

December 19, 2019

Mark Justice Vice President Construction and Development Windsor 3125 Windsor Boulevard Vero Beach, Florida 32963

#### **RE:** Reclaimed Water Feasibility Study

Dear Mark:

Per your request, BGE, Inc. (BGE) has prepared the following analysis to supplement the CUP renewal application submitted to the St. Johns River Water Management District (SJRWMD). Specifically, the economic and environmental feasibility of adding reclaimed water high in Phosphorus and Nitrogen to the existing wet detention ponds located on Windsor property.

#### ENVIRONMENTAL FEASIBILITY

The Windsor development is a low-density single-family residential development located on the barrier island in Indian River County. Stormwater runoff from the development currently outfalls to the Indian River Lagoon, which has been classified as impaired waters by FDEP and is included in the Central Indian River Lagoon Basin Management Action Plan. The Windsor development was permitted in 1990 (permit # 18758-1) prior to SJRWMD requiring analysis of nutrient loading. To establish a baseline for comparison, the Total Maximum Daily Load (TMDL) for Nitrogen and Phosphorus were calculated. Using the development parameters from the ERP on file with SJRWMD, a TMDL analysis for Nitrogen and Phosphorus using data from the Harvey Harper report was completed and the results are summarized below.

Windsor 412-acre Development	Existing	After Removal in Wet Detention Ponds*
	kg/yr	kg/yr
Total Nitrogen (TN)	1250	750
Total Phosphorus (TP)	197	79

\*The existing wet detention ponds remove 40% of the total Nitrogen and 60% of the total Phosphorus.

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The second part of the analysis was to introduce reclaimed water high in Nitrogen and Phosphorus to the wet retention ponds and determine the potential increase in the nutrients being discharged to the Indian River Lagoon. The analysis assumed that the permitted yearly allocation for groundwater withdraw will be replaced by reclaimed water, therefore 58.4 MGY was used as the volume of reclaimed water to be added to the system. The concentrations of Nitrogen and Phosphorus were taken from a monthly monitoring report prepared by FDEP. The complete calculation is included with this report and the results are summarized below.

Windsor 412-acre Development	Existing	After Removal in Wet Detention Ponds*	Adding Reclaimed Water	% Increase
	kg/yr	kg/yr	kg/yr	
Total Nitrogen (TN)	1250	750	1039	38.5%
Total Phosphorus (TP)	197	79	203	256.9%

\*The existing wet detention ponds remove 40% of the total Nitrogen and 60% of the total Phosphorus.

The results show that adding reclaimed water to the existing wet ponds will increase the TMDL for nitrogen and phosphorus being discharged to the Indian River Lagoon during storm events. Increasing the Phosphorus and Nitrogen discharges to the Indian River Lagoon can cause algal blooms and negatively impact the growth of seagrass in the lagoon basin and directly conflicts with the goals of the Central Indian River Lagoon Basin Management Action Plan as adopted in February of 2013 by the Florida Department of Environmental Protection.

#### ECONOMIC FEASIBILITY

The existing force main used to distribute reclaimed water will need to be extended approximately 3,000 linear feet north on State Road A1A to bring the reclaimed water into the appropriate stormwater pond on the Windsor property. In addition, the stormwater pond receiving the reclaimed water will need to be dewatered, isolated, and lined to prevent groundwater contamination. The costs associated with these modifications are significant and do not make the project economically feasible.

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We appreciate the opportunity to assist you with this project. Please let me know if you have any questions.

Sincerely,

BGE, Inc.

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James G. Vitter II, P.E. Vice President

Enclosures: Calculations References

# Windsor (Reclaimed Water)

**Nutrient Loading Analysis** 

## Existing Development

TN concentration =	2.07 mg/L
TP concentration =	0.327 mg/L

Land Use =	Single Family	Pervious (Non-DCIA) CN =	39
Site Area (A) (acres)=	412		
Hydrologic Soil Group =	А	Meteorological Zone (Indian River Cnty)	Zone 2
Impervious Area % =	29.8%	Annual Rainfall Rate (in/year of rainfall)	54

Determine the annual runoff coefficient using Appendix C (FDEP Stormwater Treatment Report)

c = 0.264

Calculate Annual Runoff Volume (V)

V =	С	х	А	х	rainfall	x 1ft/12in
V =	0.264	х	412	х	54	x 1ft/12in
V =	489.46	ac-ft/yr				

#### Calculate Total Nitrogen Loading (TN)

TN =	V	х	TN concent.	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TN =	489.46	х	2.07	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TN =	1249.51	kg/yr		

#### Calculate Total Phophorus Loading (TP)

TP =	V	х	TP concent.	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TP =	489.46	х	0.327	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TP =	197.39	kg/yr		

## Adding Reclaimed Water

Weekly Average Concentration Le	evels in Reclaimed Water
TN concentration =	2.18 mg/L
TP concentration =	1.4 mg/L

Approximate Reclaimed Water Volume Usage (V)

If reclaimed water will replace the groundwater from the Floridan Aquifer, the total yearly allocation of groundwater will be assumed for reclaimed volume (58.4 MGY)

## Approximate Volume of reclaimed water per year =

179.2 ac-ft

Calculate Total Nitrogen Loading (TN)

TN =	V	х	TN concent.	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TN =	179.20	х	2.18	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TN =	481.78	kg/yr		

## Windsor (Reclaimed Water) Nutrient Loading Analysis

### Calculate Total Phophorus Loading (TP)

TP =	V	х	TP concent.	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TP =	179.20	х	1.4	mg/L x 43560cf/ac x 7.48gal/cfx3.79L/galx1kg/10 <sup>6</sup> mg
TP =	309.40	kg/yr		

## <u>Results</u>

	Existing	Reclaimed Water	Total
	kg/yr	kg/yr	kg/yr
Total Nitrogen (TN)	1250	482	1731
Total Phosphorus (TP)	197	309	507

The existing wet detentin ponds remove approximately 40% of the Total Nitrogen and 60% of the Total Phosphorus; therefore,

				Adding		
	Existing	After Removal kg/yr mg/L		Reclaime	d Water	
	kg/yr			kg/yr	mg/L	
Total Nitrogen (TN)	1250	750	1.53	1039	1.55	
Total Phosphorus (TP)	197	79 0.16		203	0.30	

## Zone 2 Mean Annual Runoff Coefficients (C Values) as a Function of DCIA Percentage and Non-DCIA Curve Number (CN)

NDCIA										Pe	rcent D	CIA									
CN	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	0.002	0.043	0.083	0.123	0.164	0.204	0.244	0.285	0.325	0.366	0.406	0.446	0.487	0.527	0.567	0.608	0.648	0.688	0.729	0.769	0.809
35	0.004	0.044	0.085	0.125	0.165	0.205	0.246	0.286	0.326	0.366	0.407	0.447	0.487	0.528	0.568	0.608	0.648	0.689	0.729	0.769	0.809
40	0.007	0.047	0.087	0.127	0.167	0.207	0.248	0.288	0.328	0.368	0.408	0.448	0.488	0.528	0.569	0.609	0.649	0.689	0.729	0.769	0.809
45	0.010	0.050	0.090	0.130	0.170	0.210	0.250	0.290	0.330	0.370	0.410	0.450	0.490	0.530	0.570	0.610	0.650	0.690	0.729	0.769	0.809
50	0.015	0.055	0.095	0.134	0.174	0.214	0.254	0.293	0.333	0.373	0.412	0.452	0.492	0.531	0.571	0.611	0.651	0.690	0.730	0.770	0.809
55	0.022	0.061	0.101	0.140	0.179	0.219	0.258	0.298	0.337	0.376	0.416	0.455	0.494	0.534	0.573	0.613	0.652	0.691	0.731	0.770	0.809
60	0.030	0.069	0.108	0.147	0.186	0.225	0.264	0.303	0.342	0.381	0.420	0.459	0.498	0.537	0.576	0.615	0.654	0.693	0.731	0.770	0.809
65	0.042	0.080	0.119	0.157	0.195	0.234	0.272	0.311	0.349	0.387	0.426	0.464	0.502	0.541	0.579	0.618	0.656	0.694	0.733	0.771	0.809
70	0.057	0.095	0.133	0.170	0.208	0.245	0.283	0.321	0.358	0.396	0.433	0.471	0.509	0.546	0.584	0.621	0.659	0.697	0.734	0.772	0.809
75	0.079	0.116	0.152	0.189	0.225	0.262	0.298	0.335	0.371	0.408	0.444	0.481	0.517	0.554	0.590	0.627	0.663	0.700	0.736	0.773	0.809
80	0.111	0.146	0.181	0.216	0.251	0.285	0.320	0.355	0.390	0.425	0.460	0.495	0.530	0.565	0.600	0.635	0.670	0.705	0.740	0.774	0.809
85	0.160	0.192	0.225	0.257	0.290	0.322	0.355	0.387	0.420	0.452	0.485	0.517	0.550	0.582	0.614	0.647	0.679	0.712	0.744	0.777	0.809
90	0.242	0.270	0.299	0.327	0.355	0.384	0.412	0.440	0.469	0.497	0.526	0.554	0.582	0.611	0.639	0.667	0.696	0.724	0.753	0.781	0.809
95	0.404	0.424	0.444	0.464	0.485	0.505	0.525	0.546	0.566	0.586	0.606	0.627	0.647	0.667	0.688	0.708	0.728	0.749	0.769	0.789	0.809
98	0.595	0.605	0.616	0.627	0.638	0.648	0.659	0.670	0.680	0.691	0.702	0.713	0.723	0.734	0.745	0.756	0.766	0.777	0.788	0.799	0.809

-				KONMENTAL		JI DISCHARC	E MONTOR	ING KEPUKI				
PERMITTEE NAME:		ty Utilities Department	t (IRCUD)					PERMIT NU	MBER:	FL004163	7	
ADDRESS:	1801 27th St							LIMIT:		FINAL I	REPORT: Monthly	
	Vero Beach, FL 32	2960						FACILITY 7	TYPE:	DW (	GROUP: Domestic	
								MONITORI	NG GROUP:	D-001		
FACILITY:	IRCUD/West Reg	ional WWTF										
LOCATION:	8405 8th St							DESCRIPTI	ON:	Outfall to I	Lateral "D" Canal	
	Vero Beach, FL 32	2968										
COUNTY:	INDIAN RIVER							MONITORI	NG PERIOD:	From: 05/0	01/2019 To: 05/31/201	9
											Frequency	
Param	eter		Quantity (	or Loading	Units	Qualif	y or Concent	ration	Units	No.	of	Sample
I uI uIII	cter		Quantity	Douding	Cints	Quan	ly of concent	a unon	Cinto	Ex.	Analysis	Туре
											Anarysis	
		a I										Recording
Flow		Sample		0.031						0	1 Continuous	Flow Meter
11000		Measurement		01001						v		with
												Totalizer
DADM Cada 5005	0 V	D										(Recording
PARM Code 5005		Permit		4.0	MGD						(1 Continuous)	Flow Meter
Mon. Site: FLW-5	5	Requirement		(Annl Avg)	-						(,	with
						-				-		Totalizer)
		Samula										Recording
Flow		Sample		0.0						0	1 Continuous	Flow Meter
		Measurement								-		with Totalizer
PARM Code 5005	0 1	Permit		_								(Recording
				Report	MGD						(1 Continuous)	Flow Meter
Mon. Site: FLW-5	)	Requirement		(Mo Avg)							, , ,	with
												Totalizer)
	5 1 200	Sample					1.0			•	4 337 1 1	24-hr Flow
BOD, Carbonaceo	ous 5 day, 20C	Measurement					1.0			0	1 Weekly	Proportioned
		inited but childhe										Composite
PARM Code 8008	32 Y	Permit					3.0		_			(24-hr Flow
Mon. Site: WEP-1		Requirement					(Annl Avg)		mg/L		(1 Weekly)	Proportioned
	-	Requirement					(					Composite)
		Sample										24-hr Flow
BOD, Carbonaceo	ous 5 day, 20C	Measurement				NOD	NOD	NOD		0	1 Weekly	Proportioned
		wieasurement										Composite
PARM Code 8008	27 P	Permit				6.0	4.5	2.75				(24-hr Flow
Mon. Site: WEP-1						6.0 (Maximum)	4.5 (Wkly Avg)	3.75 (Mo Avg)	mg/L		(1 Weekly)	Proportioned
MOII. SILE. WEP-I	-	Requirement				(maximulli)	(Why Avg)	(MOAvg)				Composite)

Parameter		Quantity o	or Loading	Units	Qualit	ty or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Solids, Total Suspended	Sample Measurement					1.0			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00530 Y Mon. Site: WEP-1	Permit Requirement					3.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Solids, Total Suspended	Sample Measurement				NOD	NOD	NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00530 P Mon. Site: WEP-1	Permit Requirement				6.0 (Maximum)	4.5 (Wkly Avg)	3.75 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Coliform, Fecal	Sample Measurement						NOD		0	1 Weekly	Grab
PARM Code 74055 P Mon. Site: WEP-1	Permit Requirement						Report (Maximum)	#/100mL		(1 Weekly)	(Grab)
рН	Sample Measurement				NOD		NOD		0	1 Continuous	Meter
PARM Code 00400 P Mon. Site: WEP-1	Permit Requirement				6.0 (Minimum)		8.5 (Maximum)	s.u.		(1 Continuous)	(Meter)
Nitrogen, Total	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00600 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)

Parameter		Quantity o	or Loading	Units	Qualit	y or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Nitrogen, Total	Sample Measurement		0.0						0	1 Monthly	Calculated
PARM Code 00600 Y Mon. Site: WEP-1	Permit Requirement		2838.0 (Annl Avg)	lb/yr						(1 Monthly)	(Calculated)
Nitrogen, Total	Sample Measurement	NOD	NOD						0	1 Monthly	Calculated
PARM Code 00600 Q Mon. Site: WEP-1	Permit Requirement	50.0 (Mx Wk Av)	66.7 (Mx Da Av)	lb/day						(1 Monthly)	(Calculated)
Nitrogen, Total	Sample Measurement		NOD						0	1 Monthly	Calculated
PARM Code 00600 R Mon. Site: WEP-1	Permit Requirement		41.7 (Mx Mo Av)	lb/day						(1 Monthly)	(Calculated)
Nitrogen, Kjeldahl, Total (as N)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00625 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Nitrite plus Nitrate, Total 1 det. (as N)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00630 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)

Parameter		Quantity of	or Loading	Units	Qualit	y or Concen	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Nitrogen, Ammonia, Total (as N)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00610 P Mon. Site: WEP-1	Permit Requirement						Report (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Nitrogen, Ammonia, Total unionized (as N)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00612 P Mon. Site: WEP-1	Permit Requirement						0.02 (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Phosphorus, Total (as P)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00665 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Phosphorus, Total (as P)	Sample Measurement		0.0						0	1 Monthly	Calculated
PARM Code 00665 Y Mon. Site: WEP-1	Permit Requirement		159.0 (Annl Avg)	lb/yr						(1 Monthly)	(Calculated)
Phosphorus, Total (as P)	Sample Measurement	NOD	NOD						0	1 Monthly	Calculated
PARM Code 00665 Q Mon. Site: WEP-1	Permit Requirement	5.0 (Mx Wk Av)	6.7 (Mx Da Av)	lb/day						(1 Monthly)	(Calculated)

Parameter		Quantity of	or Loading	Units	Qualit	y or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Phosphorus, Total (as P)	Sample Measurement		NOD						0	1 Monthly	Calculated
PARM Code 00665 R Mon. Site: WEP-1	Permit Requirement		4.2 (Mx Mo Av)	lb/day						(1 Monthly)	(Calculated)
Phosphate, Ortho (as P)	Sample Measurement						NOD		0	1 Weekly	Grab
PARM Code 70507 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(Grab)
Chloride (as Cl)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00940 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Alkalinity, Total (as CaCO3)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00410 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Temperature (C), Water	Sample Measurement						NOD		0	1 Monthly	4 grabs/24 hr.period
PARM Code 00010 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	Deg C		(1 Monthly)	(4 grabs/24 hr.period)

Parameter		Quantity or Loading Units Quantity			Quali	ty or Concen	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Oxygen, Dissolved (DO)	Sample Measurement						NOD		0	1 Monthly	4 grabs/24 hr.period
PARM Code 00300 P Mon. Site: WEP-1	Permit Requirement						Report (Mo Avg)	mg/L		(1 Monthly)	(4 grabs/24 hr.period)
Specific Conductance	Sample Measurement						NOD		0	1 Monthly	Grab
PARM Code 00095 P Mon. Site: WEP-1	Permit Requirement						1890.0 (Maximum)	umhos/cm		(1 Monthly)	(Grab)
Flow	Sample Measurement		2.066						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 P Mon. Site: FLW-1	Permit Requirement		6.0 (Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow	Sample Measurement	2.005	2.112						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 Q Mon. Site: FLW-1	Permit Requirement	Report (Mo Avg)	Report (3MonAvg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Percent Capacity, (TMADF/Permitted Capacity) x 100	Sample Measurement						35		0	1 Continuous	Calculated
PARM Code 00180 G Mon. Site: INF-1	Permit Requirement						Report (3MonAvg)	percent		(1 Continuous)	(Calculated)

Parameter		Quantity of	or Loading	Units	Qualit	ty or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type	
BOD, Carbonaceous 5 day, 20C	Sample Measurement						253		0	1 Weekly	24-hr Flow Proportioned Composite	
PARM Code 80082 G Mon. Site: INF-1	Permit Requirement						Report (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)	
Solids, Total Suspended	Sample Measurement						316		0	1 Weekly	24-hr Flow Proportioned Composite	
PARM Code 00530 G Mon. Site: INF-1	Permit Requirement						Report (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)	
Flow	Sample Measurement		2.11						0	1 Continuous	Recording Flow Meter with Totalizer	
PARM Code 50050 R Mon. Site: FLW-2	Permit Requirement		Report (Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)	
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER   I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY   SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER   TELEPHONE   SUBMITTED     OR AUTHORIZED AGENT   DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFED PERSONNEL   OR AUTHORIZED AGENT   OR AUTH												

Parameter	Monitoring Site	Comments for Monitoring Group - D-001
50050 1	FLW-5	No discharge to the surface water through D-001 during May 2019.

PERMITTEE NAME:		ty Utilities Department	(IRCUD)				PERMIT NUM		L0041637	DEDODT.	Mandal 1	
ADDRESS:	1801 27th St	20.50					LIMIT:		FINAL	REPORT:		
	Vero Beach, FL 32	2960					FACILITY TY		<b>D</b> W	GROUP:	Domest	iic
							MONITORIN	G GROUP: I	0-002			
FACILITY:	IRCUD/West Regi	ional WWTF										
LOCATION:	8405 8th St						DESCRIPTIO	N: V	ista Golf Cours	e Managem	ent and Storage of Sur	face Waters
	Vero Beach, FL 32	2968						(	MSSW) Pond O	utfall		
COUNTY:	INDIAN RIVER											
MONITORING PERIOD: From: 05/01/2019 To: 05/31/2019							2019					
Parameter			Quantity of	or Loading	Units	Qualit	ty or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Overflow Use, Oc	curances	Sample Measurement		MNR						0	1 Daily; 24 hours	Calculated
PARM Code 7406	52 P	Permit		Report								
Mon. Site: OTH-1		Requirement		(Mo Total)	#/mth						(1 Daily; 24 hours)	(Calculated)
Mon. Site. OIII-1		Kequirement		(1010 10111)								
NAME/TITLE PRINCIPAL E OR AUTHORIZED AGENT										. EXECUTIVE	OFFICER TELEPHONE	SUBMITTED ON
OK AUTHORIZED AUENT	PROPERLY GATHERED AND EVALUATED THE INFORMATION								HORIZED AGENT			
Eric Charest		ERSONS WHO MANAGE TH							cally Signed		(772) 226-1822	06/25/2019
		HE INFORMATION SUBMIT M AWARE THAT THERE										
		OSSIBILITY OF FINE AND IN										

ADDRESS: 1801 2	River County Utilities Department 7th St each, FL 32960	(IRCUD)					PERMIT NUM LIMIT: FACILITY TY			PORT: Monthly OUP: Domestic	
LOCATION: 8405 8	D/West Regional WWTF th St each, FL 32968						MONITORIN DESCRIPTIO				
COUNTY: INDIA	N RIVER	1	i				MONITORIN	G PERIOD:	From: 05/01/	2019 To: 05/31/2019	
Parameter		Quantity or Lo	oading	Units	Qualit	y or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement	(	0.898						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 Y Mon. Site: CAL-1	Permit Requirement	(Ai	4.0 Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow	Sample Measurement		0.95						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 P Mon. Site: CAL-1	Permit Requirement		Report Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow	Sample Measurement		0.873						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 1 Mon. Site: FLW-4	Permit Requirement	(Ai	4.0 Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow	Sample Measurement		0.95						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 Q Mon. Site: FLW-4	Permit Requirement		Report Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)

Parameter		Quantity of	or Loading	Units	Quali	ty or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement		0.025						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 R Mon. Site: FLW-3	Permit Requirement		2.0 (Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow	Sample Measurement		0.00						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 S Mon. Site: FLW-3	Permit Requirement		Report (Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
BOD, Carbonaceous 5 day, 20C	Sample Measurement					1.0			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 80082 Y Mon. Site: EFA-1	Permit Requirement					10.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
BOD, Carbonaceous 5 day, 20C	Sample Measurement				<2.0	1.0	1.0		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 80082 A Mon. Site: EFA-1	Permit Requirement				20.0 (Maximum)	15.0 (Wkly Avg)	12.5 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Solids, Total Suspended	Sample Measurement					0.66			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00530 Y Mon. Site: EFA-1	Permit Requirement					10.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)

Parameter		Quantity of	or Loading	Units	Qualit	ty or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Solids, Total Suspended	Sample Measurement				<1.0	0.5	0.5		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00530 A Mon. Site: EFA-1	Permit Requirement				20.0 (Maximum)	15.0 (Wkly Avg)	12.5 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Coliform, Fecal	Sample Measurement					0.74			0	1 Weekly	Grab
PARM Code 74055 Y Mon. Site: EFA-1	Permit Requirement					200.0 (Annl Avg)		#/100mL		(1 Weekly)	(Grab)
Coliform, Fecal	Sample Measurement					0.5	<1.0		0	1 Weekly	Grab
PARM Code 74055 A Mon. Site: EFA-1	Permit Requirement					200.0 (Mo Geomn)	800.0 (Maximum)	#/100mL		(1 Weekly)	(Grab)
рН	Sample Measurement				6.41		7.95		0	1 Continuous	Meter
PARM Code 00400 A Mon. Site: EFA-1	Permit Requirement				6.0 (Minimum)		8.5 (Maximum)	s.u.		(1 Continuous)	(Meter)
Chlorine, Total Residual	Sample Measurement				0.79				0	1 Continuous	Meter
PARM Code 50060 A Mon. Site: EFA-1	Permit Requirement				0.5 (Minimum)			mg/L		(1 Continuous)	(Meter)

Parameter		Quantity of	or Loading	Units	Qualit	ty or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Nitrogen, Total	Sample Measurement					3.45			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00600 Y Mon. Site: EFA-1	Permit Requirement					6.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Nitrogen, Total	Sample Measurement				4.4	2.18	1.93		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00600 A Mon. Site: EFA-1	Permit Requirement				12.0 (Maximum)	9.0 (Wkly Avg)	7.5 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Phosphorus, Total (as P)	Sample Measurement					0.307			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00665 Y Mon. Site: EFA-1	Permit Requirement					0.75 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Phosphorus, Total (as P)	Sample Measurement				1.5	1.4	0.82		1	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00665 A Mon. Site: EFA-1	Permit Requirement				1.5 (Maximum)	1.125 (Wkly Avg)	0.94 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
OR AUTHORIZED AGENT	CERTIFY UNDER PENAL DIRECTION OR SUPERVISI PROPERLY GATHERED AN PERSONS WHO MANAGE TI THE INFORMATION SUBMI AM AWARE THAT THERE POSSIBILITY OF FINE AND D	ON IN ACCORDA D EVALUATED T HE SYSTEM, OR TH TTED IS, TO THE ARE SIGNIFICA	NCE WITH A SYS HE INFORMATION HOSE PERSONS DI BEST OF MY KNC NT PENALTIES I	TEM DESIGNED N SUBMITTED. BA RECTLY RESPON WLEDGE AND BI FOR SUBMITTING	TO ASSURE THAT ASED ON MY INQ SIBLE FOR GATHE ELIEF, TRUE, ACC	CQUALIFIED PER UIRY OF THE PER RING THE INFORM URATE AND COM	SONNEL OR AUT SON OR MATION, Electronic PLETE. I	URE OF PRINCIPA HORIZED AGENT cally Signed	L EXECUTIV	COFFICER TELEPHONE	

Parameter	Monitoring Site	Comments for Monitoring Group - R-001
00665 A	EFA-I	Weekly Average result exceeded permit limits for Total Phosphorus going into the Wetlands. No discharge from the Wetlands occurred during this month and Wetlands water quality monitoring does not show any adverse effects from this weekly exceedance.

PERMITTEE NAME: ADDRESS: FACILITY: LOCATION: COUNTY:	Indian River Cour 1801 27th St Vero Beach, FL 3 IRCUD/West Reg 8405 8th St Vero Beach, FL 3 INDIAN RIVER	ity Utilities Departmen 2960 ional WWTF				<u>A DISCHARC</u>		PERMIT NU LIMIT: FACILITY 1 MONITORII DESCRIPTI	'MBER: 'YPE: NG GROUP: ON:	DW ( R-002 Public acco	REPORT: Monthly GROUP: Domestic	
Param	eter		Quantity of	or Loading	Units	Qualit	ty or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Flow		Sample Measurement		1.299						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 5005 Mon. Site: FLW-6		Permit Requirement		6.97 (Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow		Sample Measurement		1.16						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 5005 Mon. Site: FLW-6		Permit Requirement		Report (Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
BOD, Carbonaceo	ous 5 day, 20C	Sample Measurement					1.0			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 8008 Mon. Site: EFA-1	32 Y	Permit Requirement					20.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
BOD, Carbonaceo	ous 5 day, 20C	Sample Measurement				<2.0	1.0	1.0		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 8008 Mon. Site: EFA-1	32 A	Permit Requirement				60.0 (Maximum)	45.0 (Wkly Avg)	30.0 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)

Parameter		Quantity	or Loading	Units	Qualit	y or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Solids, Total Suspended	Sample Measurement						1.70		0	4 Days/Week	Grab
PARM Code 00530 B Mon. Site: EFB-1	Permit Requirement						5.0 (Maximum)	mg/L		(4 Days/Week)	(Grab)
Coliform, Fecal	Sample Measurement	t			<1.0		<1.0		0	4 Days/Week	Grab
PARM Code 74055 A Mon. Site: EFA-1	Permit Requirement					25.0 (Maximum)	#/100mL		(4 Days/Week)	(Grab)	
Coliform, Fecal, % less than detection	Sample Measurement				100				0	4 Days/Week	Calculated
PARM Code 51005 A Mon. Site: EFA-1	Permit Requirement				75.0 (MinTotMo)			percent		(4 Days/Week)	(Calculated)
рН	Sample Measurement				6.41		7.95		0	1 Continuous	Meter
PARM Code 00400 A Mon. Site: EFA-1	Permit Requirement				6.0 (Minimum)		8.5 (Maximum)	s.u.		(1 Continuous)	(Meter)
Chlorine, Total Residual	Sample Measurement				1.00				0	1 Continuous	Meter
PARM Code 50060 A Mon. Site: EFA-1	Permit Requirement				1.0 (Minimum)			mg/L		(1 Continuous)	(Meter)

Parameter		Quantity o	or Loading	Units	Qualit	ty or Concen	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Turbidity	Sample Measurement						2.17		0	1 Continuous	Meter
PARM Code 00070 B Mon. Site: EFB-1	Permit Requirement						Report (Maximum)	NTU		(1 Continuous)	(Meter)
Nitrogen, Nitrate, Total (as N)	Sample Measurement						2.7		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00620 A Mon. Site: EFA-1	Permit Requirement						Report (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Nitrogen, Total	Sample Measurement						4.4		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00600 A Mon. Site: EFA-1	Permit Requirement						Report (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Phosphorus, Total (as P)	Sample Measurement						1.5		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00665 A Mon. Site: EFA-1	Permit Requirement						Report (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Flow	Sample Measurement		NOD						0	1 Continuous	Meter
PARM Code 50050 P Mon. Site: FLW-8	Permit Requirement		Report (Mo Avg)	MGD						(1 Continuous)	(Meter)

Parameter		Quantity o	or Loading	Units	Qualit	y or Concen	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement		0.0						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 Q Mon. Site: FLW-7	Permit Requirement		1.5 (Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow	Sample Measurement		NOD						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 50050 R Mon. Site: FLW-7	Permit Requirement		Report (Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Solids, Total Suspended	Sample Measurement						NOD		0	4 Days/Week	Grab
PARM Code 00530 P Mon. Site: EFB-2	Permit Requirement						5.0 (Maximum)	mg/L		(4 Days/Week)	(Grab)
Coliform, Fecal	Sample Measurement						NOD		0	4 Days/Week	Grab
PARM Code 74055 P Mon. Site: EFA-2	Permit Requirement						25.0 (Maximum)	#/100mL		(4 Days/Week)	(Grab)
Coliform, Fecal, % less than detection	Sample Measurement				NOD				0	4 Days/Week	Calculated
PARM Code 51005 P Mon. Site: EFA-2	Permit Requirement				75.0 (MinTotMo)			percent		(4 Days/Week)	(Calculated)

Parameter		Quantity o	or Loading	Units	Qualit	ty or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Chlorine, Total Residual	Sample Measurement				NOD				0	1 Continuous	Meter
PARM Code 50060 P Mon. Site: EFA-2	Permit Requirement				Report (Minimum)			mg/L		(1 Continuous)	(Meter)
рН	Sample Measurement				NOD		NOD		0	1 Continuous	Meter
PARM Code 00400 P Mon. Site: EFA-2	Permit Requirement				6.0 (Minimum)		8.5 (Maximum)	s.u.		(1 Continuous)	(Meter)
Turbidity	Sample Measurement						NOD		0	1 Continuous	Meter
PARM Code 00070 P Mon. Site: EFB-2	Permit Requirement						Report (Maximum)	NTU	(1 Continuous)	(Meter)	
OR AUTHORIZED AGENT	IR   I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY   SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER   TELEPHONE   SUBMITTE     DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL   OR AUTHORIZED AGENT   OR AUTHORIZED AGENT   OR AUTHORIZED AGENT   SUBMITTE     PROPERLY GATHERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON WY INQUIRY OF THE PERSON OR   OR AUTHORIZED AGENT   OR AUTHORIZED AGENT   OR (72) 226-1822   06/25/2019     THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I   AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE   IECHTONICALLY SIGNED   (77) 226-1822   06/25/2019     POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.   FINFORMATION, INCLUDING THE   IECHTONICALLY PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE   IECHTONICALLY SIGNED   (77) 226-1822   06/25/2019									UBMITTED ON 6/25/2019	

ADDRESS: FACILITY:	1801 27th St Vero Beach, FL 3 IRCUD/West Reg	ro Beach, FL 32960 CUD/West Regional WWTF 05 8th St							MBER: TYPE: NG GROUP:	FL0041637 FINAL F DW C R-003		
LOCATION:	8405 8th St Vero Beach, FL 3	2968						DESCRIPTI	ON:	On-site rap	id infiltration basins	
COUNTY:	INDIAN RIVER	1				•		MONITORI	NG PERIOD:	From: 05/0	1/2019 To: 05/31/201	9
Param	eter		Quantity of	or Loading	Units	Qualit	ty or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Flow		Sample Measurement		0.0						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 5005 Mon. Site: CAL-2		Permit Requirement		0.1 (Annl Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
Flow		Sample Measurement		0.0						0	1 Continuous	Recording Flow Meter with Totalizer
PARM Code 5005 Mon. Site: CAL-2		Permit Requirement		Report (Mo Avg)	MGD						(1 Continuous)	(Recording Flow Meter with Totalizer)
BOD, Carbonaceo	ous 5 day, 20C	Sample Measurement					0.0			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 8008 Mon. Site: EFA-1	32 Y	Permit Requirement					20.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
BOD, Carbonaceo	ous 5 day, 20C	Sample Measurement				NOD	NOD	NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 8008 Mon. Site: EFA-1	32 A	Permit Requirement				60.0 (Maximum)	45.0 (Wkly Avg)	30.0 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)

Parameter		Quantity o	or Loading	Units	Qualit	ty or Concent	tration	Units	No. Ex.	Frequency of Analysis	Sample Type
Solids, Total Suspended	Sample Measurement					0.0			0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00530 Y Mon. Site: EFA-1	Permit Requirement					20.0 (Annl Avg)		mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Solids, Total Suspended	Sample Measurement				NOD	NOD	NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00530 A Mon. Site: EFA-1	Permit Requirement				60.0 (Maximum)	45.0 (Wkly Avg)	30.0 (Mo Avg)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
Coliform, Fecal	Sample Measurement					0.0			0	1 Weekly	Grab
PARM Code 74055 Y Mon. Site: EFA-1	Permit Requirement					200.0 (Annl Avg)		#/100mL		(1 Weekly)	(Grab)
Coliform, Fecal	Sample Measurement					NOD	NOD		0	1 Weekly	Grab
PARM Code 74055 A Mon. Site: EFA-1	Permit Requirement					200.0 (Mo Geomn)	800.0 (Maximum)	#/100mL		(1 Weekly)	(Grab)
рН	Sample Measurement				NOD		NOD		0	1 Continuous	Meter
PARM Code 00400 A Mon. Site: EFA-1	Permit Requirement				6.0 (Minimum)		8.5 (Maximum)	s.u.		(1 Continuous)	(Meter)

Parameter		Quantity of	or Loading	Units	Qualit	y or Concent	ration	Units	No. Ex.	Frequency of Analysis	Sample Type
Chlorine, Total Residual	Sample Measurement				NOD				0	1 Continuous	Meter
PARM Code 50060 A Mon. Site: EFA-1	Permit Requirement				0.5 (Minimum)			mg/L		(1 Continuous)	(Meter)
Nitrogen, Nitrate, Total (as N)	Sample Measurement						NOD		0	1 Weekly	24-hr Flow Proportioned Composite
PARM Code 00620 A Mon. Site: EFA-1	Permit Requirement						12.0 (Maximum)	mg/L		(1 Weekly)	(24-hr Flow Proportioned Composite)
OR AUTHORIZED AGENT	DIRECTION OR SUPERVISI PROPERLY GATHERED AN PERSONS WHO MANAGE TH THE INFORMATION SUBMI AM AWARE THAT THERE	R PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER TELEPHONE UPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL OR AUTHORIZED AGENT LERED AND EVALUATED THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR ANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, Electronically Signed (772) 226-1822 OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE AND COMPLETE. I THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE INFORMATION FOR KNOWING VIOLATIONS.									

PERMITTEE NAME:	Indian River Count	ty Utilities Department	(IRCUD)					PERMIT NU	MBER:	FL00416	37		
ADDRESS:	1801 27th St							LIMIT:		FINAL	REPORT:	Monthly	
	Vero Beach, FL 32	.960						FACILITY T	YPE:	DW	GROUP:	Domestic	
								MONITORIN	NG GROUP:	RMP-Q			
FACILITY:	IRCUD/West Regi	onal WWTF											
LOCATION:	8405 8th St							DESCRIPTIO	DN:	Biosolids	Quantity		
	Vero Beach, FL 32	968											
COUNTY:	INDIAN RIVER							MONITORIN	IG PERIOD:	From: 05	/01/2019 To	o: 05/31/2019	_
Parameter			Quantity of	or Loading	Units	Qualit	y or Concent	ration	Units	No. Ex.		equency of nalysis	Sample Type
Biosolids Quantity	(Transferred)	Sample Measurement		26.09						0	1 N	Aonthly	Calculated
	PARM Code B0007 + Permit Mon. Site: RMP-001 Requirement			Report (Mo Total)	dry tons						(1 M	Monthly)	(Calculated)
NAME/TITLE PRINCIPAL E OR AUTHORIZED AGENT Eric Charest	ON IN ACCORDAN DEVALUATED TH E SYSTEM, OR TH TED IS, TO THE H ARE SIGNIFICAN	ICE WITH A SYST IE INFORMATION OSE PERSONS DIF BEST OF MY KNOV NT PENALTIES FO	TEM DESIGNED T SUBMITTED. BAS RECTLY RESPONSI WLEDGE AND BEI OR SUBMITTING	O ASSURE THAT SED ON MY INQU BLE FOR GATHER JEF, TRUE, ACCU	QUALIFIED PERS IRY OF THE PERS RING THE INFORM RATE AND COMP	ONNEL OR AUTH SON OR ATION, Electronic PLETE. I	IORIZED AGENT	AL EXECUT	IVE OFFICER	TELEPHONE (772) 226-1822	SUBMITTED ON 06/25/2019		
	AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORM POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.												