Appendix 4-1: Annual Monitoring Data Summary for ECP and Non-ECP Basin Discharge Structures

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INTRODUCTION

Chapter 40E-63, Florida Administrative Code (F.A.C.) (Rule 40E-63), requires the South Florida Water Management District (District or SFWMD) to report on the status of the required water quality monitoring for determining compliance with total phosphorus (TP) load mandates for two Everglades Construction Project (ECP) basins, specifically, the Everglades Agricultural Area (EAA) and C-139 basins. Appendix 3-1b the *2006 South Florida Environmental Report – Volume I* presents background and detail on the District data collection efforts for these basins. Rule 40E-63 Appendices A and B present information on the basin-level monitoring requirements, equations, and models used to calculate observed and predicted TP loads for the EAA and C-139 basins, and Appendices A3 and B2 outline data collection requirements, respectively. The Rule appendices can be found on the *What We Do*, *Permitting/ Regulation*, *Rules, Statutes, & Criteria* section of the District web site at www.sfwmd.gov.

This appendix provides summaries of TP data collected at all EAA and C-139 basin-level compliance structures, updates on the status of the current quality level of flow rating equations, and summaries of the flow, TP load, and flow-weighted mean (FWM) TP concentration at each structure for Water Year 2007 (WY2007) (May 1, 2006–April 30, 2007). Additionally, this appendix describes the EAA TP load calculation methodology and equation details using WY2007 data.

For the eight non-ECP basins, the Florida Department of Environmental Protection (FDEP) permit No. 06,502590709 requires that the District report on the status of required water quality monitoring to evaluate the effectiveness of the source control strategies. The data collection requirements for structures associated with non-ECP basins are outlined in the non-ECP permit. Chapter 3A and Appendix 3A-4 of this volume provide the WY2007 update on the District's data collection efforts for non-ECP structures. This appendix summarizes the flow, TP load, and FWM TP concentration at each non-ECP basin discharge structure for WY1998 through WY2007.

BASIN-LEVEL MONITORING DATA AND COMPLIANCE EQUATIONS

EVERGLADES CONSTRUCTION PROJECT BASINS

During WY2007, 15 structures comprised the modeling boundary of the EAA basin and 17 water quality monitoring sampling points represented the water quality of flow through those structures. In the C-139 basin, six modeling boundary structures (G-406, G-342A–D, and G-136) are monitored directly. The G-136 structure also serves as the inflow and outflow boundary point, respectively, for the EAA and C-139 basins.

The EAA basin-level compliance determination is based on water year monitoring at various inflow and outflow points defining the boundary of the four major EAA sub-basins (S5A, S2/S6, S2/S7, and S3/S8) and the conveyance canals serving those sub-basins. In Chapter 4 of this volume, Table 4-4 summarizes the structures defining the WY2007 boundary for each EAA sub-basin. **Table 1** of this appendix provides TP sampling statistics for all the locations monitored by the District for the EAA basin during WY2007.

Table 2 summarizes the annual flow, TP load, and FWM TP concentration for every structure used during WY2007 to determine overall compliance with EAA load reduction requirements. Annual individual summaries are not intended to be aggregated to mass-balance the flows and loads for a reported EAA TP load. Rather, the structure summaries are presented as an accounting of the annual flow and TP load at each structure that inflows and outflows from each EAA sub-basin. The more complicated mass-balance procedures outlined in Rule 40E-63 for deriving the annual water year TP load values within the EAA basin are accomplished through daily mass-balancing of individual structure results for each hydrologic sub-basin.

Compliance with EAA basin mandates is based on mathematical equations and methodology dictated by Rule 40E-63. The equations are reproduced in **Figure 1**. **Figure 2** presents the monthly rainfall totals for the EAA basin during WY2007 and related coefficients used to calculate the target load per rule's equations. The target load accounts for a reduction in the EAA basin area by a factor equal to the current acreage divided by the baseline acreage. The predicted load is the pre-Best Management Practices (BMP) baseline period load adjusted for hydrologic variability associated with rainfall. Calculation of the limit is not required for WY2006 as the basin load was less than the target load.

Table 1. Summary statistics – WY2007 total phosphorus (TP) monitoring data for the Everglades Agricultural Area (EAA) basin.

Sub-Basin (canal)	Structure	Sampling Point	Sample Type	Number Sampled	Number Used	Min. (ppm)	Max. (ppm)	Number Flagged	Flow[1] Curve Rating
S5A (WPB canal)	S-352	S-352	Grab	69	43	0.097	0.718	0	Good
			Composite[2]	31	31	0.023	0.585	0	
	S-5A Complex	S-5A	Grab	52	19	0.042	0.418	0	Good
			Composite[2]	30	25	0.064	0.386	2	
	EBPS	EBEACH	Grab	51	16	0.074	0.701	0	Good[3]
			Composite[2]	34	34	0.107	0.716	0	
S2/S6 (HILLS canal)	S-2 Complex	S2	Grab	13	1	0.07	0.302	0	Good
			Composite[2]	2	1	0.089	0.126	0	
		S351	Grab	50	31	0.072	0.332	0	Good
			Composite[2]	27	27	0.098	0.334	0	
	S-6	S-6	Grab	52	16	0.017	0.302	0	Good
			Composite[2]	36	32	0.024	0.280	4	
	G-328	G328	Grab	52	9	0.015	0.127	0	Fair
			Composite[2]	15	15	0.032	0.124	0	
	ESPS	ESHORE2	Grab	51	6	0.034	0.758	0	Good[3]
			Composite[2]	14	13	0.046	0.311	0	
S2/S7 (NNR canal	S-2 Complex	S2	Grab	13	1	0.07	0.302	0	Good
			Composite[2]	2	1	0.089	0.126	0	
		S351	Grab	50	31	0.072	0.332	0	Good
			Composite[2]	27	27	0.098	0.334	0	
	G-370	G-370	Grab	52	16	0.016	0.143	0	Excellent
			Composite[2]	20	19	0.035	0.361	1	
	G-371	G-371	Grab	50	5	0.012	0.126	2	Good
			Composite[2]	1	1	0.044	0.044	0	

[1] Flow Curve Rating: Discharge estimates derived from theoretical equations are within a range of expected values based on streamflow measurements used to calibrate the theoretical equations and are classified as: Excellent (< 5%), Good (< 10%), Fair (< 15%), or Poor (> 15%).

[2] Composite samples could be time-proportional, flow-proportional, or a combination of the two.

[3] Good, based on experience with theoretical ratings based on pump manufacturers' performance curves, but streamflow measurements are not sufficient to calibrate theoretical equations and the flow curve rating cannot adequately be determined.

[4] Poor, based on experience with ratings at culverts with flashboards, but streamflow measurements are not sufficient to calibrate theoretical equations and the flow curve rating cannot adequately be determined.

Table 1. Continued.

Sub-Basin (canal)	Structure	Sampling Point	Sample Type	Number Sampled	Number Used	Min. (ppm)	Max. (ppm)	Number Flagged	Flow[1] Curve Rating
S3/S8 (MIA canal)	S-3 Complex	S3	Grab	12	0	0.036	0.173	0	Good
			Composite[2]	0	0			0	
		S354	Grab	46	31	0.057	0.203	0	Excellent
			Composite[2]	28	28	0.065	0.373	0	
	G-136	G136	Grab	53	10	0.037	0.19	0	Poor[4]
			Composite[2]	14	11	0.041	0.223	0	
	SSDDMC	SSDDMC	Grab	52	9	0.038	0.191	0	Fair
			Composite[2]	13	13	0.071	0.218	0	
	SFCD5E	SFCD5E	Grab	51	12	0.010	0.258	0	Fair
			Composite[2]	19	19	0.042	0.203	0	
	G-372	G-372	Grab	51	26	0.021	0.147	0	Excellent
			Composite[2]	45	45	0.041	0.161	0	
	G-373	G-373	Grab	51	10	0.022	0.526	1	Good
			Composite[2]	3	1	0.045	0.060	0	

[1] Flow Curve Rating: Discharge estimates derived from theoretical equations are within a range of expected values based on streamflow measurements used to calibrate the theoretical equations and are classified as: Excellent (< 5%), Good (< 10%), Fair (< 15%), or Poor (> 15%).

[2] Composite samples could be time-proportional, flow-proportional, or a combination of the two.

[3] Good, based on experience with theoretical ratings based on pump manufacturers' performance curves, but streamflow measurements are not sufficient to calibrate theoretical equations and the flow curve rating cannot adequately be determined.

[4] Poor, based on experience with ratings at culverts with flashboards, but streamflow measurements are not sufficient to calibrate theoretical equations and the flow curve rating cannot adequately be determined.

Table 2. WY2007 flow volumes, TP loads, and flow-weighted mean (FWM) TP concentrations for EAA basin structures.

Sub-Basin (canal)	Direction		Structure	Load (mt)	Flow (kac-ft)	Conc. (ppb)
S5A (WPB canal)	Outflow	to Lake Okeechobee	S-352	0.00	0.00	N/A
		to STA-1 Inflow & Distribution Works	S-5A + S-5AW	53.93	182.47	240
		Total		**53.93**	**182.47**	**240**
	Inflow	from Lake Okeechobee	S-352	31.22	120.40	210
		from L-8 Canal	S-5A + S-5AW	0.46	6.41	58
		from East Beach WCD	EBPS3	4.49	9.87	368
		Total		**36.17**	**136.69**	**215**
S2/S6 (HILLS Canal)	Outflow	to Lake Okeechobee	S-2	0.66	3.91	137
		to STA-2 Inflow Distribution Canal	S-6	43.96	216.32	165
		to STA-2 Inflow Distribution Canal	G-328	1.11	12.12	74
		Total		**45.72**	**232.35**	**160**
	Inflow	from Lake Okeechobee	S-351	55.30	235.21	191
		from East Shore WCD	ESPS2	3.89	18.91	167
		Total		**59.20**	**254.12**	**189**
S2/S7 (NNR canal)	Outflow	to Lake Okeechobee*	S-2	same as above		
		to STA-3/4	G-370	38.46	190.75	163
		to STA-3/4 Bypass Structure	G-371	2.64	11.91	179
		Total		**41.09**	**202.66**	**164**
	Inflow	from Lake Okeechobee*	S-351	see S-351 above		
		from WCA2	G-371	0.64	29.48	18
		Total		**not applicable**		
S3/S8 (MIA canal)	Outflow	to Lake Okeechobee	S-3	0.11	0.31	297
		to STA-3/4	G-372	33.40	208.64	130
		to STA-3/4 Bypass Structure	G-373	2.42	17.87	110
		Total		**35.94**	**226.82**	**128**
	Inflow	from Lake Okeechobee	S354 (S3)	27.39	159.09	140
		from South Shore DD	SSDDMC	0.96	6.12	128
		from South Florida Conservancy Dist.	SFCD5E	2.04	14.89	111
		from WCA 3	G-373	1.93	31.11	50
		from C-139 Basin	G-136	0.93	5.49	137
		Total		**33.25**	**216.69**	**124**

* The S-351 inflow and S-2 outflow sites serve the S2/S6 and S2/S7 sub-basins. The total is shown only once to avoid double-counting the data.

RULE 40E-63 BASIN COMPLIANCE MODEL (excerpt from Chapter 40E-63, F.A.C.)

To reflect the required 25% reduction, period of record (POR) TP loads are multiplied by 0.75 before performing the following regression:

$$\ln(L) = -7.998 + 2.868\ X + 3.020\ C - 0.3355\ S$$

[Explained Variance = 90.8%, Standard Error of Estimate = .183]

Predictors (X, C, S) are calculated from the first three moments (m_1, m_2, m_3) of the 12 monthly rainfall totals (r_i, I = 1, 12, inches) for the current year:

$m_1 =$ Sum $[r_i] / 12$

$m_2 =$ Sum $[r_i - m_1]^2 / 12$

$m_3 =$ Sum $[r_i - m_1]^3 / 12$

$X = \ln(12\ m_1)$

$C = [(12/11)\ m_2]^{0.5} / m_1$

$S = (12/11)\ m_3 / m_2^{\ 1.5}$

where,

L = 12-month load attributed to EAA Runoff, reduced by 25% (metric tons)

X = natural logarithm of 12-month total rainfall (inches)

C = coefficient of variation calculated from 12 monthly rainfall totals

S = skewness coefficient calculated from 12 monthly rainfall totals

The first predictor (X) indicates that load increases approximately with the cube of total annual rainfall. The second and third predictors (C & S) indicate that the load resulting from a given annual rainfall is higher when the distribution of monthly rainfall has higher variance or lower skewness. For a given annual rainfall, the lowest load occurs when rainfall is evenly distributed across months and the highest load occurs when all of the rain falls in one month. Real cases fall in between.

Compliance will be tracked by comparing the measured EAA Load with:

Target = $\exp[-7.998 + 2.868\ X + 3.020\ C - 0.3355\ S]$

Limit = Target $\exp(1.476\ SE\ F)$

SE = $0.1833\ [1 + 1/9 + 5.125\ (X-X_m)^2 + 17.613\ (C-C_m)^2 + 0.5309\ (S-S_m)^2 + 8.439\ (X-X_m)\ (C-C_m) - 1.284\ (X-X_m)\ (S-S_m) - 3.058\ (C-C_m)\ (S-S_m)]^{0.5}$

where,

m = subscript denoting average value of predictor in base period ($X_m = 3.866$, $C_m = 0.7205$, $S_m = 0.7339$)

Target = predicted load for future rainfall conditions (metric tons/yr)

Limit = upper 90% confidence limit for target (metric tons/yr)

SE = standard error of predicted ln(L) for May-April interval

F = factor to reflect variations in model standard error as a function of month (last in 12-month interval), calculated from base period:

Month:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
F:	1.975	1.609	1.346	1.000	1.440	1.238	1.321	2.045	2.669	2.474	2.420	2.216

Figure 1. Rule 40E-63, F.A.C. Appendix A3 excerpt, hydrologic adjustment and basin compliance mathematical equations to calculate annual TP reductions.

WY2007 EAA basin compliance TP load calculation

See 40E-63 Appendix A for "Target" equation

Month	**Rainfall**	(in)			
May	3.94	in	m_1 =	3.10	
June	4.69	in	m_2 =	8.38	
July	7.88	in	m_3 =	19.65	
August	8.92	in	X =	3.617	
September	5.35	in	C =	0.975	
October	0.67	in	S =	0.884	
November	0.95	in	SE =	0.2576	
December	1.79	in			
January	0.31	in	Target[1] TP Load =	136.9	mtons
February	0.94	in	Limit[2] TP Load =	200.2	mtons
March	0.19	in	Observed TP Load =	149.5	mtons
April	1.59	in	Predicted =	182.5	mtons
Total Rainfall	37.23	in	% Reduction =	18%	

Notes:

[1] Target load is adjusted for reduction in EAA land area (472339 ac./ 523721 ac.)
Target load calculation accounts for 25% reduction of baseline period loads

[2] Limit load in upper 90% confidence limit for Target

[3] Predicted load = Target load / (1 - 0.25)

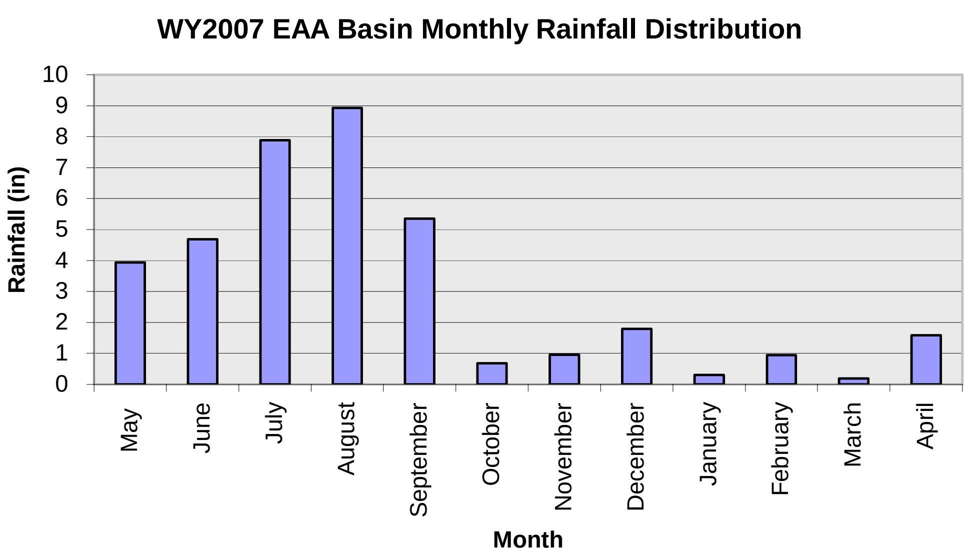

Figure 2. WY2007 EAA basin monthly rainfall totals, compliance calculation coefficients, and target load calculation.

Because rainfall and surface-water discharges vary with time and location throughout South Florida, an adjustment for these variations is made in the calculations. These hydrologic variabilities could be large enough to obscure measuring how effective the BMPs are in reducing phosphorus loads. In a dry year, for example, the total phosphorus discharged from the EAA may be very low, which leads to the question of whether this is because of the BMPs or less rain? The hydrologic adjustment attempts, to the greatest extent practicable, to factor out annual rainfall variations so one can directly compare any current year's phosphorus load with that of the 1979–1988 base period. The resulting mathematical equations predict what the average annual phosphorus load for the EAA during pre-BMP base period would have been if the annual rainfall and distribution measured for a current year had occurred during that base period. The percentage reduction is computed by comparing the current year's total phosphorus load with what the predicted average annual load of the base period would have been had the current year's rainfall pattern occurred during the pre-BMP base period.

Table 3 provides TP sampling statistics for all the locations monitored by the District for the C-139 basin during WY2007. Chapter 4 of this volume presents the annual flow, TP load, and FWM TP concentration for each structure (see Table 4-9 in Chapter 4 of this volume). The TP load compliance equations for the C-139 basin can be found in Rule 40E-63 and are not reproduced herein.

NON-ECP BASINS

During WY2007, 11 structures served as direct or indirect discharge points from non-ECP basins into the EPA. While eight of these structures are within the control of the District and are referred to as “INTO” structures under the non-ECP permit, this appendix also incorporates flow and TP data for the remaining three structures, ACME1, ACME2, and NSID1.

Appendix 3A-4 presents WY2007 water quality sampling statistics for these non-ECP basin discharge structures. This appendix summarizes the annual and total flow, TP load, and FWM TP concentration for each structure in **Table 4**. The table also summarizes the total flow, TP load, and FWM TP concentration for Water Conservation Areas 1, 2A, and 3A and Everglades National Park from non-ECP basins per water year and for the period of record.

Table 3. Summary statistics – WY2007 TP monitoring data for the C-139 basin.

Structure	Sampling Point	Sample Type	Number Sampled	Number Used	Min. (ppm)	Max. (ppm)	Number Flagged	Flow[1] Curve Rating
G-342A	G342A	Grab	51	10	0.033	0.451	0	Good
		Composite[2]	15	12	0.068	0.414	4	
G-342B	G342B	Grab	52	11	0.032	0.650	0	Good
		Composite[2]	12	12	0.097	0.632	4	
G-342C	G342C	Grab	42	4	0.042	0.810	0	Good
		Composite[2]	7	6	0.124	0.541	12	
G-342D	G342D	Grab	42	5	0.062	0.805	0	Good
		Composite[2]	9	9	0.087	0.260	0	
G-406	G406	Grab	7	4	0.080	0.557	0	Good
		Composite[2]	3	3	0.414	0.529	2	
G-136	G136	Grab	54	11	0.037	0.190	0	Poor [3]
		Composite[2]	14	10	0.041	0.223	0	

1 Flow Curve Rating: Discharge estimates derived from theoretical equations are within a range of expected values based on streamflow measurements used to calibrate the theoretical equations and are classified as: Excellent (< 5%), Good (< 10%), Fair (< 15%), or Poor (> 15%).

2 Composite samples could be time-proportional, flow-proportional, or a combination of the two.

3 Poor, based on experience with ratings at culverts with flashboards, but streamflow measurements are not sufficient to calibrate theoretical equations and the flow curve rating cannot adequately be determined.

Table 4. WY1998 through WY2007 non-ECP basin structure flow volume, TP load, and FWM TP concentration to the Everglades Protection Area (EPA) by tributary basin.

Non-ECP Basin Structures into Water Conservation Area 1 (WCA-1)												
	WY	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	***Total***
ACME1	Flow Vol. (kac-ft)	26.394	19.791	19.220	6.252	15.670	8.813	10.018	12.317	14.161	13.611	*146.247*
	TP Load (mt)	2.865	3.662	3.627	0.501	1.720	0.867	0.957	2.021	1.403	1.968	*19.591*
	TP FWMC (ppb)	88	150	153	65	89	80	77	133	80	117	*109*
ACME2	Flow Vol. (kac-ft)	20.898	16.943	19.790	7.696	17.524	9.469	9.871	11.246	12.767	12.711	*138.915*
	TP Load (mt)	2.604	3.616	3.320	1.111	3.286	1.387	1.227	2.948	1.832	2.217	*23.548*
	TP FWMC (ppb)	101	173	136	117	152	119	101	212	116	141	*137*
Total (WCA-1)	Flow Vol. (kac-ft)	47.292	36.734	39.010	13.948	33.194	18.282	19.889	23.563	26.928	26.322	*285.162*
	TP Load (mt)	5.469	7.278	6.947	1.612	5.006	2.254	2.184	4.969	3.235	4.185	*43.139*
	TP FWMC (ppb)	94	161	144	94	122	100	89	171	97	129	*123*
Non-ECP Basin Structures into Water Conservation Area 2A (WCA-2A)												
	WY	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	***Total***
NSID1 Total (WCA-2A)	Flow Vol. (kac-ft)	7.364	6.762	9.881	2.412	2.494	0.688	0	0.354	0	0	*29.955*
	TP Load (mt)	0.300	0.150	0.329	0.048	0.049	0.025*	0	0.009	0	0	*0.910*
	TP FWMC (ppb)	33	18	27	16	16	NDF	NF	20	NF	NF	*25*

* Load calculated from arithmetic mean concentration
NDF No data with flow
NF No flow for period

Table 4. Continued.

Non-ECP Basin Structures into Water Conservation Area 3 (WCA-3A)												
	WY	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	***Total***
S-190	Flow Vol. (kac-ft)	70.317	47.504	97.586	37.286	84.982	88.026	117.699	94.581	150.359	70.727	*859.067*
	TP Load (mt)	7.026	4.453	13.241	8.141	9.329	9.358	14.410	11.288	28.717	18.757	*124.720*
	TP FWMC (ppb)	81	76	110	177	89	86	99	97	155	215	*118*
S-140	Flow Vol. (kac-ft)	155.848	94.543	180.011	62.972	109.994	136.424	136.152	137.976	203.575	88.518	*1,306.013*
	TP Load (mt)	6.920	6.414	15.543	11.185	6.460	10.444	7.018	7.215	12.507	5.117	*88.823*
	TP FWMC (ppb)	36	55	70	144	48	62	42	42	50	47	*55*
G-123	Flow Vol. (kac-ft)	ND	ND	ND	38.379	52.047	0.000	2.299	0	0	0	*92.725*
	TP Load (mt)	ND	ND	ND	0.615	1.057	0.000	0.046	0	0	0	*1.718*
	TP FWMC (ppb)	ND	ND	ND	13	16	NF	16	NF	NF	NF	*15*
S-9	Flow Vol. (kac-ft)	250.350	221.585	273.612	172.045	283.618	264.301	149.708	93.403	128.470	42.459	*1,879.551*
	TP Load (mt)	5.250	5.193	10.125	4.881	6.716	5.580	3.387	2.140	3.055	0.999	*47.326*
	TP FWMC (ppb)	17	19	30	23	19	17	18	19	19	19	*20*
S-9A	Flow Vol. (kac-ft)	NO	NO	NO	NO	NO	NO	107.609	56.584	61.345	81.353	*306.891*
	TP Load (mt)	NO	NO	NO	NO	NO	NO	1.735	0.832	1.207	1.307	*5.081*
	TP FWMC (ppb)	NO	NO	NO	NO	NO	NO	13	12	16	13	*13*
Total (WCA-3A)	Flow Vol. (kac-ft)	476.515	363.632	551.209	310.682	530.641	488.694	513.467	382.544	543.749	283.056	*4,444.189*
	TP Load (mt)	19.196	16.060	38.909	24.822	23.562	25.129	26.596	21.475	45.486	26.180	*267.415*
	TP FWMC (ppb)	33	36	57	65	36	42	42	46	68	*75*	*49*

ND - No data / data incomplete for G-123 prior to WY2001
NF - No flow for period
NO - Structure not operational for period

Table 4. Continued.

Non-ECP Basin Structures into Everglades National Park (ENP)												
	WY	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	***Total***
S-174	Flow Vol. (kac-ft)	NA	NA	NA	8.917	13.967	6.337	5.483	30.059	9.203	0.001	*73.967*
	TP Load (mt)	NA	NA	NA	0.077	0.121	0.066	0.040	0.451	0.156	0.000	*0.910*
	TP FWMC (ppb)	NA	NA	NA	7	7	8	6	12	14	5	*10*
S-175	Flow Vol. (kac-ft)	28.490	17.047	97.537	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*143.074*
	TP Load (mt)	0.281	0.126	0.962	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*1.369*
	TP FWMC (ppb)	8	6	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*8*
S-18C	Flow Vol. (kac-ft)	226.424	127.267	193.256	151.696	172.835	134.932	158.813	100.689	188.505	80.357	*1,534.774*
	TP Load (mt)	2.793	1.884	1.907	1.684	1.525	1.200	1.845	0.988	3.298	0.693	*17.817*
	TP FWMC (ppb)	10	12	8	9	7	7	9	8	*14*	6.990	*9*
S-332	Flow Vol. (kac-ft)	160.029	107.189	199.949	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*467.167*
	TP Load (mt)	1.382	0.926	1.726	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*4.034*
	TP FWMC (ppb)	7	7	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	*7*
S-332D	Flow Vol. (kac-ft)	NO	NO	NO	NO	144.183	90.238	128.002	76.480	153.803	45.048	*637.754*
	TP Load (mt)	NO	NO	NO	NO	0.939	0.676	0.908	0.586	2.055	0.299	*5.463*
	TP FWMC (ppb)	NO	NO	NO	NO	5	6	6	6	11	5	*7*
Total (ENP)	Flow Vol. (kac-ft)	414.943	251.503	490.742	160.613	330.985	231.507	292.298	207.228	351.511	125.406	*2,856.737*
	TP Load (mt)	4.456	2.936	4.595	1.761	2.585	1.942	2.793	2.025	5.509	0.992	*29.593*
	TP FWMC (ppb)	9	9	8	9	6	7	8	8	13	*6*	*8*

N/A - Not applicable; flow and load calculation at S-175 and S-332 replaced in WY2001 with S-174 and S-332D
NO - Structure not operational for period