

FPL Turkey Point Uprate Monitoring Project
September 2014 Semiannual Sampling Event
SDG: Qtr 3 2014 SW

Parameter	Units	TPBBSW-3B		TPBBSW-4B		TPBBSW-5B		TPSWC-1T		TPSWC-1B		TPSWC-2T	
		09/11/2014		09/11/2014		09/11/2014		09/02/2014		09/02/2014		09/05/2014	
Temperature	°C	29.45		28.86		28.86		30.83		30.13		32.17	
pH	SU	8.13		8.06		7.74		7.55		7.23		7.91	
Dissolved Oxygen	mg/L	4.02		4.91		2.34		3.97		0.17		6.35	
Specific Conductance	µS/cm	56080		55486	J	56215		471	J	604	J	598	
Turbidity	NTU	0.55		0.23		0.47		0.77		8.1		0.66	
Silica, dissolved	mg/L												
Calcium	mg/L	436		421		455		82.4	J	48.8	J	52.4	
Magnesium	mg/L	1180	J-	1140	J	1200	J	8.4	J	6.5	J	7.41	
Potassium	mg/L	536	J+	528	J	554	J	3.48	J	2.83	J	2.73	
Sodium	mg/L	11400		11100		11400		47	J	31.9	J	51.4	
Boron	mg/L	4.96		4.91		5.21		0.0769		0.068		0.0655	
Strontium	mg/L	8.1		7.79		8.34		0.603		0.414		0.54	
Bromide	mg/L	73.5		73.2	J	73.8		0.193		0.243		0.265	
Chloride	mg/L	21200		21400	J	21800		59.2		82.6		101	
Fluoride	mg/L	0.98	J-	0.89	J	0.89		0.024	U	0.024	U	0.024	U
Sulfate	mg/L	2890		2760	J	2970		6.24		11.4		5.14	J
Total Ammonia	mg/L as N	0.0652	J	0.915	J	0.496	J	0.827		0.817		0.829	J
Ammonium ion (NH ₄ ⁺)	mg/L	0.0759	J	1.08	J	0.613	J	1.03		1.04		0.991	J
Unionized NH ₃	mg/L	0.0075	J	0.0875	J	0.0237	J	0.0295		0.0135		0.071	J
Nitrate/Nitrite	mg/L as N	0.5	U	0.5	U	0.5	U	0.1	U	0.1	U	0.5	U
TKN	mg/L	0.3	U	0.3	UJ	0.504		1.07		1.41		1.15	
TN	mg/L	0.800		0.800	J	1.004		1.170		1.510		1.650	
ortho-Phosphate	mg/L	0.105	UJ	0.105	UJ	0.105	UJ	0.0014	U	0.00415	I	0.07	UJ
Total Phosphorus (P)	mg/L	0.003	UJ	0.003	UJ	0.003	UJ	0.0129		0.0484		0.00803	IJ
Alkalinity	mg/L	131		127	J	151		130		146		124	
Bicarbonate Alkalinity	mg/L as CaCO ₃	159		154	J	184		159		178		151	
Sulfide	mg/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Total Dissolved Solids	mg/L												
Salinity	*	37.1		36.7	J	37.2		0.2	J	0.3	J	0.3	J
Tritium	pCi/L	11.4 (5.7)		7.1 (5.6)		12.7 (5.6)		84.0 (7.1)		55.9 (6.3)	J	161.3 (9.3)	

NOTE: Laboratory results are reported with 3 digits although only the first 2 are significant figures.

The results in blue represent data values that were not available at time of publication of the prior annual report.

¹Value is suspect based on comparisons with historic data from this station and expected ranges for that season substantially deviates fi

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Parameter	Units	TPSWC-2B		TPSWC-3T		TPSWC-3B		TPSWC-4T		091014-Dup		TPSWC-4B		TPSWC-5T		TPSWC-5B	
		09/05/2014		09/05/2014		09/05/2014		09/10/2014		09/10/2014		09/10/2014		09/10/2014		09/10/2014	
Temperature	°C	30.96		32.79		31.34		30.25				31.73		28.42		30.00	
pH	SU	7.48		7.80		7.41		7.67				7.61		8.03		7.97	
Dissolved Oxygen	mg/L	2.89		5.44		0.49		3.96				2.63		5.91		4.31	
Specific Conductance	µS/cm	601		680		1604		24228				43816		53420		57253	
Turbidity	NTU	0.89		0.13		1.3		4.05				2.94		0.45		0.26	
Silica, dissolved	mg/L																
Calcium	mg/L	55.7		54.2		64.4		266		271		377		400		454	
Magnesium	mg/L	7.71		7.55		20.7		494		497		888	J	1100	J-	1520	J
Potassium	mg/L	2.8		3.15		8.24		222		227		411	J	516	J+	583	J
Sodium	mg/L	50.8		63		183		4450		4490		8270		11100		11800	
Boron	mg/L	0.0647		0.0604		0.112		1.84		1.9		3.73		4.85		5.39	
Strontium	mg/L	0.54		0.578		0.701		4.47		4.58		6.85		7.86		8.86	
Bromide	mg/L	0.271		0.332		1.17		29.9		29.6		56.2		69		75.7	
Chloride	mg/L	96.9		123		372		8430		8310		15900		20200		21900	
Fluoride	mg/L	0.024	U	0.024	U	0.024	U	0.45		0.44		0.69		0.87		0.87	
Sulfate	mg/L	6.81	J	4.53	J	36.5		1060		1050		2130		2720		2940	
Total Ammonia	mg/L as N	0.812	J	1.12	J	0.713	J	0.975		1.2		1.12	J	0.0995	J	0.94	J
Ammonium ion (NH ₄ ⁺)	mg/L	1.02	J	1.36	J	0.896	J	1.21				1.39	J	0.119	J	1.12	J
Unionized NH ₃	mg/L	0.025	J	0.0787	J	0.0192	J	0.0437				0.0484	J	0.00868	J	0.0798	J
Nitrate/Nitrite	mg/L as N	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U J	0.5	U J-	0.5	U J
TKN	mg/L	1.13		1.24		1.15		1.37		1.27		0.768	J	0.336	I	0.414	J
TN	mg/L	1.630		1.740		1.650		1.870		1.770		1.268	J	0.836	J	0.914	J
ortho-Phosphate	mg/L	0.07	U J	0.07	U J	0.07	U J	0.07	U J	0.07	U	0.07	U J	0.07	U J	0.07	U J
Total Phosphorus (P)	mg/L	0.00872	I J	0.00745	I J	0.0103	J	0.00547	I J	0.00269	I	0.00395	I J	0.0022	U J	0.0022	U J
Alkalinity	mg/L	134		128		139		189		190		181		130		141	
Bicarbonate Alkalinity	mg/L as CaCO ₃	163		157		169		231		232		221		159		172	
Sulfide	mg/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Total Dissolved Solids	mg/L																
Salinity	*	0.3	J	0.3	J	0.8	J	14.6				28.1		35.2		38.0	
Tritium	pCi/L	128.4 (8.5)		119.2 (7.1)		85.9 (7.6)		145.8 (8.1)		128.3 (7.6)		64.6 (6.1)		22.5 (5.3)		20.2 (5.3)	

rom concurrent values for neighboring CCS monitoring stations.

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Parameter	Units	TPSWC-6T		TPSWC-6B		TPSWID-1T		TPSWID-1B		TPSWID-2T		TPSWID-2B		TPSWID-3T		TPSWID-3B	
		09/03/2014		09/03/2014		09/04/2014		09/04/2014		09/04/2014		09/04/2014		09/04/2014		09/04/2014	
Temperature	°C	26.00		26.16		32.48		31.43		32.08		29.94		31.32		31.53	
pH	SU	7.42		7.38		7.90		7.74		7.68		7.04		7.76		7.40	
Dissolved Oxygen	mg/L	0.93		0.95		9.14		6.60		6.69		1.80		6.79		3.00	
Specific Conductance	µS/cm	821		849		5584		5648		4226		6157		4403		8307	
Turbidity	NTU	0.14		0.06		1.07		0.52		0.86		1.51		0.61		1.09	
Silica, dissolved	mg/L																
Calcium	mg/L	86.2		83.4		141		144		131		178		121		151	
Magnesium	mg/L	9.98		10.4		82.4		85.5		57.9		79.2		59.2		121	
Potassium	mg/L	11.4		10.9		38		39.1		27.3		37.8		27.9		60.3	
Sodium	mg/L	59.3		64		770		787		575		844		541		1140	
Boron	mg/L	0.0855		0.0846		0.358		0.375		0.23		0.292		0.221		0.476	
Strontium	mg/L	0.984		0.956		1.75		1.78		1.59		2.15		1.41		1.95	
Bromide	mg/L	0.511		0.56		5.26		5.17		3.8		5.77		3.99		8.39	
Chloride	mg/L	112		128		1540		1550		1130		1810		1270		2400	
Fluoride	mg/L	0.11		0.11		0.14		0.15		0.12		0.13		0.14		0.17	
Sulfate	mg/L	52.4		58.8		166		168		116		160		119		291	
Total Ammonia	mg/L as N	0.646	J	0.465	J	0.534	J	0.472	J	0.898	J	1.16	J	0.794		0.587	J
Ammonium ion (NH ₄ ⁺)	mg/L	0.817	J	0.589	J	0.638	J	0.579	J	1.11	J	1.48	J	0.972		0.738	J
Unionized NH ₃	mg/L	0.0124	J	0.00824	J	0.0456	J	0.0268	J	0.0464	J	0.0123	J	0.0465		0.0157	J
Nitrate/Nitrite	mg/L as N	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.5	U	0.1	U	0.1	U
TKN	mg/L	0.3	U J	0.3	U J	0.656		0.702		0.644	J	0.902	J	0.904		0.66	
TN	mg/L	0.400	J	0.400	J	0.756		0.802		0.744	J	1.402	J	1.004		0.760	
ortho-Phosphate	mg/L	0.0014	U	0.0014	U	0.07	U J	0.07	U J	0.07	U J	0.07	U J	0.07	U J	0.07	U J
Total Phosphorus (P)	mg/L	0.00466	I	0.0022	U	0.0034	I J	0.0028	I J	0.0022	U J	0.00398	I J	0.00619	I J	0.00281	I J
Alkalinity	mg/L	192		197		282		292		246		292		229		226	
Bicarbonate Alkalinity	mg/L as CaCO ₃	234		241		344		356		300		357		279		276	
Sulfide	mg/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Total Dissolved Solids	mg/L																
Salinity	*	0.4	J	0.4	J	3.0		3.0		2.2		3.3		2.3		4.6	
Tritium	pCi/L	23.0 (4.1)		11.7 (3.7)		261.9 (10.6)		276.0 (11.4)		196.7 (9.3)	J	90.2 (6.4)	J	149.8 (7.9)	J	127.6 (7.5)	J

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Parameter	Units	090414-Dup		TPSWCCS-1B	
		09/04/2014		09/04/2014	
Temperature	°C			38.90	
pH	SU			7.65	
Dissolved Oxygen	mg/L			0.12	
Specific Conductance	µS/cm			118575	J
Turbidity	NTU			59.53	
Silica, dissolved	mg/L			10.5	J-
Calcium	mg/L	154		1120	J
Magnesium	mg/L	123		2560	J-
Potassium	mg/L	61.5		1360	J+
Sodium	mg/L	1170		26200	
Boron	mg/L	0.486		13.2	
Strontium	mg/L	1.98		23.9	
Bromide	mg/L	8.3		179	J
Chloride	mg/L	2390		52700	J
Fluoride	mg/L	0.16		0.89	J-
Sulfate	mg/L	325		7420	J
Total Ammonia	mg/L as N	0.707		0.882	
Ammonium ion (NH ₄ ⁺)	mg/L			1.06	
Unionized NH ₃	mg/L			0.0654	
Nitrate/Nitrite	mg/L as N	0.1	U	0.1	U J-
TKN	mg/L	0.616		13.4	
TN	mg/L	0.716		13.500	J
ortho-Phosphate	mg/L	0.07	U	0.07	U
Total Phosphorus (P)	mg/L	0.00277	I	0.0847	
Alkalinity	mg/L	236		220	J
Bicarbonate Alkalinity	mg/L as CaCO ₃	287		268	J
Sulfide	mg/L	0.1	U	0.1	U
Total Dissolved Solids	mg/L				
Salinity	*			88.3	J
Tritium	pCi/L	128.7 (7.4)	J	537.6 (515.2)	16

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Parameter	Units	TPSWCCS-2B		TPSWCCS-3B		TPSWCCS-4T		TPSWCCS-5T		TPSWCCS-7B		090214-EB		090314-FB		090414-FB1	
		09/05/2014		09/04/2014		09/04/2014		09/04/2014		09/04/2014		09/02/2014		09/03/2014		09/04/2014	
Temperature	°C	37.55		35.61		34.34		34.49		38.27							
pH	SU	7.70		7.67		7.72		7.72		7.69							
Dissolved Oxygen	mg/L	1.27		0.27		0.61		0.21		0.96							
Specific Conductance	µS/cm	120417	J	117724		120344	J	119703	J	119981	J						
Turbidity	NTU	60.18		54.82		56.48		57.78		61.78							
Silica, dissolved	mg/L	10	J	9.26	J	9.91	J	9.62	J	10.8	J	0.05	U	0.05	U	0.05	U
Calcium	mg/L	1170	J	1100		1110	J	1130	J	1120	J	0.1	U	0.577		0.1	U
Magnesium	mg/L	2630	J	2520	J	2560	J	2580	J	2590	J	0.02	U	0.02	U	0.0201	I
Potassium	mg/L	1380	J	1370	J	1420	J	1410	J	1360	J	0.19	U	0.19	U	0.19	U
Sodium	mg/L	26700	J	26900		26600	J	26000	J	26900	J	0.31	U	0.31	U	0.31	U
Boron	mg/L	14.3		13.4		13.8		13.6		13.5		0.01	U	0.01	U	0.01	U
Strontium	mg/L	24.9		24		24.8		24.5		23.8		0.001	U	0.001	U	0.001	U
Bromide	mg/L	185	J	183		188	J	182	J	187	J	0.013	U	0.013	U	0.013	U
Chloride	mg/L	53700	J	53700		53900	J	51700	J	52500	J	0.25	U	0.25	U	0.25	U
Fluoride	mg/L	0.86	J	0.86	J	0.84	J	0.84	J	0.87	J	0.024	U	0.024	U	0.024	U
Sulfate	mg/L	7190	J	7310		7480	J	6920	J	7180	J	0.25	U	0.389	I	0.25	U
Total Ammonia	mg/L as N	0.452	J	1.03		0.946		0.904		0.722		0.0677		0.0629		0.0653	
Ammonium ion (NH ₄ ⁺)	mg/L	0.545	J	1.26		1.15		1.1		0.869							
Unionized NH ₃	mg/L	0.0344	J	0.0651		0.0616		0.0594		0.0561							
Nitrate/Nitrite	mg/L as N	0.5	U	0.1	U J	0.1	U J	0.1	U J	0.1	U J	0.1	U	0.1	U	0.5	U
TKN	mg/L	2.82		12.4		3.98		3.38		12.8		0.15	U	0.15	U	0.15	U
TN	mg/L	3.320		12.500	J	4.080	J	3.480	J	12.900	J	0.250		0.250		0.650	
ortho-Phosphate	mg/L	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.0014	U	0.0014	U	0.07	U
Total Phosphorus (P)	mg/L	0.106		0.0863		0.0843		0.0852		0.0761		0.0022	U	0.0022	U	0.0022	U
Alkalinity	mg/L	227		222		224	J	214	J	219	J	1	U	1	U	1	U
Bicarbonate Alkalinity	mg/L as CaCO ₃	277		271		273	J	261	J	267	J	1	U	1	U	1	U
Sulfide	mg/L	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Total Dissolved Solids	mg/L											5	U			5	U
Salinity	*	90.2	J	87.9		90.4	J	89.7	J	89.7	J						
Tritium	pCi/L	280.5 (501.1)		14599.7 (447.8)		15350.8 (475.0)		15542.7 (452.4)		29659.2 (915)	Outlier ¹	6.5 (3.6)		-1.2 (3.4)	UJ	21.4 (5.4)	

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Parameter	Units	090514-FB1		091014-FB1		091114-FB1	
		09/05/2014		09/10/2014		09/11/2014	
Temperature	°C						
pH	SU						
Dissolved Oxygen	mg/L						
Specific Conductance	µS/cm						
Turbidity	NTU						
Silica, dissolved	mg/L	0.05	U	0.05	U	0.05	U
Calcium	mg/L	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	0.02	U	0.02	U	0.02	U
Potassium	mg/L	0.19	U	0.19	U	0.19	U
Sodium	mg/L	0.31	U	0.31	U	0.31	U
Boron	mg/L	0.01	U	0.01	U	10	U
Strontium	mg/L	0.001	U	0.001	U	1	U
Bromide	mg/L	0.013	U	0.013	U	0.013	U
Chloride	mg/L	0.575		0.25	U	0.25	U
Fluoride	mg/L	0.024	U	0.024	U	0.024	U
Sulfate	mg/L	1.96		0.25	U	0.25	U
Total Ammonia	mg/L as N	0.223		0.0554		0.0524	
Ammonium ion (NH ₄ ⁺)	mg/L						
Unionized NH ₃	mg/L						
Nitrate/Nitrite	mg/L as N	0.5	U	0.5	U	0.5	U
TKN	mg/L	0.15	U	0.15	U	0.15	U
TN	mg/L	0.650		0.650		0.650	
ortho-Phosphate	mg/L	0.0014	U	0.0014	U	0.0021	U
Total Phosphorus (P)	mg/L	0.0022	U	0.0022	U	0.003	U
Alkalinity	mg/L	1	U	1	U	1	U
Bicarbonate Alkalinity	mg/L as CaCO ₃	1	U	1	U	1	U
Sulfide	mg/L	0.1	U	0.1	U	0.1	U
Total Dissolved Solids	mg/L	5	U	5	U	5	U
Salinity	*						
Tritium	pCi/L	7.8 (5.9)		2.3 (5.0)	UJ	2.1 (5.5)	UJ

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Notes

Laboratory results are reported with 3 digits although only the first 2 are significant figures.

* PSS-78 salinity is unitless.

** Schemel, L.E., 2001. Simplified conversions between specific conductance and salinity units for use with data from monitoring stations. Interagency Ecological Program for the San Francisco Estuary Newsletter. 14(1):17-18.

Sample 091014-DUP is a duplicate of TPSWC-4T.

Sample 090414-DUP1 is a duplicate of TPSWID-3B.

Key

°C = Degrees Celsius.

µg/L = Microgram(s) per liter.

µmho/cm = Micromho(s) per centimeter.

µS/cm = MicroSiemen(s) per centimeter.

ABS = Absolute value.

CaCO₃ = Calcium carbonate.

DEP SOP = Department of Environmental Protection Standard Operating Procedure.

mg/L = Milligram(s) per liter.

N.A. = Not applicable.

NH₃ = Ammonia.

NH₄⁺ = Ammonium ion.

NTU = Nephelometric Turbidity Units(s).

pCi/L = PicoCuries per liter.

ppt = Parts per thousand.

PQL = Practical Quantitation Limit.

PSS-78 = Practical Salinity Scale of 1978.

RPD = Relative Percent Difference.

SC = Specific conductance.

SDG = Sample Delivery Group.

SU = Standard Unit(s).

TDS = Total Dissolved Solids.

TKN = Total Kjeldahl nitrogen.

TN = Total nitrogen.

TPBBSW = Turkey Point Biscayne Bay Surface Water

TPSWC = Turkey Point Surface Water Canal

TPSWID = Turkey Point Surface Water Interceptor Ditch

TPSWCCS = Turkey Point Surface Water Cooling Canal System

FPL Turkey Point Uprate Monitoring Project
September 2014 Semiannual Sampling Event
SDG: Qtr 3 2014 SW

Summary of Table Modifications					
Date of Original Document	Old Value	New Value	Reason	Date of Revision	Revision by
2/23/2015			added Tritium results	1/18/2016	JR