73
	N. Seepage	-11.26	-349.19
	S. Seepage	0.00	0.00
	Bottom Seepage	-22298.06	-691239.80
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-22345.41	-692707.72
Modeled Change in CCS Storage:		-5143.45	-159446.99
Observed Change		7414.73	222441.78

Table 5.3-5. Calculated Mass Flows from Salt Budget Components.

May 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	8.19	253.84
	E. Seepage	4340.30	134549.32
	N. Seepage	1.26	39.14
	S. Seepage	892.08	27654.53
	Bottom Seepage	1451.68	45002.18
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	210.76	6533.60
	ID Pumped Water	54.44	1687.60
	Added Water (e.g. L-31E)	1165.96	36144.64
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	8124.67	251864.86
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-46.13	-1430.13
	N. Seepage	-1.49	-46.24
	S. Seepage	0.00	0.00
	Bottom Seepage	-7318.65	-226878.25
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-7366.28	-228354.61
Modeled Change in CCS Storage:		758.39	23510.24
Observed Change		-3963.43	-122866.42

Table 5.3-6. Calculated Fluid Flows from Water Budget Components for (Pre-Uprate).

September 2010 to February 2012			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.30	522.73
	E. Seepage	5.01	8694.66
	N. Seepage	0.00	1.78
	S. Seepage	1.08	1871.80
	Bottom Seepage	2.29	3968.39
	Precipitation and Runoff	6.74	11687.03
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.13	226.76
	Unit 5 Blowdown	0.53	925.77
	ID Pumping	1.53	2648.39
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	17.62	30547.30
Out of CCS	W. Seepage	0.00	-2.67
	E. Seepage	-1.15	-1986.23
	N. Seepage	0.00	-5.93
	S. Seepage	0.00	-6.46
	Bottom Seepage	-5.65	-9798.61
	Precipitation and Runoff	0.00	0.00
	Evaporation	-11.34	-19672.07
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-18.15	-31471.97
Modeled Change in CCS Storage:		-0.53	-924.67
Observed Change		-1.13	-616.65

Table 5.3-6. Calculated Fluid Flows from Water Budget Components (Interim).

March 2012 to May 2013			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.21	362.95
	E. Seepage	2.55	4418.81
	N. Seepage	0.00	7.07
	S. Seepage	0.74	1283.45
	Bottom Seepage	2.64	4572.75
	Precipitation and Runoff	5.68	9847.12
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.14	243.76
	Unit 5 Blowdown	0.50	861.70
	ID Pumping	0.82	1428.30
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	13.28	23025.91
Out of CCS	W. Seepage	0.00	-0.70
	E. Seepage	-1.28	-2212.48
	N. Seepage	0.00	-1.38
	S. Seepage	0.00	-5.45
	Bottom Seepage	-2.47	-4286.45
	Precipitation and Runoff	0.00	0.00
	Evaporation	-8.85	-15341.70
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-12.60	-21848.17
Modeled Change in CCS Storage:		0.68	1177.74
Observed Change		2.36	1077.38

Table 5.3-6. Calculated Fluid Flows from Water Budget Components (Post-Uprate).

June 2013 to May 2015			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.26	444.00
	E. Seepage	6.02	10444.35
	N. Seepage	0.00	7.52
	S. Seepage	1.49	2575.27
	Bottom Seepage	3.94	6837.60
	Precipitation and Runoff	7.10	12312.81
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.22	380.50
	Unit 5 Blowdown	0.93	1605.64
	ID Pumping	1.23	2129.31
	Added Water (e.g. L-31E)	1.93	3352.82
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	23.12	40089.83
Out of CCS	W. Seepage	0.00	-1.30
	E. Seepage	-1.01	-1742.78
	N. Seepage	0.00	-3.14
	S. Seepage	-0.02	-32.13
	Bottom Seepage	-3.13	-5419.68
	Precipitation and Runoff	0.00	0.00
	Evaporation	-19.34	-33528.70
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-23.49	-40727.72
Modeled Change in CCS Storage:		-0.37	-637.89
Observed Change		-1.76	-1286.06

Table 5.3-7. Calculated Mass Flows from Salt Budget Components (Pre-Uprate).

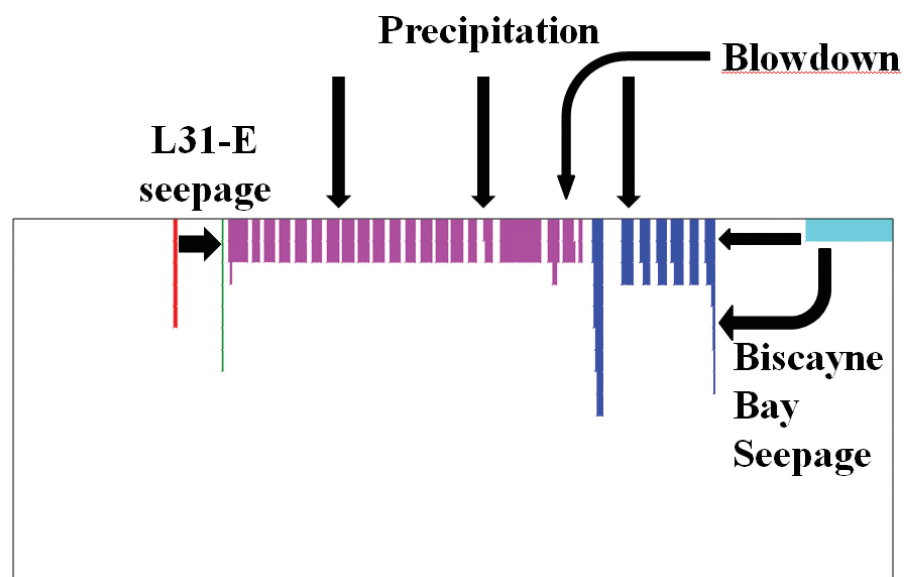
September 2010 to February 2012			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.28	3952.60
	E. Seepage	1454.26	2521693.12
	N. Seepage	0.21	369.94
	S. Seepage	209.49	363248.88
	Bottom Seepage	742.22	1287006.96
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	38.99	67601.64
	ID Pumped Water	229.35	397692.82
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	2676.80	4641565.97
Out of CCS	W. Seepage	-24.18	-41936.73
	E. Seepage	-406.03	-704049.99
	N. Seepage	-1.58	-2738.28
	S. Seepage	-1.66	-2873.69
	Bottom Seepage	-2516.05	-4362837.54
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-2949.50	-5114436.23
Modeled Change in CCS Storage:		-272.70	-472870.26
Observed Change		-502.50	-274869.07

Table 5.3-7. Calculated Mass Flows from Salt Budget Components (Interim).

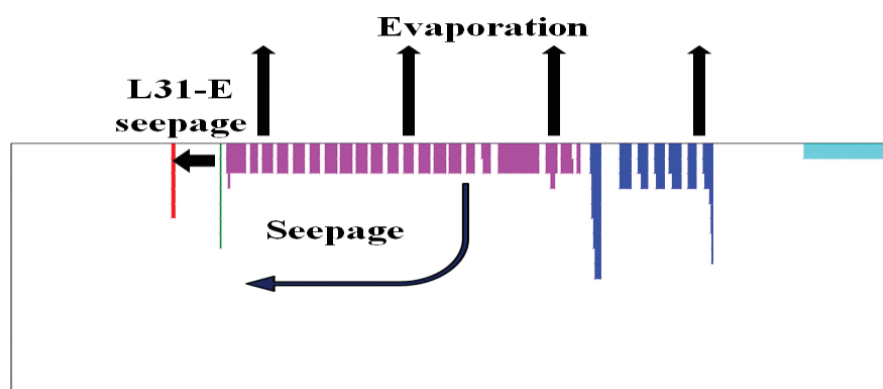
March 2012 to May 2013			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	1.43	2486.99
	E. Seepage	686.33	1190089.51
	N. Seepage	0.88	1527.13
	S. Seepage	149.36	258989.04
	Bottom Seepage	669.24	1160455.22
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	36.29	62923.11
	ID Pumped Water	47.22	81870.84
	Added Water (e.g. L-31E)	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	1590.74	2758341.84
Out of CCS	W. Seepage	-4.64	-8039.73
	E. Seepage	-521.22	-903788.60
	N. Seepage	-0.39	-684.84
	S. Seepage	-1.27	-2199.92
	Bottom Seepage	-1107.53	-1920463.42
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-1635.05	-2835176.51
Modeled Change in CCS Storage:		-44.31	-76834.67
Observed Change		372.47	170219.73

Table 5.3-7. Calculated Mass Flows from Salt Budget Components (Post-Uprate).

June 2013 to May 2015			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.41	4177.83
	E. Seepage	1733.45	3005802.21
	N. Seepage	0.80	1391.65
	S. Seepage	305.52	529773.17
	Bottom Seepage	1060.44	1838796.14
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	67.62	117247.84
	ID Pumped Water	83.73	145192.82
	Added Water (e.g. L-31E)	219.43	380491.12
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	3473.40	6022872.76
Out of CCS	W. Seepage	-17.33	-30042.65
	E. Seepage	-539.78	-935977.91
	N. Seepage	-1.34	-2329.95
	S. Seepage	-8.51	-14757.14
	Bottom Seepage	-1991.88	-3453917.68
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-2558.84	-4437025.34
Modeled Change in CCS Storage:		914.56	1585847.43
Observed Change		233.18	170219.73



(A)



(B)

Figure 5.3-1. Flow (A) into and (B) out of the CCS, Shown in Cross-Section.

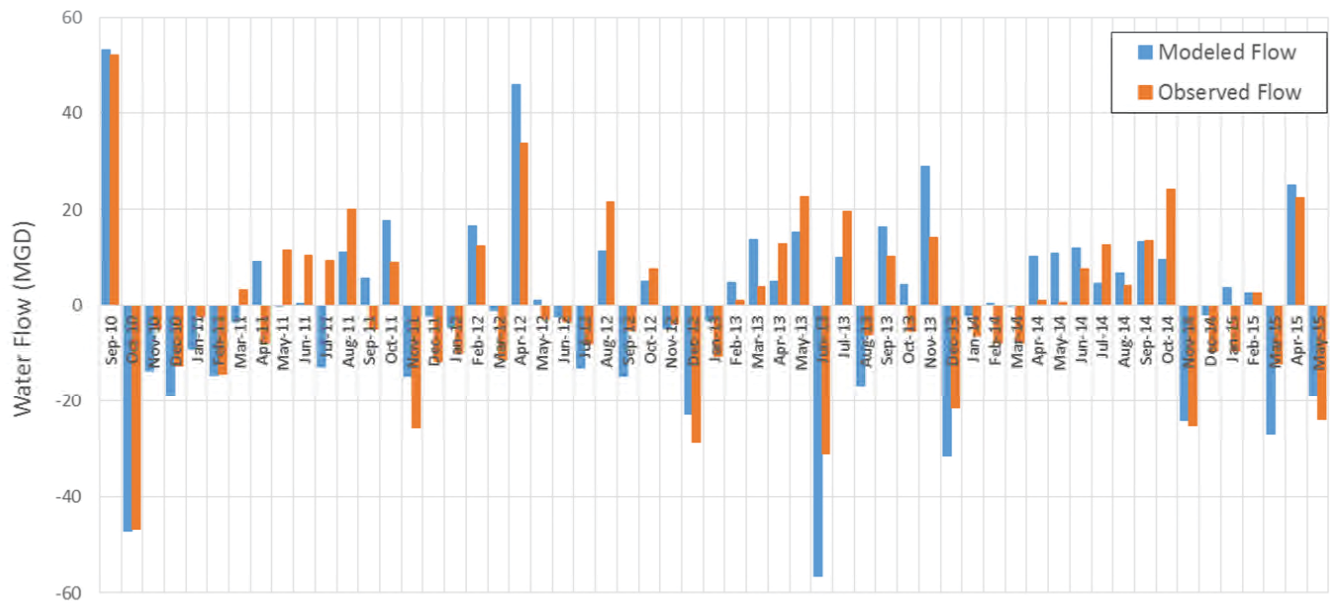


Figure 5.3-2. Modeled versus Measured Net Monthly Flows of Water for the CCS over the 57-Month Period .

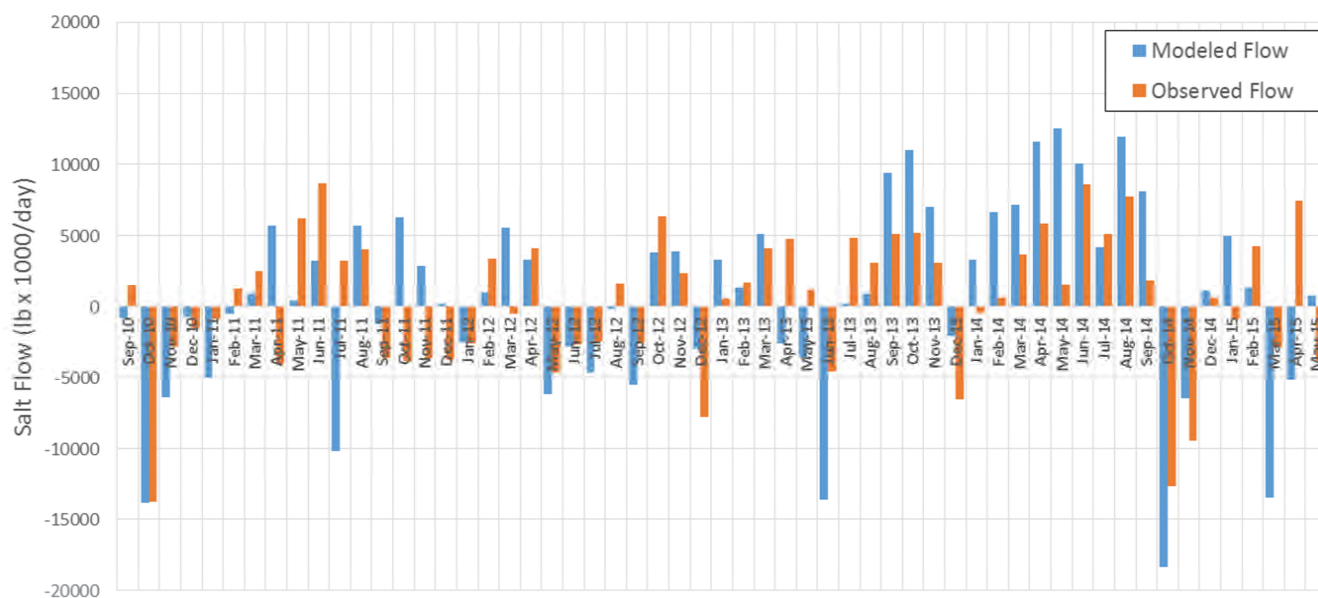


Figure 5.3-3. Modeled versus Measured Net Monthly Flows of Salt Mass for the CCS over the 57-Month Period .

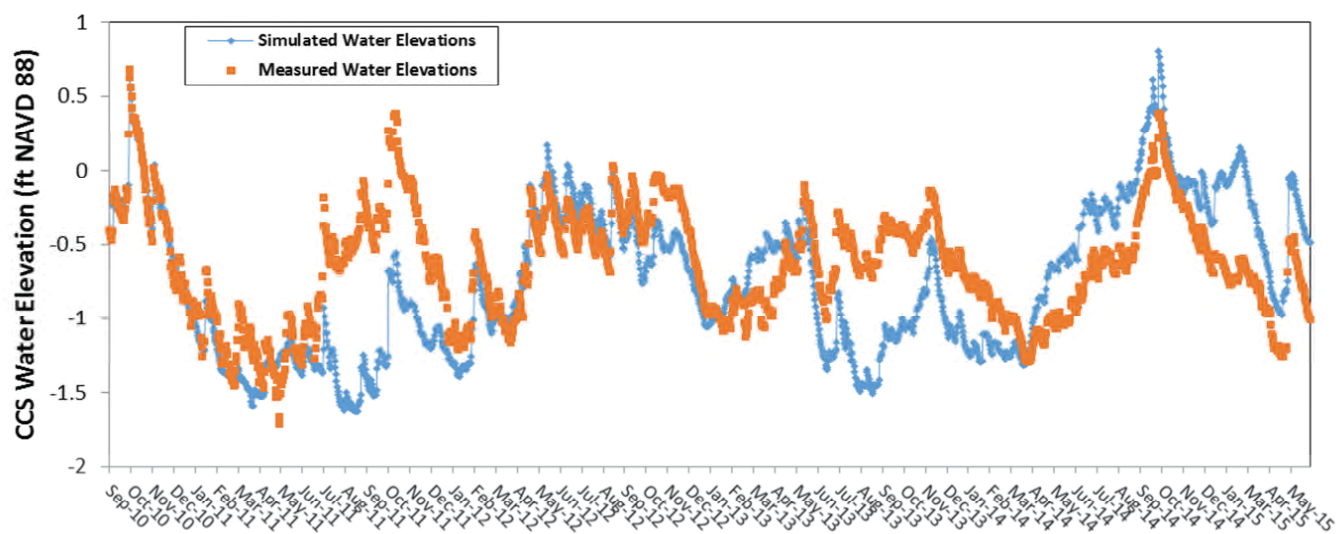


Figure 5.3-4. Modeled versus Measured Water Elevations (NAVD 88) in the CCS over the 57-Month Period; Used to Validate the Conceptual Model and Calibrate the Water Balance Model to Temporal Trends in Water Elevation.

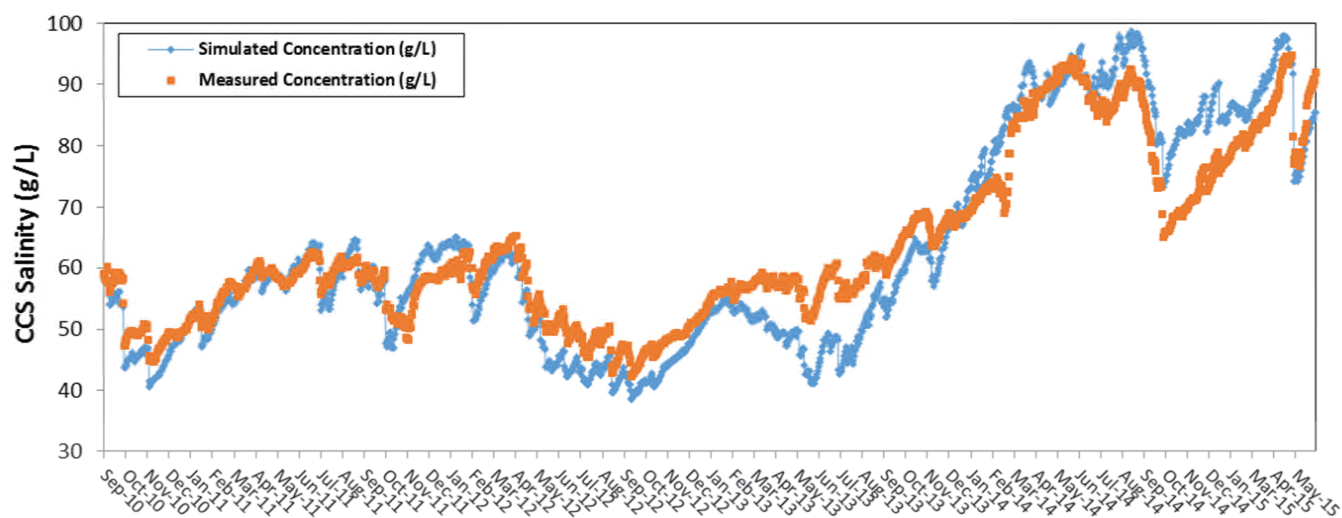
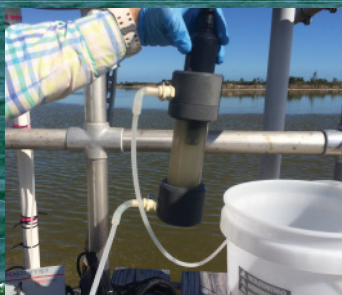


Figure 5.3-5. Modeled versus Measured Salinity in the CCS over the 57-Month Period; Used to Validate the Conceptual Model and Calibrate the Water Balance Model to Temporal Trends in Salinity.

Turkey Point Plant

Annual Monitoring Report

August 2016



Prepared for:



Prepared by:



Figures 5.1-5 and 5.1-6 depict chloride concentration cross-sections for March 2016. The approximate location of the 19,000 mg/L chloride line is shown. MDC has defined hypersaline water as chloride concentrations above 19,000 mg/L (MDC 2015a). This isopleth represents an estimated extent of hypersaline water west of the CCS and is based on interpolation methods and best professional judgment. Further refinement of this line will be made based on additional monitoring data collected.

5.2 Water and Salt Balance Model

Tetra Tech developed a model of the water and salt balance for the CCS. The purpose of this model is to quantify the volume of water and mass of salt entering and exiting the CCS over a 12-month period. Details of this Excel-based model, the underlying conceptualization of the relationship between the CCS and the surrounding environmental systems, key calculations, and results were provided in the Comprehensive Pre-Uprate Monitoring Report (FPL 2012a). That version of the model simulated water and salt flow to and from the CCS for the period between September 2010 and June 2012. The conceptual model and associated calculations are predominantly unchanged since last presented in the Comprehensive Pre-Uprate Monitoring Report (FPL 2012a). In the Comprehensive Post-Uprate Monitoring Report, refinements to the model were made and water and salt flow to and from the CCS was simulated for the period between September 2010 and May 2015. In this report, the modeled period encompasses the reporting period (12-month period) from June 2015 through May 2016. This period includes the effects of the CCS salinity reduction efforts. A brief summary of the model is provided below. Model results and corresponding conclusions regarding the operation of the CCS are based on the current calibrated water and salt balance model and are provided herein. The Excel spreadsheet that comprises the model is provided in a separate data file.

5.2.1 Model Summary

As Figure 5.2-1 depicts, the water balance for the proposed control volume for this monitoring period is comprised of seepage (lateral through the sides and vertical through the bottom), blowdown (additional water pumped from other units to the CCS), added water (pumped from L-31E canal and/or groundwater), precipitation (including runoff from earthen berms between canals), and evaporation. Aside from evaporation and precipitation, these are the same mechanisms by which salt flows into and out of the CCS. The means by which water and/or salt is transferred (e.g., seepage, evaporation) are calculated using various equations provided in the Comprehensive Pre-Uprate Monitoring Report (FPL 2012a). Calculations were performed for a 12-month period from June 2015 through May 2016. Average flows of water and salt into and out of the control volume were calculated for each day of this period using hydrologic, water quality, and meteorological data measured within, beneath, and adjacent to the CCS. The average daily flows were summed to estimate the amount of water and salt that enters or exits the control volume (i.e., the CCS) during each month and the entire 12-month period. These calculations demonstrate and validate the conceptual model of the CCS and, in so doing, illustrate the hydrologic mechanisms by which the CCS functions.

Calculated water flows are reported in 10^6 gallons per day (millions of gallons per day [MGD]). The mass flux into or out of the control volume is calculated by multiplying the volumetric flow by the salinity of the body of water from which the water is flowing. Salinity was monitored at all groundwater and surface water stations employed in the ensuing calculations and was reported in the practical salinity scale (PSS-78), which is equivalent to grams per liter (g/L). Calculated mass fluxes are reported in thousands of pounds per day (lb x 1,000/day).

The gain/loss of water and salt mass within the control volume during some period of time results in a change in the control volume's water and salt mass storage. Increased water storage, for instance, occurs when more water enters the control volume than exits. Storage, then, can be estimated by summing all of the components of the water (and salt) balance. When the net flow is positive (into the control volume) during a specified period of time, the storage of control volume increases. Conversely, a net negative (out of the control volume) flow implies a decrease in storage during a specified time period.

Another manner in which a change in storage can be estimated relies on direct measurements of water elevations and salinities within the control volume. A change in water elevation within the control volume can be calculated as a difference between water elevations at the beginning and end of a specified time period. The product of this change in water elevations and the surface area of the control volume provide an estimate of the change in the volume of water contained in the control volume during that period of time. Estimates of daily storage changes derived from this method are used to further calibrate the water and salt balance model to ensure an accurate simulation of temporal trends for CCS water elevation and salinity.

5.2.2 Model Calibration, Results, and Discussion

The individual components of the water and salt balance were simulated daily and summed for each month from June 2015 through May 2016, as well as for the collective 12-month period. The individual components of flow are summed in order to calculate a simulated change in volume for each month and for the 12-month period. These simulated changes in storage were compared to observed changes in CCS water and salt storage for each month and the entire calibration period (June 2015 through May 2016). Errors between the simulated and observed storage changes were minimized by adjusting key variables associated with the flow balance model; this process is called calibration. The calibration process ensures that the model can accurately reflect the average changes in CCS storage over the 12-month time frame, while also effectively capturing day-to-day changes in CCS water and mass storage. Calibration of the water and salt balance model was achieved by adjusting hydraulic conductivities of the aquifer materials adjacent to and beneath the CCS that factor into the calculation of seepage to/from groundwater and Biscayne Bay. Additional adjustable parameters include the coefficients in the wind function (FPL 2012a), the amount of runoff that enters the control volume as percentage of precipitation, the amount of Unit 5 cooling tower water that is lost to evaporation before entering the CCS, and the salinity of the Unit 5 blowdown as a percentage of seawater. The calibrated model parameter values are provided in Table 5.2-1.

5.2.2.1 Parameter Adjustments

The horizontal hydraulic conductivities laterally adjacent to the control volume were calibrated to range between 100 ft/day and 500 ft/day. The calibrated vertical conductivities beneath the control volume ranged from 0.1 ft/day to 2 ft/day. In order to achieve a better match to observed hydrologic and salt concentration conditions, the northern portion of the internal discharge canals into the CCS and return canals were calibrated to have higher vertical hydraulic conductivities (1.9 ft/day and 0.9 ft/day, respectively) than the middle/southern portions of the internal CCS discharge canals and southern portion of the return canals (0.1 ft/day). The variability in these vertical hydraulic conductivities is attributable to the non-uniform depth of a shallow high flow zone that is variably intersected by deeper CCS canals. The magnitudes of and variability in horizontal and vertical hydraulic conductivities are on the same order of magnitude as those in the prior model, where vertical hydraulic conductivity ranged from 0.1 to 3 ft/day and horizontal hydraulic conductivities ranged from 400 to 850 ft/day.

In addition to changes in hydraulic conductivities, revisions were made to both evaporation and precipitation. The equation for evaporation (FPL 2012a) includes an empirical factor. This factor was reduced from 0.66 to 0.60 during the calibration of the 12-month balance model. As the modeled balance is very sensitive to evaporative losses, this was a significant change. The percentage of additional precipitation-based inflow due to runoff from canal berms is an adjustable model parameter. This parameter is time-invariant and increases precipitation-based inflow for all precipitation events; as the precipitation increases, so too does the additional runoff inflow. Since the precipitation is a key inflow to the CCS for moderating salinity, the balance model is sensitive to this parameter. The balance is also sensitive to precipitation-based inflow. As such, the reduction of runoff-based inflow from 35% to 10% of precipitation was also a notable change. This adjustment was necessary in order to match both the balance of water and salt flows, as well as the magnitude of CCS water levels and salinity, particularly in months with notable rainfall events.

The impact of the parameters changes, particularly the adjustments made to evaporation and precipitation parameters, is a relatively accurate simulation of the monthly flow balance and simulated daily CCS conditions during the 12-month period between June 2015 and May 2016.

5.2.2.2 Flow Balance Comparisons

Results of the calibrated 12-month water and salt balance model are provided in Tables 5.2-2 and 5.2-3, respectively. The modeled net flow of water, as calculated by summing the components of the water balance for the 12-month calibration period, is denoted as the “Modeled Change in CCS Storage” and was calculated to be an average outflow of 0.63 MGD over the 12-month calibration period. The observed change in storage, which is the difference in the volume of water in the CCS between the final and first days of the calibration period, divided by the number of days in the period, was observed to be an increase in storage at a rate of 1.17 MGD. Though the model underestimated the change in storage, the residual error between the simulated and observed flow is only 1.8 MGD. This error is small (2.3%) relative to the variability in monthly net observed flows, which range from a net outflow of 34.4 MGD (February 2016) and a net inflow of 42.7 MGD (September 2015).

The model simulated a net loss of salt over the 12-month period at rate of 3,723 (lb x 1,000)/day. The corresponding observed rate of salt outflow was calculated by multiplying the average observed salinity in the CCS on the final day and first day of the calibration period by the corresponding CCS volumes on those days. The difference between these two products, divided by the number of days in the calibration period, provides the observed net outflow of salt, 2,958 (lb x 1,000)/day. The error associated with the mass flux is an overestimation by approximately 765 (lb x 1,000)/day. As in the case of water balance simulation, the magnitude of this overestimation is small (2.4%) relative to the range in monthly average flows: the observed monthly net mass fluxes range from an outflow of 20,838 (lb x 1,000)/day (November 2015) to an inflow of 10,965 (lb x 1,000)/day (July 2016).

Figures 5.2-2 and 5.2-3 illustrate the model's ability to match the magnitude and direction of net monthly flows of water and salt, respectively. Figure 5.2-2 compares observed and modeled net monthly flows of water into and out of the CCS. There is a general seasonal trend in observed flows to/from the CCS, where inflows are generally associated with the wet season and outflows are generally associated with the dry season. The key exception to the dry season outflows occurs in December 2015, during which a total of approximately 15 inches of precipitation fell on the CCS. The model is able to replicate the general trends in flow, as well as the unusual inflow of water in December, with reasonable accuracy. However, there are two isolated months where the model does not accurately simulate the net flow (i.e., April 2016 and May 2016). During these two months, the model simulates a loss of storage (net outflow), whereas an increase in storage was observed.

Figure 5.2-3 compares observed and modeled net monthly flows of salt into and out of the CCS. A seasonal trend in salt mass flows is apparent (storage decrease during dry season, storage increase during wet season). Like the modeled water flows, estimated salt mass fluxes generally match observed fluxes well. Note that a significant reduction in salt storage (salt outflow) was observed in November and December 2015. The reductions in salt storage observed during these two months are largely attributable to seepage to groundwater. Previously, the greatest observed rate of salt loss (12,726 lb x 1,000/day) from the CCS occurred in October 2014 (FPL 2014); the October through December 2015 salt outflows exceed the October 2014 outflow by 4%, 64%, and 31%, respectively. Conversely, the calculated volumetric water seepage in these three months exceeds that of October 2014 (25.65 MGD) by 4%, 21%, and 110%, respectively. As such, the greater salt mass outflow in late-2015 is attributable to greater water seepage at a relatively lower concentration of salt. This is consistent with the observed range of CCS salinity in late-2015 (34 to 58 g/L) being lower than the range of CCS salinity in October 2014 (65 to 85 g/L). It is important to note that the increased seepage of water from the CCS is a hydrologic response to the addition of L-31E canal water at an average rate of 21 MGD during October and November 2015 and the significant precipitation-based (14.7 inches of rainfall) inflow to the CCS in December 2015.

5.2.2.3 Simulated CCS Water Levels and Salt

Implicit in the model's ability to simulate monthly net water and salt mass flows is the accurate simulation of daily flows to and from the CCS. Because the model is able to characterize the

daily flows of water and salt, the model estimates the daily changes in CCS water and salt storage. As previously mentioned, these changes in storage are associated with daily changes in CCS water levels and salinity. Figure 5.2-4 shows the model-calculated water level in the CCS, which varies over the period of record. These modeled water levels range between approximately -1.1 ft North American Vertical Datum of 1988 (NAVD 88) and 2.1 ft NAVD 88, and reflect an average water level throughout the entire CCS. Also shown in this figure are the observed CCS water levels over time; the observed values reflect the mean of daily-averaged water elevations across the seven sensors in the CCS. Note, the maximum average observed CCS water level (1.7 ft NAVD 88) exceeds the previous maximum (since fall 2010) average observed CCS water level (0.87 ft NAVD 88) by 0.83 ft.

As mentioned above, nearly 15 inches of rain fell on the CCS in December 2015; this amount of rainfall far exceeds the average December rainfall at Turkey Point over the previous 5 years (0.86 inches). Simulated water elevations are calculated by dividing the simulated daily change in CCS storage by the average daily CCS surface area and adding the resulting value (which reflects a change in water level) to the previous day's simulated water elevation. It is evident from this figure that the model effectively captures the general trend in CCS water elevations over the 12-month period, and accurately simulates average CCS water elevations throughout much of the calibration period.

Similarly, changes in salt mass storage within the CCS can be used to calculate average CCS salinity changes over time. The simulated daily net flow of salt is divided by the simulated volume of water in the CCS, which results in a change in salinity. This change in salinity is added to the simulated salinity calculated for the previous day to produce a simulated salinity for the current day. Like the simulated CCS water level, the modeled salinity reflects a representative daily salinity throughout the CCS. Figure 5.2-5 compares the simulated salinities to those observed in the CCS over the period of record. Observed salinities are the mean of daily averaged salinities measured in the CCS monitoring stations. The modeled CCS salinity changes over time match changes in the average observed CCS salinity throughout the 12-month period of record. This timeframe includes a reduction in average observed CCS salinity from approximately 95 g/L (PSS-78 scale) in June 2015 to approximately 34 g/L (PSS-78 scale) in December 2015; subsequent to the reduction in CCS salinity between June and December 2015, CCS salinity generally increased to approximately 55 g/L (PSS-78 scale). The ability of the model to match both increasing and decreasing trends in salinity reinforces the underlying conceptual model, which suggests that changes in CCS salinity are predicated solely on changes in the flow of water (which includes evaporation) into and out of the CCS.

5.2.2.4 Conclusions

The accurate simulation of changing CCS inflows, outflows, water elevations, and salinities is complex due to the different components of the balance model and their varying impacts upon CCS water and salt storage. For instance, vertical flows into and out of the control volume are generally larger than horizontal flows, and have a greater impact on CCS water elevation. The salinity of inflowing water, however, can vary depending upon the source of the water. For example, horizontal flow from the west (L-31E) is non-saline and has a pronounced mitigating impact on CCS salinities; vertical flow from groundwater beneath portions of the internal CCS

discharge canals is saline to hyper-saline and generally increases the salinity of the CCS. The correct balance of both water and salt mass flow is difficult to estimate in the model. In addition, observed CCS return canal intake (i.e., at TPSWCCS-6) water temperatures varied over 17°C (from approximately 18°C to 35°C) during the simulated timeframe. The model addresses associated impacts to the CCS by explicitly simulating the effects of water/air temperature gradients on evaporation. Whereas myriad sources and sinks of water, varying salinities, and changes in water temperature do increase model complexity, the need to accurately simulate these different components of CCS operation constrains the number of possible solutions.

The simulated timeframe includes a 3-month period where salt mass outflows from the CCS exceed the greatest monthly salt outflow from the previous 4.5 years, which occurred in October 2014. Unlike the salt mass outflow in October 2014, where the outflowing water was of a higher salinity, those mass outflows calculated for October through December 2015 are attributable to a large amount of water at a lower salinity. These outflows occurred due to the higher than normal rainfall that occurred from August through December 2015 coupled with CCS salinity reduction efforts. Consequently, there were greater outflows of water and salt mass from the CCS to the underlying aquifer, primarily from October 2015 through December 2015.

Though the model is able to simulate the complex dynamics associated with the CCS over a 12-month timeframe with reasonable accuracy, there are periods of time where the simulated flows of water and salt do not accurately reflect observed conditions. Consequently, the simulated water level and salinities in the CCS deviate from those that have been observed at various times in the simulation period. However, the overall performance of the model reinforces its utility as a tool for understanding how the CCS has operated, and will operate, under varying meteorological, hydrological, and operational conditions. This is best demonstrated by the fact that the same conceptual model employed to characterize changes in CCS storage of water and salt during the reporting period was used to explain changes in storage during the prior approximately 4.5-year Uprate monitoring period.

The robustness and accuracy in the model underpins FPL's firm understanding of processes that control the CCS and the manner in which the CCS interacts with the adjacent aquifer and water bodies. This accuracy in simulating the historical changes within the CCS bolsters confidence in the model's utility as a tool to evaluate the sensitivity of CCS operations to certain factors such as changes in operation, drought conditions, storm events, and other potential environmental stresses. Additionally, the model accuracy validates the fact that the most appropriate data are being collected to effectively capture CCS operations, identify interactions between the CCS and the surrounding environment, and support FPL's comprehension of historical and future operations of the CCS.

TABLES

Table 5.2-1. Calibration Parameters

Parameter Name	Calibrated Value	Units
Vertical Hydraulic Conductivity (Zone A)	1.9	ft/day
Vertical Hydraulic Conductivity (Zone B)	0.1	ft/day
Vertical Hydraulic Conductivity (Zone C)	0.1	ft/day
Vertical Hydraulic Conductivity (Zone D)	0.9	ft/day
West Face Hydraulic Conductivity	500	ft/day
East Face Hydraulic Conductivity	100	ft/day
North Face Hydraulic Conductivity	500	ft/day
South Face Hydraulic Conductivity	500	ft/day
Evaporation Modifier (Factor Multiplier)	0.60	
Runoff Modifier (as % of Precipitation)	10%	
Blowdown Evaporation Factor	50%	
Blowdown Concentration (as % of Seawater)	0.50	

Table 5.2-2. Calculated Fluid Flows from Water Budget Components

June 2015 to May 2016			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.45	162.92
	E. Seepage	0.69	252.32
	N. Seepage	0.01	3.35
	S. Seepage	1.40	512.04
	Bottom Seepage	0.72	260.35
	Precipitation and Runoff	24.67	9027.57
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.55	202.90
	Unit 5 Blowdown	0.30	111.01
	ID Pumping	6.43	2353.27
	Added Water (e.g. L-31E)	20.96	7671.49
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	56.17	20557.25
Out of CCS	W. Seepage	0.00	-0.37
	E. Seepage	-1.91	-697.91
	N. Seepage	-0.02	-5.93
	S. Seepage	-0.76	-278.48
	Bottom Seepage	-17.48	-6399.32
	Precipitation and Runoff	0.00	0.00
	Evaporation	-36.32	-13292.30
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-56.49	-20674.56
Modeled Change in CCS Storage:		-0.63	-302.38
Observed Change		1.17	427.31

Key:

CCS = Cooling Canal System.

gal = Gallon.

ID = Interceptor Ditch.

MGD = Million gallons per day.

Table 5.2-3. Calculated Mass Flows from Salt Budget Components

June 2015 to May 2016			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	2.57	942.07
	E. Seepage	199.17	72897.33
	N. Seepage	0.07	24.17
	S. Seepage	335.06	122633.52
	Bottom Seepage	230.58	84391.66
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	44.30	16212.85
	ID Pumped Water	563.79	206345.63
	Added Water (e.g. L-31E)	3815.95	1396636.59
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5191.49	1900083.83
Out of CCS	W. Seepage	-80.88	-29603.04
	E. Seepage	-694.08	-254032.84
	N. Seepage	-6.16	-2254.91
	S. Seepage	-279.55	-102315.54
	Bottom Seepage	-7853.90	-2874527.56
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-8914.57	-3262733.89
Modeled Change in CCS Storage:		-3723.09	-1362650.06
Observed Change		-2958.37	-1082764.47

Key:

CCS = Cooling Canal System.

ID = Interceptor Ditch.

lb = Pound(s).

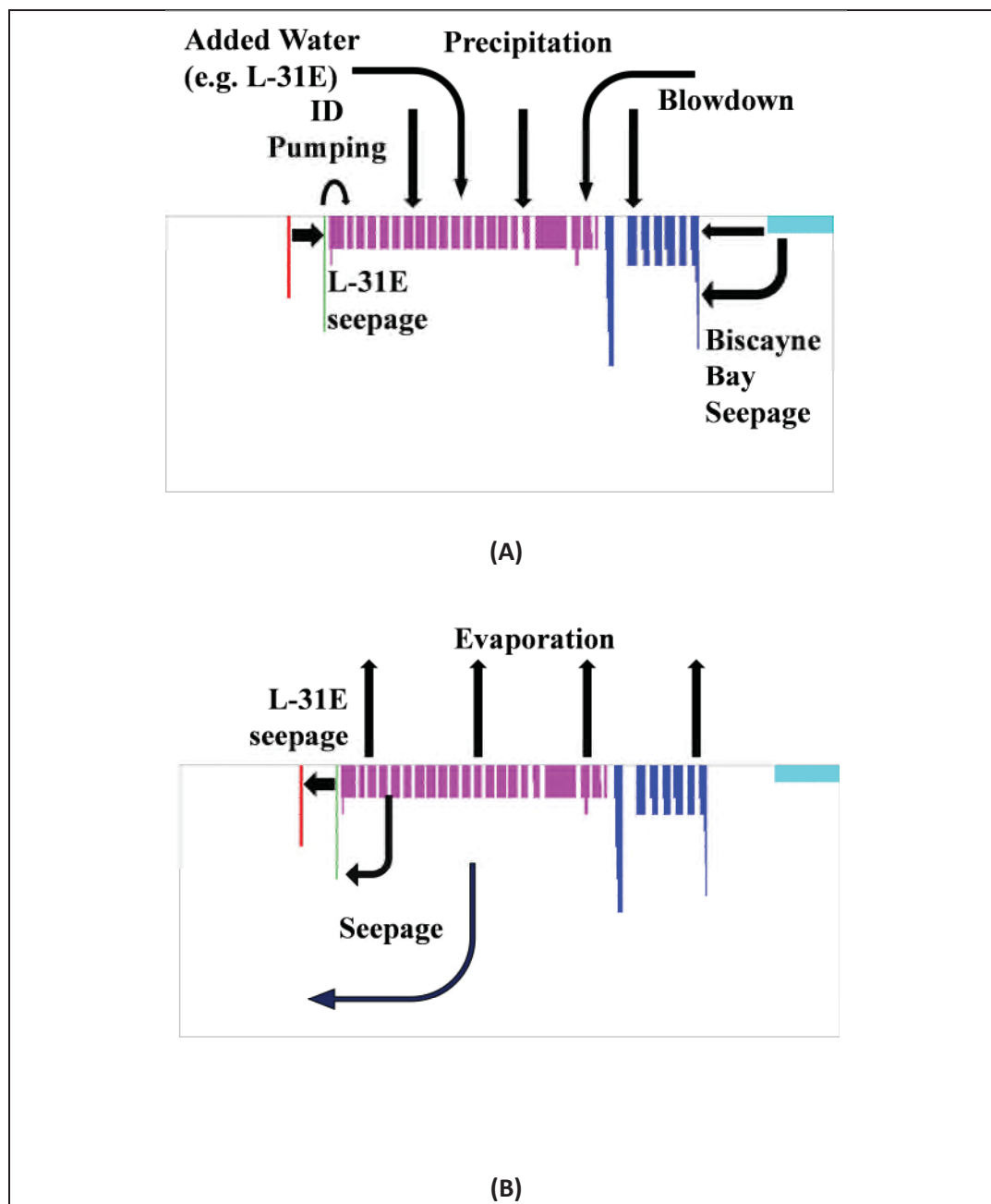


Figure 5.2-1. Flow into (A) and out of (B) the CCS, Shown in Cross-Section.

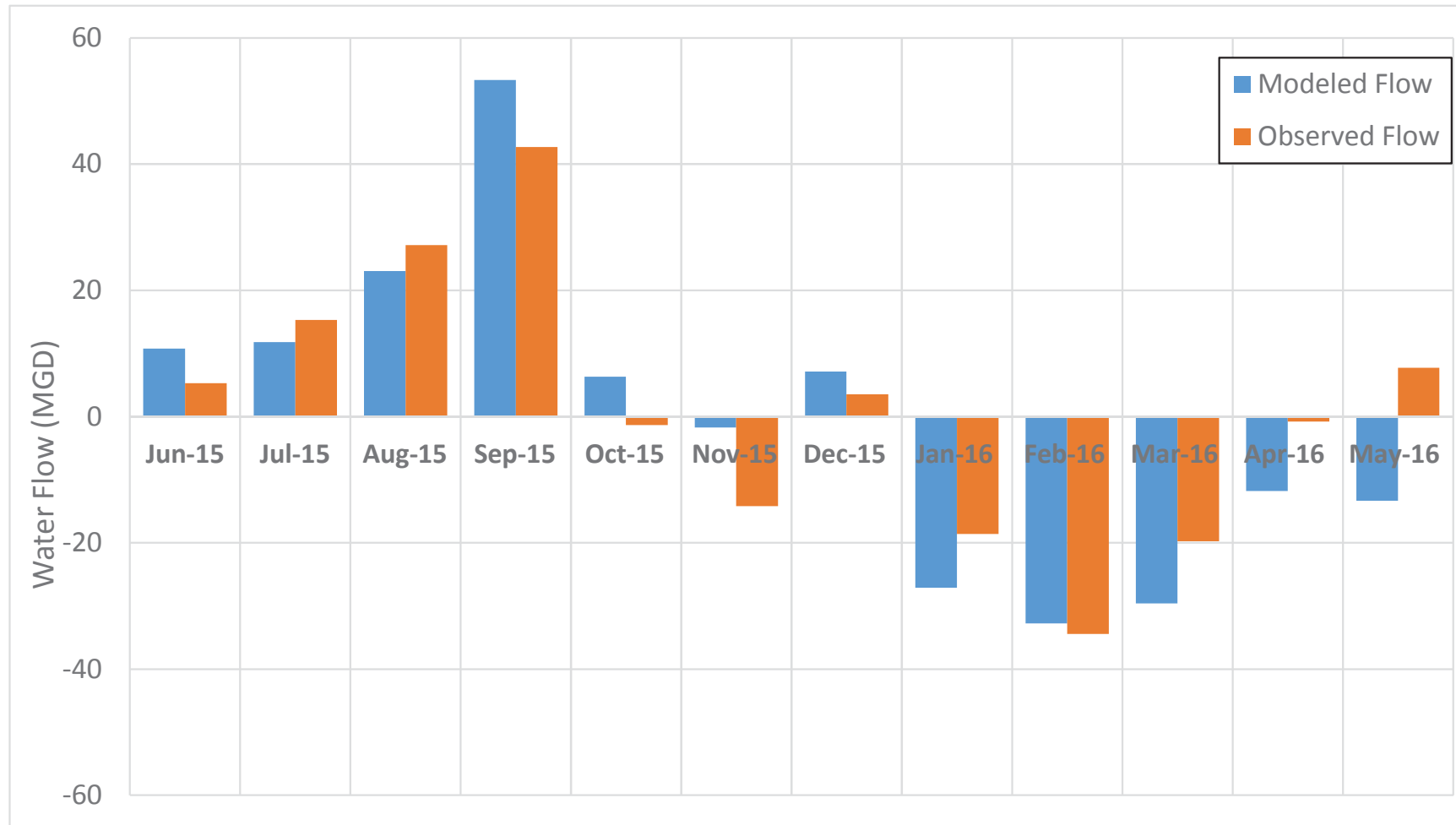


Figure 5.2-2. Modeled versus Measured Net Monthly Flows of Water for the CCS during the Reporting Period.

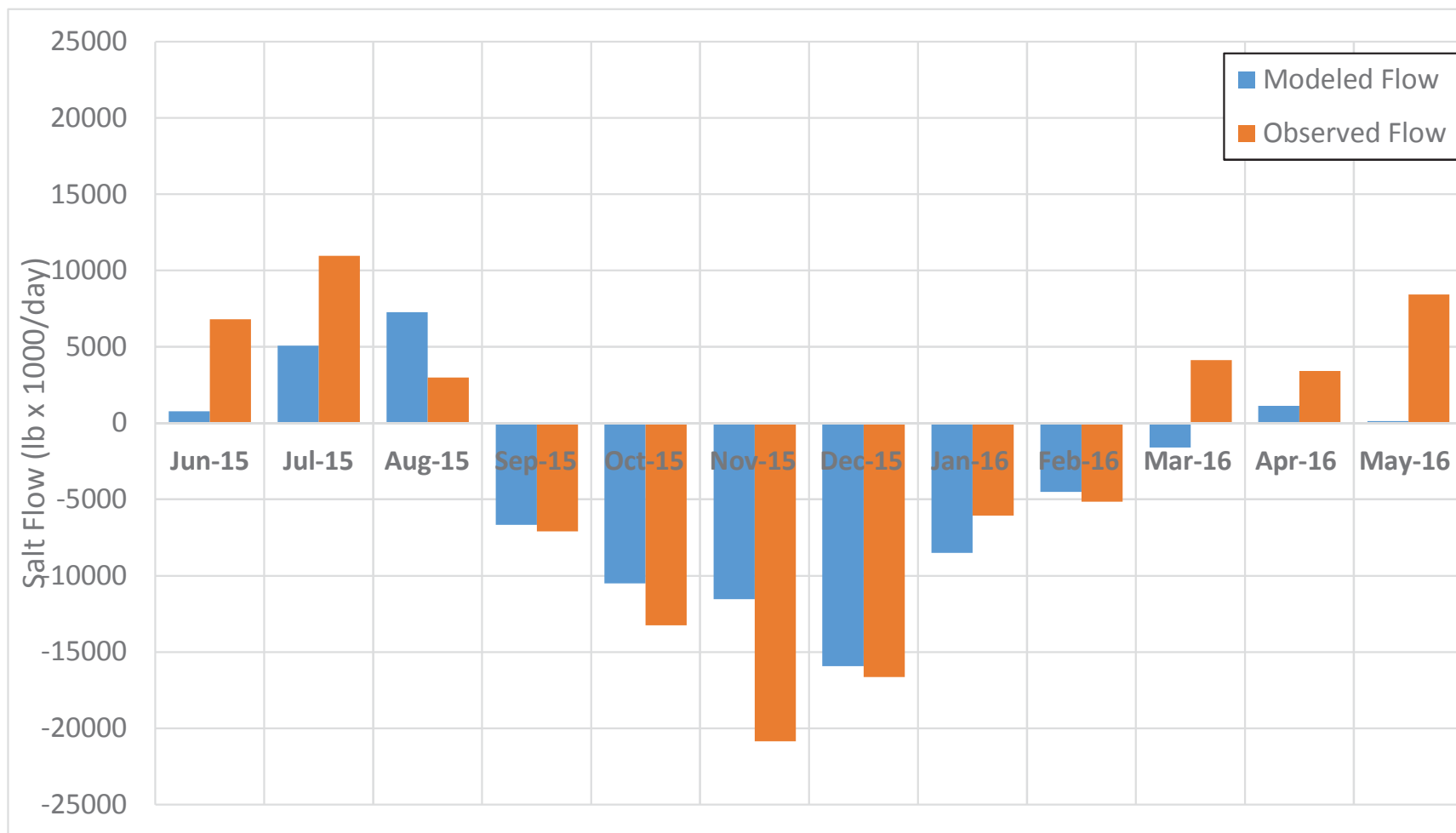


Figure 5.2-3. Modeled versus Measured Net Monthly Flows of Salt Mass for the CCS during the Reporting Period.

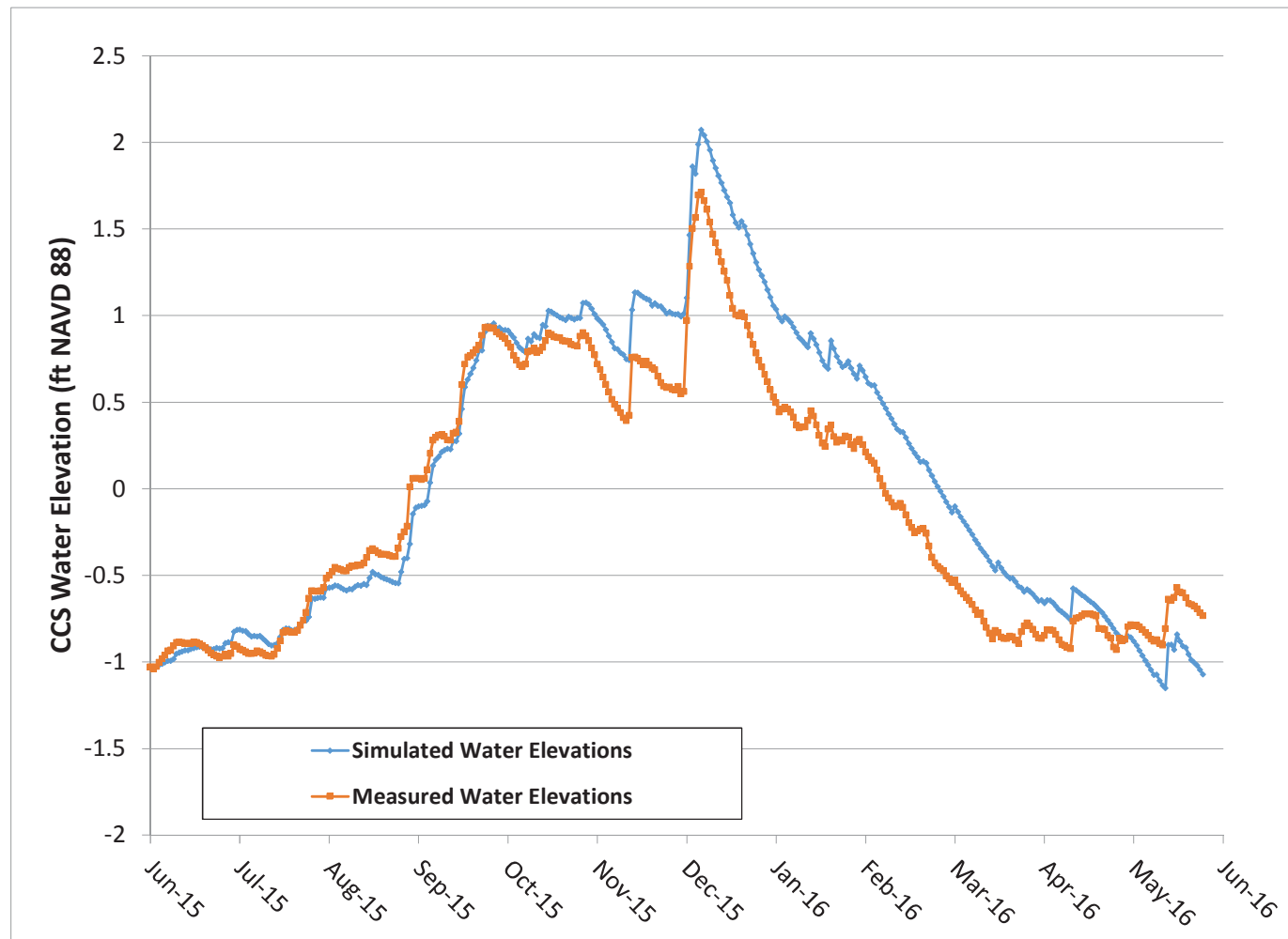


Figure 5.2-4. Modeled versus Measured Water Elevations (NAVD 88) in the CCS during the Reporting Period; Used to Validate the Conceptual Model and Calibrate the Water Balance Model to Temporal Trends in Water Elevation.

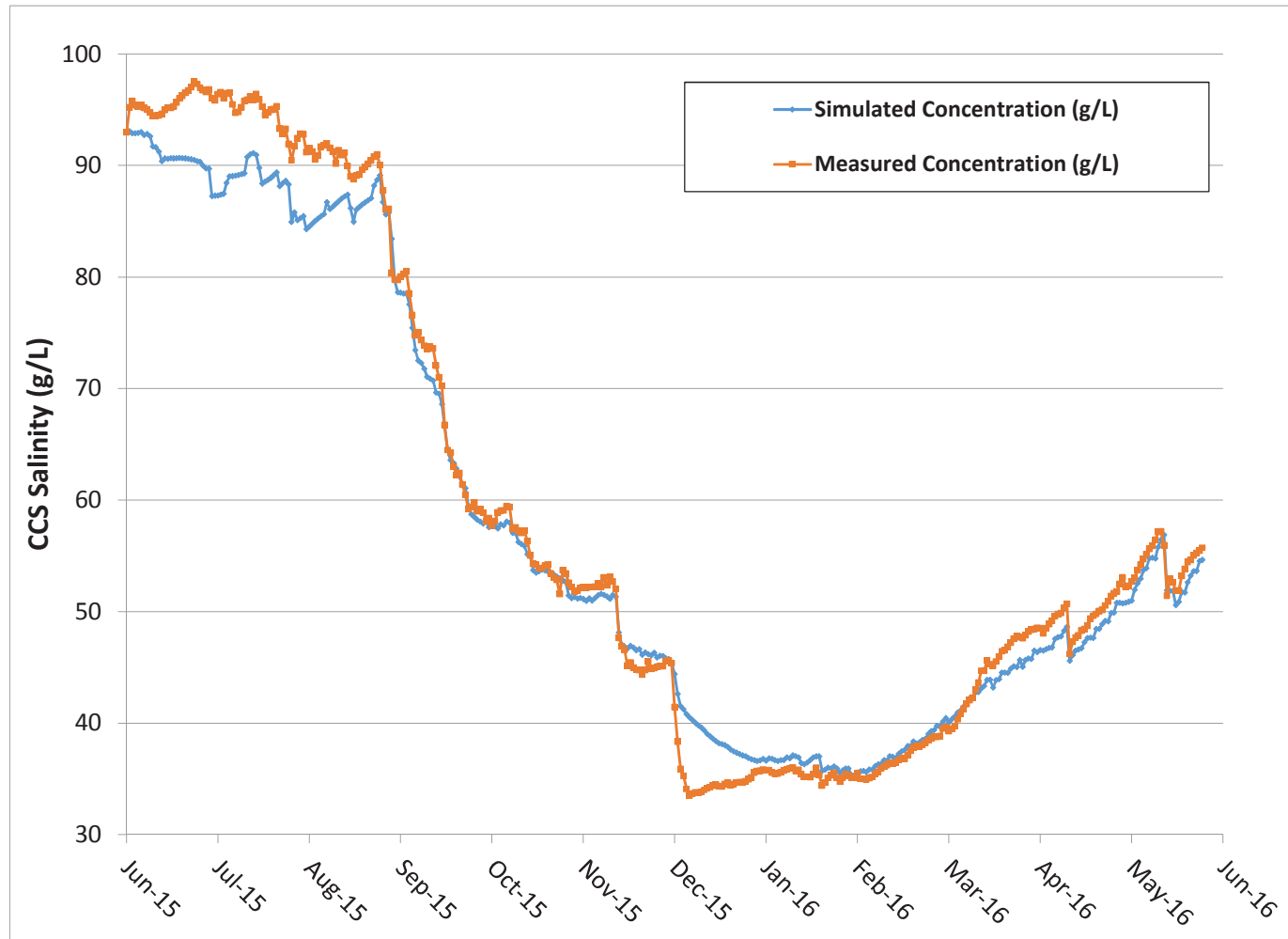
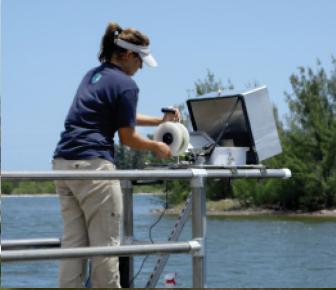


Figure 5.2-5. Modeled versus Measured Salinity in the CCS during the Reporting Period; Used to Validate the Conceptual Model and Calibrate the Water Balance Model to Temporal Trends in Salinity.

Turkey Point Plant

Annual Monitoring Report

September 2017



Prepared for:



Prepared by:



5.2 Water and Salt Balance Model

Tetra Tech, Inc., developed a model of the water and salt balance for the CCS. The purpose of this model was to quantify the volume of water and mass of salt entering and exiting the CCS over a 24-month period. Details of this Excel-based model, the underlying conceptualization of the relationship between the CCS and the surrounding environmental systems, key calculations, and results were provided in the Comprehensive Pre-Uprate Monitoring Report (FPL 2012a). That version of the model simulated water and salt flow to and from the CCS for the period between September 2010 and June 2012. In the Comprehensive Post-Uprate Monitoring Report, refinements to the model were made and water and salt flows to and from the CCS were simulated for the period between September 2010 and May 2015. In this report, the modeled period encompasses the reporting period (24-month period) from June 2015 through May 2017; while the reporting period is June 2016 through May 2017, the associated monitoring data were employed to append the reporting period to the existing balance model. This approach is followed because many of the parameters adjusted during calibration reflect changed CCS conditions that occurred during or just prior to the reporting period. The 24-month timeframe reflects influences associated with partial canal sediment removal, salinity reduction actions due to the addition of marine groundwater and L-31E canal water during the spring through late summer 2015, and decommissioning of Unit 1, the addition of low salinity UFA groundwater, and the extended extraction and disposal of hypersaline groundwater from beneath the CCS beginning in the fall of 2016.

The conceptual model and associated calculations were predominantly unchanged since the previous time they were presented (i.e., in the 2012 Comprehensive Pre-Uprate Monitoring Report) (FPL 2012a). As such, only a brief summary of the model is provided below. Model results and corresponding conclusions regarding the operation of the CCS are based on the current calibrated water and salt balance model and are provided herein. The Excel spreadsheet that comprises the model is provided in a separate data file.

5.2.1 Model Summary

As Figure 5.2-1 depicts, the water balance for the control volume (CCS) is comprised of groundwater seepage (lateral through the sides and vertical through the bottom), blowdown (additional water pumped from other units to the CCS), water added for CCS salinity management (pumped from L-31E and/or groundwater), precipitation (including runoff from earth berms between canals), and evaporation. Aside from evaporation and precipitation, these are the same mechanisms by which salt flows into and out of the CCS. The means by which water and/or salt is transferred (e.g., seepage, evaporation) are calculated using various equations provided in the 2012 Comprehensive Pre-Uprate Monitoring Report (FPL 2012a). For this report, calculations were performed for a 24-month period from June 2015 through May 2017. Average flows of water and salt into and out of the control volume were calculated for each day of this period using hydrologic, water quality, and meteorological data measured within, beneath, and adjacent to the CCS. The average daily flows were summed to estimate the amount of water and salt that enters or exits the control volume (i.e., the CCS) during each month and the entire

24-month period. These calculations demonstrate and validate the conceptual model of the CCS and, in so doing, illustrate the hydrologic mechanisms by which the CCS functions.

Calculated water flows are reported in 10^6 gallons per day (mgd). The mass flux into or out of the control volume is calculated by multiplying the volumetric flow by the salinity of the body of water from which the water is flowing. Salinity was monitored at all groundwater and surface water stations employed in the ensuing calculations and was reported in the PSS-78 scale, which is equivalent to grams per liter (g/L). Calculated mass fluxes are reported in thousands of pounds per day ($1\text{b} \times 1,000/\text{day}$).

The gain/loss of water and salt mass within the control volume during some period of time results in a change in the control volume's water and salt mass storage. Increased water storage, for instance, occurs when more water enters the control volume than exits. Storage then can be estimated by summing all of the components of the water (and salt) balance. When the net flow is positive (into the control volume) during a specified period of time, the storage of the control volume increases. Conversely, a net negative (out of the control volume) flow implies a decrease in storage during a specified time period.

Another manner in which a change in storage can be estimated relies on direct measurements of water elevations and salinities within the control volume. A change in water elevation within the control volume can be calculated as a difference between water elevations at the beginning and end of a specified time period. The product of this change in water elevations and the surface area of the control volume provide an estimate of the change in the volume of water contained in the control volume during that period of time. Estimates of daily storage changes derived from this method are used to further calibrate the water and salt balance model to ensure an accurate simulation of temporal trends in CCS water elevation and salinity.

A significant change to the model since it was last calibrated is the representation of continued additions of UFA water. Since November 1, 2016, an average of 12.8 mgd of UFA water have been added to the CCS for salinity abatement purposes. Based on historical data from the operation of the 5 UFA wells, the salinity of the added water is assumed to be 2.63 (in PSS-78 scale) and is assumed to be temporally invariant.

5.2.2 Model Calibration, Results, and Discussion

The individual components of the water and salt balance were simulated daily and summed for each month from June 2015 through May 2017, as well as for the collective 24-month period. The individual components of flow are summed in order to calculate a simulated change in volume for each month and for the 24-month period. These simulated changes in storage were compared to observed changes in CCS water and salt storage for each month and the entire calibration period (June 2015 through May 2017). Errors between the simulated and observed storage changes were minimized by adjusting key variables associated with the flow balance model; this process is called calibration. The calibration process ensures that the model can accurately reflect the average changes in CCS storage over the 24-month timeframe, while also effectively capturing day-to-day changes in CCS water and mass storage. Calibration of the water and salt balance model was achieved by adjusting hydraulic conductivities of the aquifer

materials adjacent to and beneath the CCS that factor into the calculation of seepage to/from groundwater and Biscayne Bay. Additional adjustable parameters include the coefficients in the wind function (FPL 2012a), the amount of runoff that enters the control volume as percentage of precipitation, the amount of Unit 5 cooling tower water that is lost to evaporation before entering the CCS, and the salinity of the Unit 5 blowdown as a percentage of seawater. The calibrated model parameter values are provided in Table 5.2-1.

5.2.2.1 Parameter Adjustments

The horizontal hydraulic conductivities laterally adjacent to the control volume were calibrated to range between 500 ft/day (west and north CCS walls) and 1,600 ft/day (south CCS wall). The calibrated vertical conductivities beneath the control volume ranged from 0.1 ft/day to 2.2 ft/day. In order to achieve a better match to observed hydrologic and salt concentration conditions, the northern portion of the discharge canals into the CCS and return canals were calibrated to have higher vertical hydraulic conductivities (1.4 ft/day and 2.2 ft/day, respectively) than the middle/southern portions of the CCS discharge canals and southern portion of the return canals (0.1 ft/day). The variability in these vertical hydraulic conductivities is attributable to the non-uniform depth of a shallow high-flow zone that is variably intersected by deeper CCS canals. The magnitudes of and variability in vertical hydraulic conductivities are on the same order of magnitude as those in the prior model (which simulated through November 2016), where vertical hydraulic conductivity ranged from 0.1 to 1.6 ft/day. Horizontal hydraulic conductivities calibrated in this model are also on the same order of magnitude and range of values as those calibrated in the prior model (which simulated through November 2016), which ranged from 100 ft/day (east CCS wall) to 2,400 ft/day (south CCS wall).

In addition to changes in hydraulic conductivities, revisions were made to evaporation. The equation for evaporation (FPL 2012a) includes an empirical factor. This factor was reduced from 0.66 to 0.62 during the calibration of the 24-month balance model. As the modeled balance is very sensitive to evaporative losses, this was a significant change.

The percentage of additional precipitation-based inflow due to runoff from canal berms is an adjustable model parameter. This parameter is time-invariant and increases precipitation-based inflow for all precipitation events; as the precipitation increases, so too does the additional runoff inflow. Since the precipitation is a key inflow to the CCS for moderating salinity, the balance model is sensitive to this parameter. No change was necessary for this parameter, and it is defined to be 20% of direct precipitation inflow.

The impact of the parameters changes, particularly the adjustments made to the evaporation parameters, is a relatively accurate simulation of the monthly flow balance and simulated daily CCS conditions during the 24-month period between June 2015 and May 2017. The effect of these parameter adjustments on the earlier period of record (September 2010 through May 2015), which were previously simulated by prior versions of the water and salt balance model, were not evaluated as a part of this modeling effort.

5.2.2.2 Flow Balance Comparisons

Results of the calibrated 24-month water and salt balance model are provided in Tables 5.2-2 and 5.2-3, respectively. The modeled net flow of water, as calculated by summing the components of the water balance for the 24-month calibration period, is denoted as the “Modeled Change in CCS Storage” and was calculated to be an average inflow of 1.91 mgd over the 24-month calibration period. In other words, on average over the 24-month period, the volume of water in the CCS increased at a rate of 1.91 mgd. The observed change in storage, which is the difference in the volume of water in the CCS between the final and first days of the calibration period, divided by the number of days in the period, was observed to be an increase in storage at a rate of 0.39 mgd. Though the model overestimated the increase in storage, the residual error between the simulated and observed flow is only 1.52 mgd. This error is small (1.97%) relative to the variability in monthly net observed flows, which range from a net outflow of 34.4 mgd (February 2016) and a net inflow of 42.7 mgd (September 2015). These monthly net flows are provided in the calibrated water and salt balance model included as Appendix K. A summary of the water balance model results for the 2016-2017 reporting period is shown in Table 5.2-4. Note that, on average, the CCS storage increased at rate of approximately 4.27 mgd during the 2016-2017 reporting period, while a smaller amount of water was lost, on average, in the previous year.

The model simulated a net loss (outflow) of salt over the 24-month period at rate of 541 (lb x 1,000)/day. The corresponding observed rate of salt outflow was calculated by multiplying the average observed salinity in the CCS (based on salinities measured at monitoring stations TPSWCCS-1, -2, -4, -5, and -6) on the final and first days of the calibration period by the corresponding CCS volumes on those days. The difference between these two products, divided by the number of days in the calibration period, provides the observed net outflow of salt, 1,089 (lb x 1,000)/day. Thus, the model underestimates the salt outflow by approximately 548 (lb x 1000)/day. As in the case of water balance simulation, the magnitude of this overestimation is small (2.0%) relative to the range in monthly average flows; the observed monthly net mass fluxes range from an outflow of 16,994 (lb x 1,000)/day (November 2015) to an inflow of 10,593 (lb x 1,000)/day (July 2016). During the reporting period, the direction of net salt mass flow was into the CCS at a rate of 1,844 (lb x 1000)/day (Table 5.2-5). Analogous to water storage, this magnitude of flow is within the range of flows prior to June 2015. This stands in stark contrast to the 2015 to 2016 period, when net salt mass flow was out of the CCS at a rate of approximately 4,400 (lb x 1000)/day.

Figures 5.2-2 and 5.2-3 illustrate the model’s ability to match the magnitude and direction of net monthly flows of water and salt, respectively, over the 24-month period. With few exceptions, the model accurately simulated the direction of monthly averaged water and salt flows into and out of the CCS. Figure 5.2-2 compares observed and modeled net monthly flows of water into and out of the CCS. The wet season should be indicative of increased storage and inflow of water into the CCS and, accordingly, the 2015 and (beginning of the) 2017 wet seasons are periods of predominant inflow. However, due to relatively low precipitation, particularly in July 2016, the volume of water in the CCS generally decreased during the 2016 wet season. Dry seasons are marked by reductions in CCS water storage (general outflow). Net reductions in CCS storage are evident between January and March 2016. However, the addition of UFA water

starting in November 2016 is the likely cause of lower monthly outflows during the 2016/2017 dry season.

Figure 5.2-3 compares observed and modeled net monthly flows of salt into and out of the CCS. Unlike the flows of water in Figure 5.2-2, there is an apparent seasonal trend in salt mass flows (salt storage decrease during dry season, salt storage increase during wet season). Like the modeled water flows, modeled salt mass fluxes generally match observed fluxes well. Note that a significant loss of salt storage (salt outflow) was observed in November and December 2015. As previously documented, the salt outflows during these months are attributable to large volumetric seepage from the CCS to groundwater. By comparison, the 2016/2017 dry season salt outflows are relatively low. The addition of UFA water has aided in the moderation of dry season salinity without significantly increasing the stage of the CCS. As such, seepage to groundwater during the 2016/2017 dry season is low relative to seepage modeled during the prior dry season. This is discussed further in the conclusions.

5.2.2.3 Simulated CCS Water Levels and Salt

Implicit in the model's ability to simulate monthly net water and salt mass flows is the accurate simulation of daily flows to and from the CCS. Because the model is able to characterize the daily flows of water and salt, the model estimates the daily changes in CCS water and salt storage. As previously mentioned, these changes in storage are associated with daily changes in CCS water levels and salinity. Figure 5.2-4 shows the model-calculated water levels in the CCS, which varies over the period of record. These modeled water levels range between approximately -1.7 ft North American Vertical Datum of 1988 (NAVD 88) and 2.0 ft NAVD 88 and reflect an average water level throughout the entire CCS. Also shown in Figure 5.2-4 are the observed CCS water levels over time; the observed values reflect the mean of daily-averaged water elevations across the five sensors in the CCS (TPSWCCS-1, -2, -4, -5, -6). The model generally matches the seasonal trends in CCS water level changes (reductions during the dry season and increases during the wet season). However, between July 2016 and January 2017, the model under-simulates the CCS stage. Changes to the model intended to improve this match resulted in a degradation in the quality of the match to CCS salinity.

Changes in salt mass storage within the CCS can be used to calculate average CCS salinity changes over time. The simulated daily net flow of salt is divided by the simulated volume of water in the CCS, which results in a change in salinity. This change in salinity is added to the simulated salinity calculated for the previous day to produce a simulated salinity for the current day. Like the simulated CCS water level, the modeled salinity reflects a representative daily salinity throughout the CCS. Figure 5.2-5 compares the simulated salinities to those observed in the CCS over the period of record. Observed salinities are the mean of daily averaged salinities measured in the CCS monitoring stations (TPSWCCS-1, -2, -4, -5, and -6). The model matches the observed temporal trends in salinity reasonably well. However, the model over-simulates the magnitude of CCS salinity throughout much of the simulated timeframe. Interestingly, this bias is eliminated and the model match to CCS salinity improves in late 2016, when FPL began adding UFA water to the CCS.

5.2.2.4 Interim Activities Affecting Salt Removal

While not simulated in the water budget model, it is worth mentioning that FPL proactively initiated removal of hypersaline groundwater (up to 15 mgd) beneath the CCS as part of extended operational testing and monitoring of the UIC well beginning in late September 2016. Monthly Operating Reports have been submitted to FDEP and are available in the L-31E EDMS site.

Groundwater with a salinity ranging from 54 to 62 PSS-78 scale was pumped from four wells into the injection wells from September 28, 2016, through the end of the reporting period in May 2017. During this time, a total of 1,661 million pounds of salt had been removed from beneath the extraction wells and injected down the UIC. Table 5.2-6 provides a daily summary of the volume of hypersaline water pumped into the injection well and the mass of salt removed.

5.2.2.5 Conclusions

General Conclusions

The accurate simulation of changing CCS inflows, outflows, water elevations, and salinities is complex due to the different components of the balance model and their varying impacts on CCS water and salt storage. For instance, vertical flows into and out of the control volume are generally larger than horizontal flows and have a greater impact upon CCS water elevation. The salinity of inflowing water, however, can vary depending upon the source of the water. For example, water pumped from the UFA into the CCS is relatively low salinity and, as such, serves to reduce and/or moderate CCS salinity; vertical flow from groundwater beneath portions of the discharge canals to the CCS is saline to hypersaline and generally increases the salinity of the CCS. The correct balance of both water and salt mass flow is difficult to estimate in the model. In addition, observed CCS water temperatures varied by over 26°C (from approximately 18.3°C at TPSWCCS-6 in January 2016 to 44.4°C at TPSWCCS-1 in August 2016) during the simulated timeframe. The model addresses associated impacts to the CCS by explicitly simulating the effects of water/air temperature gradients on evaporation. Whereas myriad sources and sinks of water, varying salinities, and changes in water temperature do increase model complexity, the need to accurately simulate these different components of CCS operation constrains the number of possible solutions.

Though the model is able to simulate the complex dynamics associated with the CCS over a 24-month timeframe with reasonable accuracy, there are periods of time where the simulated flows of water and salt do not accurately reflect observed conditions. Consequently, the simulated water levels and salinities in the CCS deviate from those that have been observed at various times in the simulation period. However, the overall performance of the model reinforces its utility as a tool for understanding how the CCS has and will operate under varying meteorological, hydrological, and operational conditions. This is best demonstrated by the fact that the same conceptual model employed to characterize changes in CCS storage of water and salt during this 24-month timeframe (June 2015 through May 2017) was used to explain changes in storage during the prior approximately 4.5-year Uprate monitoring period.

The robustness and accuracy in the model underpins FPL's informed understanding of processes that control the CCS and the manner in which the CCS interacts with the adjacent aquifer and water bodies. This accuracy in simulating the historical changes within the CCS bolsters confidence in the model's utility as a tool to evaluate the sensitivity of CCS operations to certain factors such as changes in operation, drought conditions, storm events, salinity abatement activities, and other potential environmental stresses. Additionally, the model quality validates the fact that the most appropriate data are being collected to effectively capture CCS operations, identify interactions between the CCS and the surrounding environment, and support FPL's comprehension of historical and future operations of the CCS. Continued application and updating of this model is recommended to improve the quality with which it simulates historical conditions in order to bolster the confidence with which futures decisions regarding CCS operations can be made.

Impacts of UFA Water Additions

Perhaps the most important element of the simulated CCS balance during the 24-month timeframe is the continuous addition of UFA water between November 2016 and May 2017. Earlier predictive modeling concluded that, under normal conditions, the addition of 14 mgd of UFA water would eventually reduce CCS salinity to 34 PSS-78. Because this has not yet occurred, it is important to analyze model results in order to better understand what is driving the changes in salinity.

Two key elements of the CCS water and salt balance model that influence the temporal change in CCS salinity are precipitation inflows (the addition of freshwater to the CCS) and evaporative outflows (the removal of freshwater from the CCS). Precipitation-based inflows help to reduce and/or moderate CCS salinity; evaporative losses cause increases in salinity. Monthly evaporative flow rates are generally greater than precipitation flow rates. As such, the difference between monthly precipitation and evaporation (precipitation minus evaporation) is usually negative. During months when this difference is near-zero or positive, CCS salinity will generally decrease. This is evident from September 2015 through January 2016, when positive and near-zero differences between precipitation and evaporation (Figure 5.2-6) helped to produce a reduction in salinity from 79 PSS-78 to 35 PSS-78. Note, FPL also added L-31E canal water through November 2015, which also helped to reduce CCS salinity.

In the months that followed (February through July 2016), monthly evaporation was consistently and significantly greater than monthly precipitation (Figure 5.2-6). Accordingly, the average CCS salinity increased from 35 PSS-78 to 70 PSS-78. Much of this increase occurred by the end of May 2016. During the same 4-month period (February through May) in 2017, the monthly differences between evaporation and precipitation were even more negative than in 2016 (except in March). Whereas salinity increased by 20 PSS-78 between February and May 2016, salinity during the same four months in 2017 has remained relatively stable (increase from 65 PSS-78 to 67 PSS-78). The reason for the stability in salinity in spite of the adverse imbalance between evaporation and precipitation is the addition of UFA water. These additions of low salinity water help to offset the disparity between evaporation and precipitation and, in so doing, help moderate salinity. The continued addition of UFA water, combined with less significant disparities between evaporation and precipitation, should help reduce CCS salinity to 34 PSS-78.

When the UFA water-based approach to CCS salinity abatement was proposed, there were concerns that the associated increase in CCS stage would induce significant seepage of hypersaline water into Biscayne aquifer. Figure 5.2-7 plots the monthly average rates of vertical seepage of salt into the Biscayne aquifer through the base of the CCS (negative values represent outflow from the CCS; positive values represent inflow into the CCS). Inspection of this plot reveals that, relative to other months during the simulated 24-month timeframe, vertical seepage of salt since the full commencement of UFA water additions (November 2016) has been relatively moderate. It is anticipated that the long-term reduction in CCS salinity to 34 PSS-78 will help to moderate the flow of salt from the CCS into the Biscayne aquifer.

TABLES

Table 5.2-1. Calibration Parameters.

Parameter Name	Calibrated Value	Units
Vertical Hydraulic Conductivity (Zone A)	1.4	ft/day
Vertical Hydraulic Conductivity (Zone B)	0.1	ft/day
Vertical Hydraulic Conductivity (Zone C)	0.1	ft/day
Vertical Hydraulic Conductivity (Zone D)	2.2	ft/day
West Face Hydraulic Conductivity	500	ft/day
East Face Hydraulic Conductivity	25	ft/day
North Face Hydraulic Conductivity	500	ft/day
South Face Hydraulic Conductivity	1600	ft/day
Evaporation Modifier (Factor Multiplier)	0.62	
Runoff Modifier (as % of Precipitation)	20%	
Blowdown Evaporation Factor	30%	
Blowdown Concentration (as % of Seawater)	0.50	

Table 5.2-2. Calculated Fluid Flows from Water Budget Components from June 2015 through May 2017.

June 2015 to May 2017			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.44	318.79
	E. Seepage	0.26	186.70
	N. Seepage	0.02	13.54
	S. Seepage	6.80	4971.32
	Bottom Seepage	2.20	1606.72
	Precipitation and Runoff	21.78	15920.48
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.59	428.76
	Unit 5 Blowdown	0.18	131.98
	ID Pumping	3.90	2852.92
	Added Water (e.g. L-31E)	18.12	13247.06
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	54.28	39678.27
Out of CCS	W. Seepage	0.00	-0.37
	E. Seepage	-0.26	-190.50
	N. Seepage	-0.01	-5.99
	S. Seepage	-1.22	-891.14
	Bottom Seepage	-13.41	-9801.13
	Precipitation and Runoff	0.00	0.00
	Evaporation	-37.47	-27393.69
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-52.37	-38282.82
Modeled Change in CCS Storage:		1.91	1395.46
Observed Change		0.39	288.23

Key:

CCS = Cooling Canal System.

gal = Gallon.

ID = Interceptor Ditch.

MGD = Million gallons per day.

Table 5.2-3. Calculated Mass Flows from Salt Budget Components from June 2015 through May 2017.

June 2015 to May 2017			
Mass Budget Component		lb/day (x1000)	Mass (lb x 1000)
Into CCS	W. Seepage	3.80	2777.73
	E. Seepage	68.81	50298.89
	N. Seepage	4.09	2993.06
	S. Seepage	1348.98	986102.07
	Bottom Seepage	670.41	490068.71
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	26.37	19274.82
	ID Pumped Water	320.25	234102.33
	Added Water (e.g. L-31E)	3796.45	2775204.60
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	6239.15	4560822.20
Out of CCS	W. Seepage	-40.50	-29603.04
	E. Seepage	-101.95	-74522.64
	N. Seepage	-3.46	-2526.71
	S. Seepage	-447.89	-327409.72
	Bottom Seepage	-6186.75	-4522513.47
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-6780.54	-4956575.58
Modeled Change in CCS Storage:		-541.39	-395753.38
Observed Change		-1089.17	-796183.62

Key:

CCS = Cooling Canal System.

ID = Interceptor Ditch.

lb = Pound(s).

Table 5.2-4. Calculated Fluid Flows from Water Budget Components for the Period of Record (June 2016 through May 2017).

June 2016 through May 2017			
Water Budget Component		Flow (MGD)	Volume (gal x 10 ⁶)
Into CCS	W. Seepage	0.43	155.87
	E. Seepage	0.34	123.65
	N. Seepage	0.03	10.23
	S. Seepage	9.13	3332.78
	Bottom Seepage	3.21	1172.49
	Precipitation and Runoff	16.64	6072.22
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.62	225.86
	Unit 5 Blowdown	0.00	0.66
	ID Pumping	1.37	499.65
	Added Water	14.67	5353.54
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	46.43	16946.96
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-0.05	-16.58
	N. Seepage	0.00	-0.06
	S. Seepage	0.00	0.00
	Bottom Seepage	-6.28	-2293.51
	Precipitation and Runoff	0.00	0.00
	Evaporation	-35.83	-13078.48
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-42.16	-15388.63
Modeled Change in CCS Storage:		4.27	1553.58
Observed Change		-0.30	-110.29

Key:

CCS = Cooling Canal System.

gal = Gallon.

ID = Interceptor Ditch.

MGD = Million gallons per day.

Table 5.2-5. Calculated Mass Flows from Mass Budget Components for the Period of Record (June 2016 through May 2017).

June 2016 through May 2017			
Mass Budget Component		lb/day (x1000)	Mass (lb x 10 ⁶)
Into CCS	W. Seepage	5.05	1843.29
	E. Seepage	88.42	32271.84
	N. Seepage	6.32	2305.82
	S. Seepage	1626.51	593674.81
	Bottom Seepage	983.54	358990.31
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.27	96.93
	ID Pumping	76.05	27756.70
	Added Water	2411.92	880352.15
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total In:	5198.06	1897291.84
Out of CCS	W. Seepage	0.00	0.00
	E. Seepage	-23.45	-8559.83
	N. Seepage	-0.09	-31.72
	S. Seepage	0.00	0.00
	Bottom Seepage	-3331.30	-1215925.70
	Precipitation and Runoff	0.00	0.00
	Evaporation	0.00	0.00
	Unit 3, 4 Added Water	0.00	0.00
	Unit 5 Blowdown	0.00	0.00
	ID Pumping	0.00	0.00
	Plant Outflow	Equal to Intake	
	Plant Intake	Equal to Outflow	
	Total Out:	-3354.84	-1224517.26
Modeled Change in CCS Storage:		1843.22	672774.59
Observed Change		786.86	287202.42

Key:

CCS = Cooling Canal System.

lb = Pound(s).

ID = Interceptor Ditch.

5.2-6. Interim Salt Mass Removed.

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
09/28/16	6.3	3.0	3
09/29/16	15.3	7.4	10
09/30/16	14.9	7.2	18
10/01/16	14.9	7.2	25
10/02/16	14.9	7.1	32
10/03/16	14.9	6.9	39
10/04/16	14.8	6.9	46
10/05/16	14.9	8.8	54
10/06/16	7.7	12.7	67
10/07/16	0.0	0.0	67
10/08/16	7.7	20.2	87
10/09/16	14.9	6.8	94
10/10/16	14.9	6.8	101
10/11/16	14.9	6.7	108
10/12/16	14.9	6.8	114
10/13/16	14.9	6.8	121
10/14/16	14.9	6.7	128
10/15/16	14.9	6.7	135
10/16/16	14.9	6.7	141
10/17/16	14.9	6.7	148
10/18/16	14.8	6.7	155
10/19/16	14.8	6.7	162
10/20/16	14.8	6.6	168
10/21/16	14.8	6.6	175
10/22/16	14.8	6.6	181
10/23/16	14.8	6.7	188
10/24/16	14.8	6.6	195
10/25/16	14.8	6.6	201
10/26/16	14.8	6.6	208
10/27/16	14.8	6.6	215
10/28/16	14.8	6.6	221
10/29/16	14.8	6.6	228
10/30/16	14.8	6.6	234
10/31/16	14.8	6.6	241
11/01/16	14.8	6.6	248
11/02/16	14.8	6.7	254
11/03/16	14.8	6.7	261
11/04/16	14.4	6.5	268

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
11/05/16	14.8	6.7	274
11/06/16	14.8	6.6	281
11/07/16	14.8	6.6	288
11/01/16	14.8	6.6	294
11/02/16	14.8	6.7	301
11/03/16	14.8	6.7	307
11/04/16	14.4	6.5	314
11/05/16	14.8	6.7	321
11/06/16	14.8	6.6	327
11/07/16	14.8	6.6	334
11/08/16	14.8	6.6	341
11/09/16	14.8	6.6	347
11/10/16	14.8	6.6	354
11/11/16	14.8	6.6	360
11/12/16	14.8	6.6	367
11/13/16	14.8	6.6	374
11/14/16	14.8	6.6	380
11/15/16	14.8	6.6	387
11/16/16	14.8	6.6	394
11/17/16	14.8	6.6	400
11/18/16	14.8	6.6	407
11/19/16	14.8	6.6	413
11/20/16	14.8	6.6	420
11/21/16	14.8	6.6	427
11/22/16	14.8	6.7	433
11/23/16	14.8	6.7	440
11/24/16	14.8	6.7	447
11/25/16	14.8	6.6	453
11/26/16	14.8	6.6	460
11/27/16	14.8	6.6	467
11/28/16	14.8	6.6	473
11/29/16	14.2	6.4	480
11/30/16	14.8	6.6	486
12/01/16	14.8	6.6	493
12/02/16	14.8	6.6	500
12/03/16	14.8	6.6	506
12/04/16	14.8	6.6	513
12/05/16	14.8	6.6	519

5.2-6. Interim Salt Mass Removed.

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
12/06/16	14.8	6.6	526
12/07/16	14.8	6.6	533
12/08/16	14.8	6.6	539
12/09/16	14.8	6.6	546
12/10/16	14.8	6.6	553
12/11/16	14.8	6.6	559
12/12/16	14.8	6.6	566
12/13/16	14.8	6.3	572
12/14/16	14.8	6.5	579
12/15/16	13.2	5.8	584
12/16/16	13.7	6.0	591
12/17/16	14.8	6.5	597
12/18/16	14.8	6.5	604
12/19/16	14.8	6.6	610
12/20/16	14.8	6.6	617
12/21/16	14.8	6.6	623
12/22/16	14.8	6.6	630
12/23/16	14.8	6.6	636
12/24/16	14.8	6.6	643
12/25/16	14.8	6.6	650
12/26/16	14.8	6.6	656
12/27/16	14.8	6.6	663
12/28/16	14.8	6.6	670
12/29/16	14.8	6.6	676
12/30/16	14.8	6.6	683
12/31/16	14.8	6.6	689
01/01/17	14.8	6.6	696
01/02/17	14.8	6.6	703
01/03/17	14.8	6.6	709
01/04/17	14.8	6.5	716
01/05/17	14.8	6.5	722
01/06/17	14.8	6.6	729
01/07/17	14.8	6.6	736
01/08/17	14.8	6.6	742
01/09/17	14.8	6.6	749
01/10/17	11.2	5.0	754
01/11/17	14.7	6.7	761
01/12/17	14.5	6.6	767

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
01/13/17	14.8	6.7	774
01/14/17	14.8	6.7	781
01/15/17	14.8	6.8	787
01/16/17	14.8	6.8	794
01/17/17	14.8	6.8	801
01/18/17	14.8	6.8	808
01/19/17	15.0	6.8	814
01/20/17	14.8	6.6	821
01/21/17	14.8	6.7	828
01/22/17	14.8	6.7	834
01/23/17	7.8	3.5	838
01/24/17	14.8	6.7	845
01/25/17	14.8	6.7	851
01/26/17	14.7	6.6	858
01/27/17	14.7	6.7	865
01/28/17	14.8	6.7	871
01/29/17	14.8	6.7	878
01/30/17	13.0	5.9	884
01/31/17	14.8	6.7	891
02/01/17	14.7	6.7	897
02/02/17	14.8	6.6	904
02/03/17	14.7	6.6	910
02/04/17	14.8	6.6	917
02/05/17	14.8	6.6	924
02/06/17	14.7	6.6	930
02/07/17	14.7	6.6	937
02/08/17	14.8	6.7	944
02/09/17	14.7	6.6	950
02/10/17	14.8	6.7	957
02/11/17	14.7	6.6	964
02/12/17	14.7	6.6	970
02/13/17	14.7	6.6	977
02/14/17	14.7	6.5	983
02/15/17	14.7	6.6	990
02/16/17	14.7	6.6	997
02/17/17	14.7	6.7	1,003
02/18/17	14.7	6.7	1,010
02/19/17	14.7	6.7	1,017

5.2-6. Interim Salt Mass Removed.

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
02/20/17	14.7	6.7	1,023
02/21/17	14.7	6.7	1,030
02/22/17	14.7	6.7	1,037
02/23/17	14.7	6.6	1,043
02/24/17	14.7	6.7	1,050
02/25/17	14.7	6.7	1,057
02/26/17	14.7	6.7	1,063
02/27/17	14.7	6.7	1,070
02/28/17	14.7	6.7	1,077
03/01/17	14.7	6.7	1,083
03/02/17	14.7	6.7	1,090
03/03/17	14.7	6.7	1,097
03/04/17	14.7	6.7	1,104
03/05/17	14.7	6.7	1,110
03/06/17	14.7	6.7	1,117
03/07/17	14.7	6.7	1,124
03/08/17	14.7	6.7	1,130
03/09/17	14.7	6.7	1,137
03/10/17	14.7	6.7	1,144
03/11/17	14.7	6.6	1,150
03/12/17	14.1	6.4	1,157
03/13/17	14.7	6.7	1,163
03/14/17	14.7	6.6	1,170
03/15/17	14.7	6.7	1,177
03/16/17	14.7	6.7	1,183
03/17/17	14.7	6.7	1,190
03/18/17	14.7	6.7	1,197
03/19/17	14.7	6.6	1,203
03/20/17	14.7	6.7	1,210
03/21/17	14.7	6.7	1,217
03/22/17	14.7	6.6	1,223
03/23/17	14.7	6.7	1,230
03/24/17	14.7	6.7	1,237
03/25/17	14.7	6.7	1,243
03/26/17	14.7	6.7	1,250
03/27/17	14.7	6.6	1,256
03/28/17	14.7	6.6	1,263
03/29/17	14.7	6.6	1,270

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
03/30/17	14.6	6.6	1,276
03/31/17	14.6	6.6	1,283
04/01/17	14.6	6.6	1,290
04/02/17	14.6	6.6	1,296
04/03/17	14.8	6.6	1,303
04/04/17	14.2	6.4	1,309
04/05/17	14.7	6.6	1,316
04/06/17	14.2	6.0	1,322
04/07/17	14.8	6.6	1,329
04/08/17	14.8	6.7	1,335
04/09/17	14.3	6.5	1,342
04/10/17	14.8	6.7	1,348
04/11/17	14.8	6.6	1,355
04/12/17	14.8	6.6	1,362
04/13/17	14.8	6.6	1,368
04/14/17	14.8	6.6	1,375
04/15/17	14.8	6.6	1,382
04/16/17	14.8	6.7	1,388
04/17/17	14.8	6.7	1,395
04/18/17	14.8	6.7	1,402
04/19/17	14.8	6.7	1,408
04/20/17	14.8	6.7	1,415
04/21/17	14.8	6.7	1,422
04/22/17	14.8	6.6	1,428
04/23/17	12.9	5.8	1,434
04/24/17	12.9	6.6	1,441
04/25/17	14.8	6.6	1,447
04/26/17	14.8	6.6	1,454
04/27/17	14.8	6.6	1,461
04/28/17	14.8	6.6	1,467
04/29/17	14.8	6.6	1,474
04/30/17	14.8	6.6	1,480
05/01/17	14.8	6.6	1,487
05/02/17	14.8	6.6	1,494
05/03/17	14.8	6.6	1,500
05/04/17	14.8	3.9	1,504
05/05/17	14.8	6.6	1,511
05/06/17	14.8	6.6	1,517

5.2-6. Interim Salt Mass Removed.

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
05/07/17	14.8	6.6	1,524
05/08/17	14.8	6.6	1,530
05/09/17	14.8	6.5	1,537
05/10/17	14.8	6.6	1,543
05/11/17	14.8	6.6	1,550
05/12/17	14.8	6.6	1,557
05/13/17	14.8	6.6	1,563
05/14/17	14.8	6.6	1,570
05/15/17	14.8	6.6	1,576
05/16/17	14.8	6.6	1,583
05/17/17	14.8	6.5	1,589
05/18/17	14.8	6.6	1,596
05/19/17	14.8	6.5	1,602

Day	Millions of Gallons of Water	Daily Salt Removal (millions of lbs.)	Total Cumulative Salt Removed (millions of lbs.)
05/20/17	14.8	6.5	1,609
05/21/17	14.8	6.5	1,616
05/22/17	14.8	2.1	1,618
05/23/17	6.1	0.0	1,618
05/24/17	7.3	0.0	1,618
05/25/17	0.1	4.2	1,622
05/26/17	9.6	6.5	1,628
05/27/17	14.7	6.5	1,635
05/28/17	14.8	6.5	1,641
05/29/17	14.7	6.5	1,648
05/30/17	14.7	6.5	1,655
05/31/17	14.7	6.5	1,661

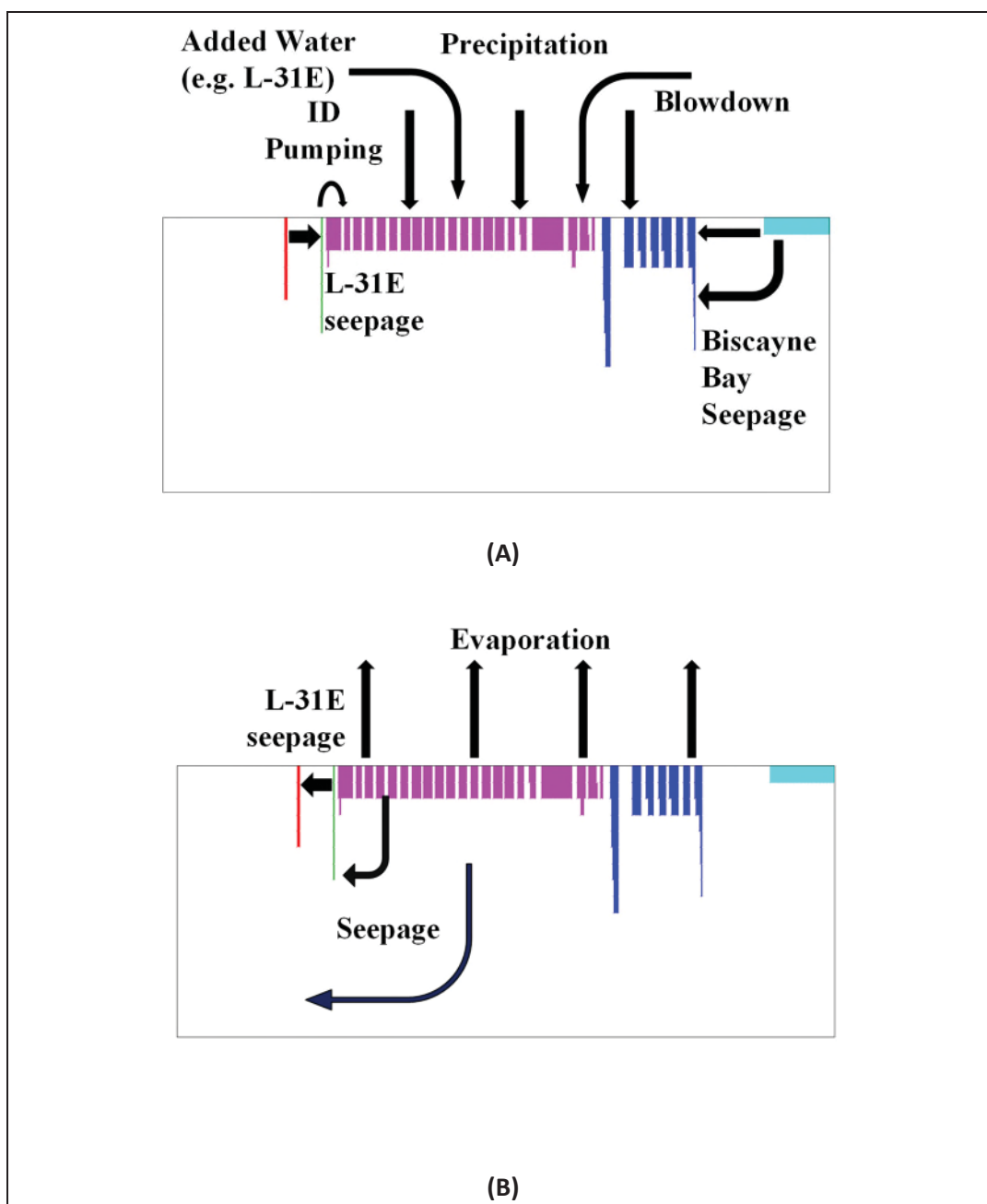


Figure 5.2-1. Flow into (A) and out of (B) the CCS, Shown in Cross-Section.

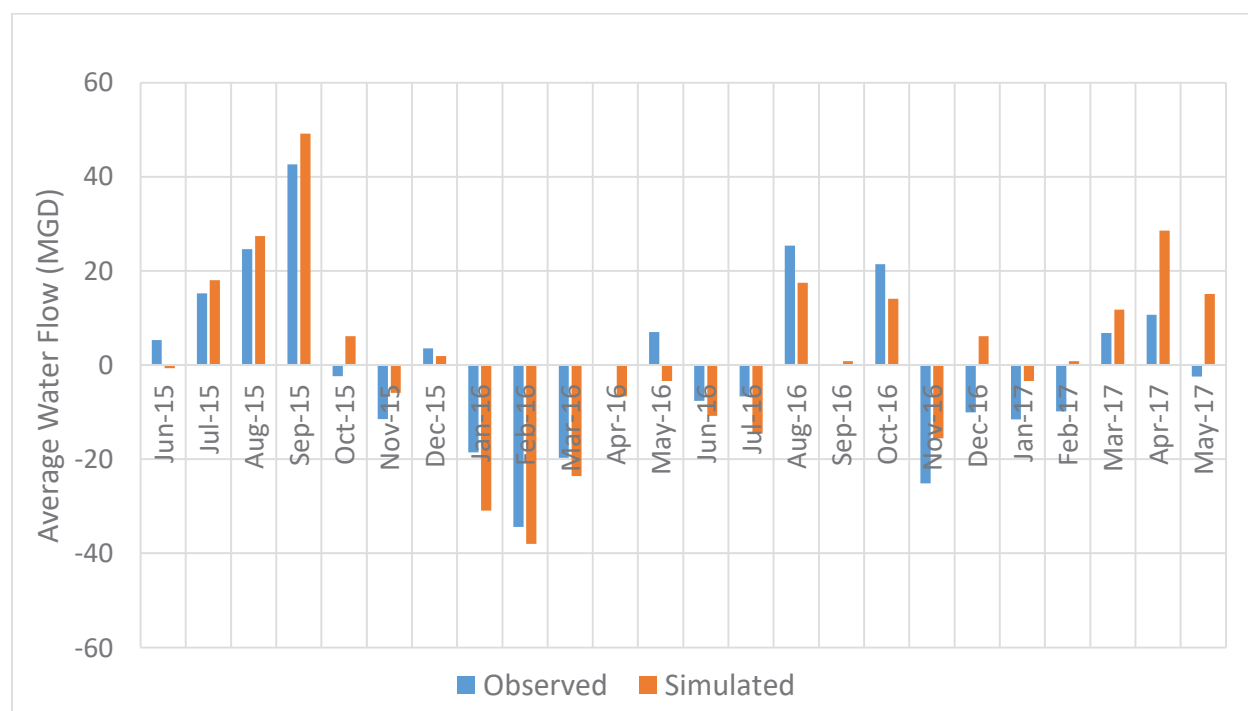


Figure 5.2-2. Modeled versus Measured Net Monthly Flows of Water for the CCS during the Period from June 2015 - May 2017.

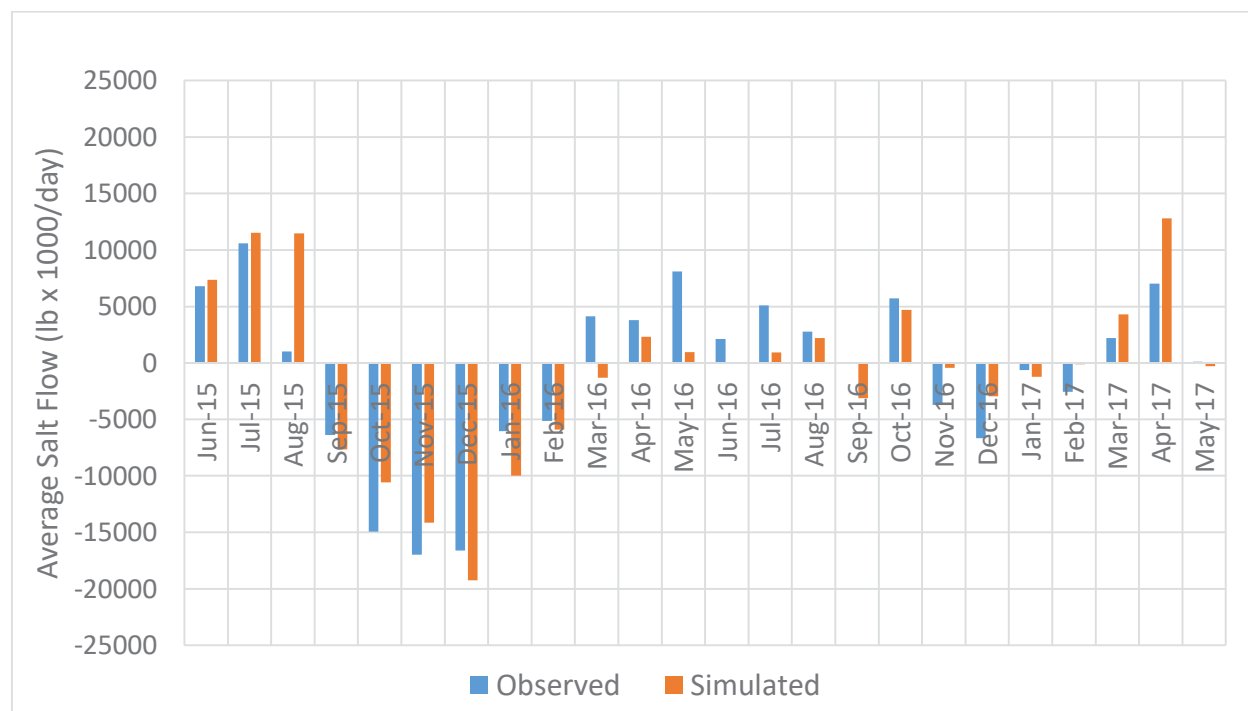


Figure 5.2-3. Modeled versus Measured Net Monthly Flows of Salt Mass for the CCS during the Period from June 2015 - May 2017.

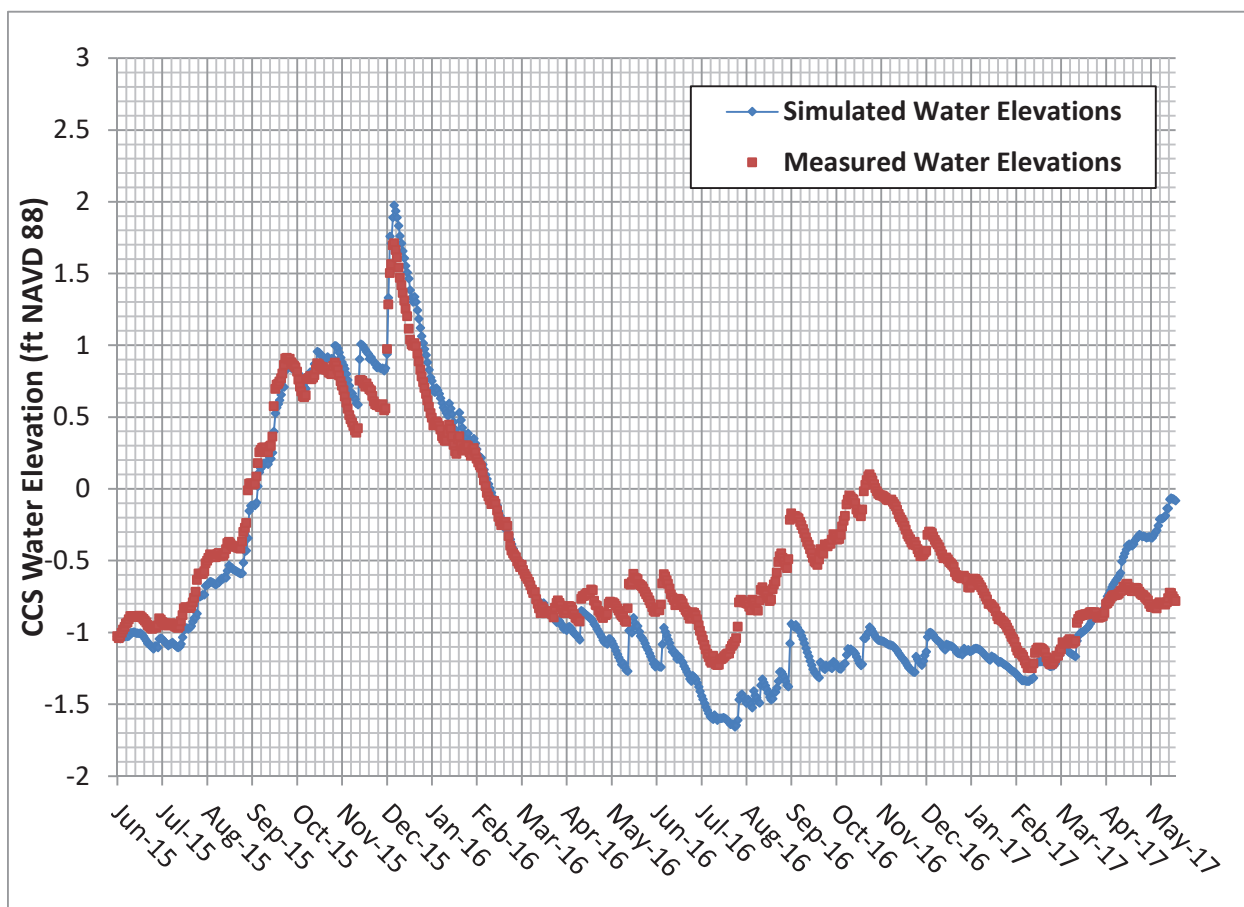


Figure 5.2-4. Modeled versus Measured Water Elevations (NAVD 88) in the CCS during the Reporting Period; Used to Validate the Conceptual Model and Calibrate the Water Balance Model to Temporal Trends in Water Elevation.

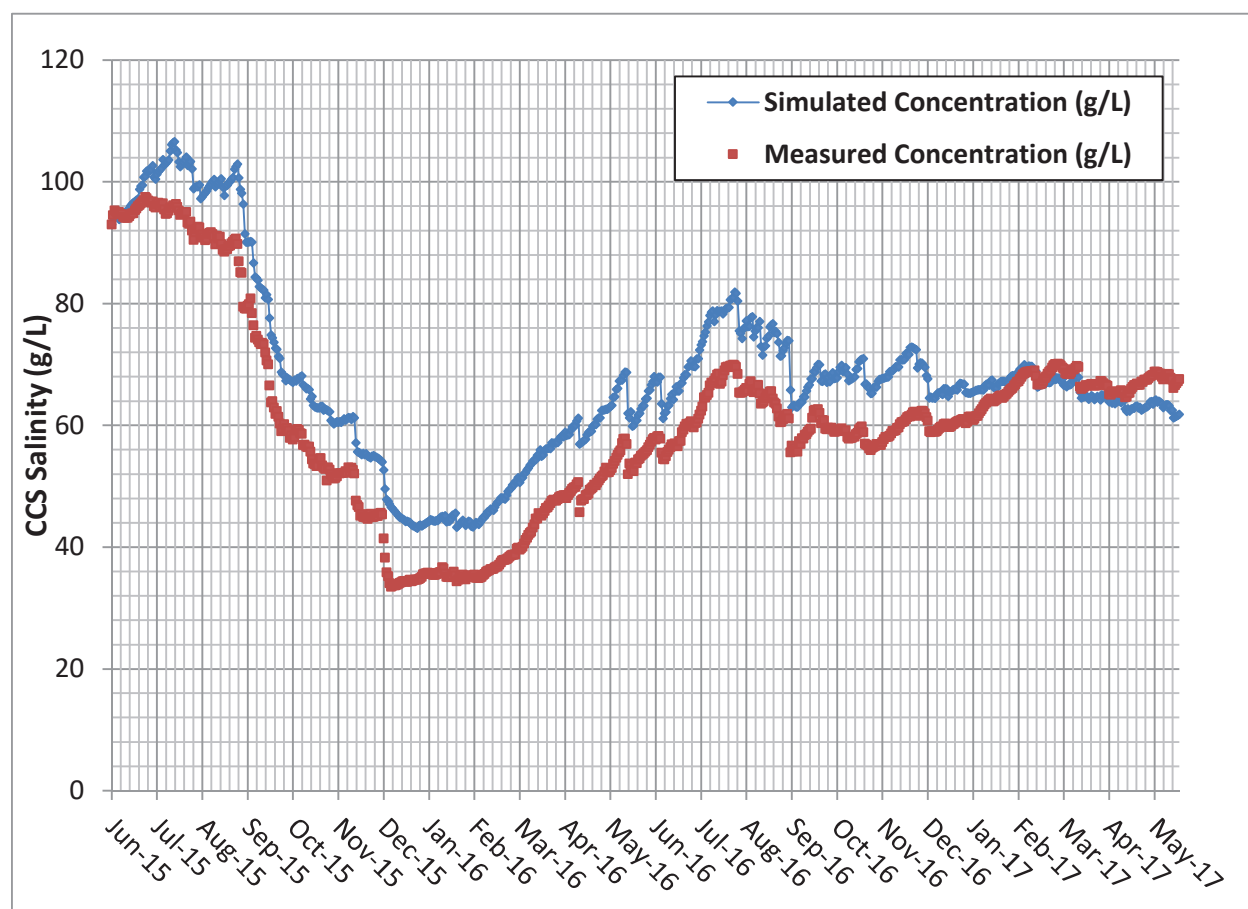


Figure 5.2-5. Modeled versus Measured Salinity in the CCS during the Reporting Period; Used to Validate the Conceptual Model and Calibrate the Water Balance Model to Temporal Trends in Salinity.

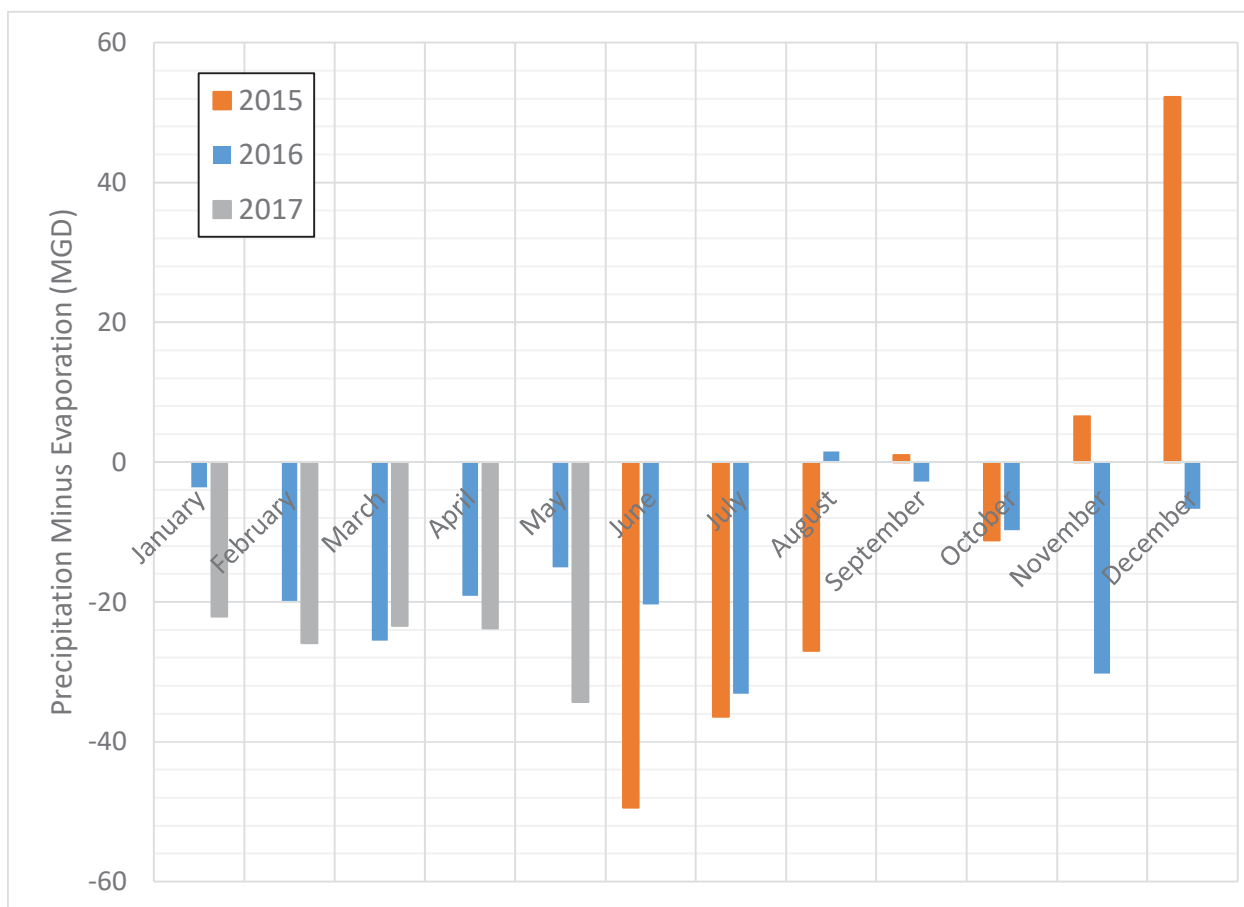


Figure 5.2-6. Modeled Monthly Differences between Precipitation and Evaporation (precipitation minus evaporation) for the 24-month Simulation.

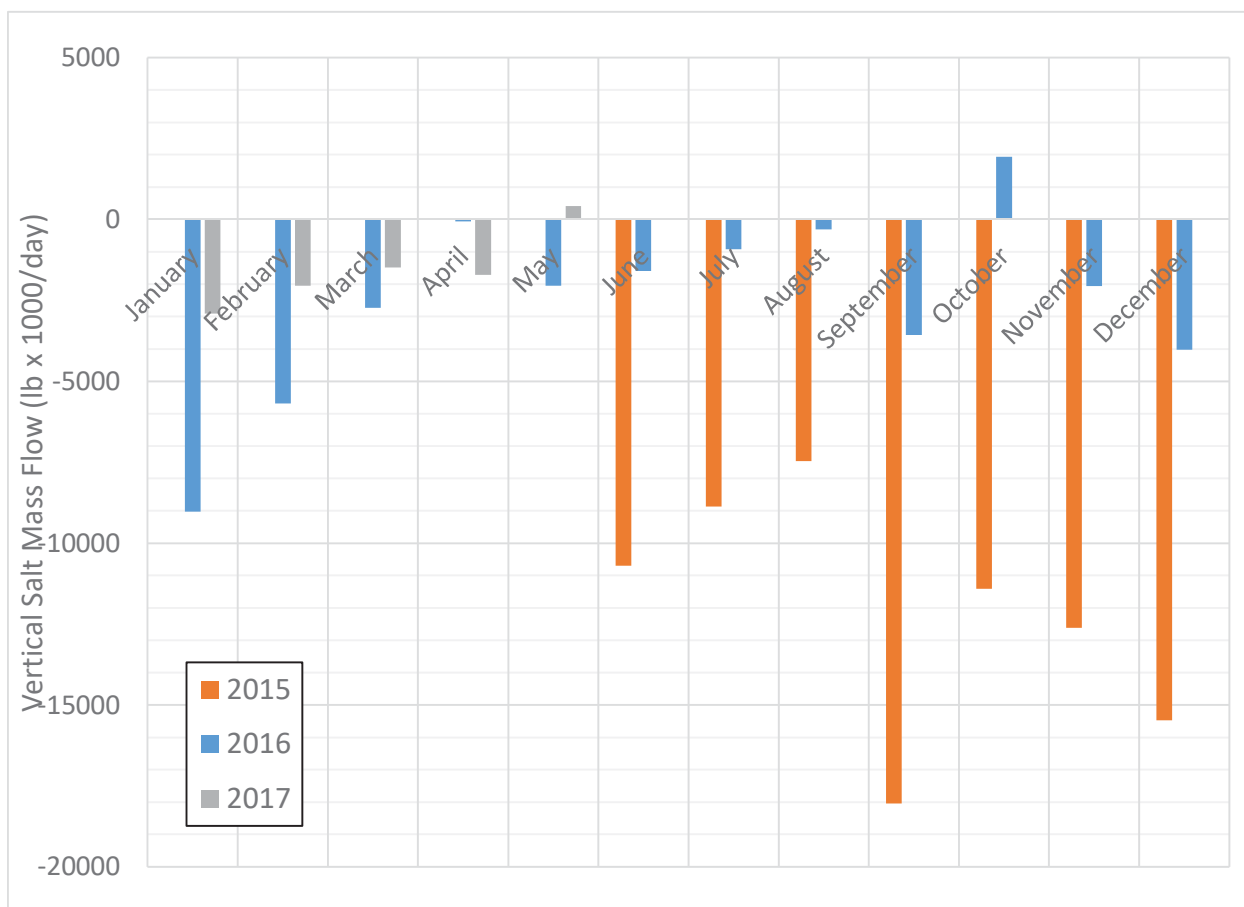


Figure 5.2-7. Modeled Monthly Vertical Salt Mass Seepage between the CCS and Biscayne Aquifer; Negative Values Indicate Seepage of Salt Mass out of the CCS.