

Effluent Quality Assessment

City Industries Ground Water Remediation

Orange County

NPDES #FL0043265

Sampled August 11, 2014

October 2014

Biology Section
Bureau of Laboratories
Division of Environmental Assessment and Restoration
2014 FDEP Bureau of Labs Quality Manual
NELAC Certification No. E31780

CONTENTS

Facility Overview

Methods

Results

Conclusion

Literature Cited

Tables

Table 1	Effluent limits, Class III Freshwater Criteria and field parameters
Table 2	Effluent limits, Class III Freshwater Criteria and analytical water chemistry data
Table 3	Effluent limits, Class III Freshwater Criteria and analytical metals data
Table 4	Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), ortho-phosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation and ratios of nitrogen to phosphorus.
Table 5	Effluent limits, Class III Freshwater Criteria and analytical organic and pesticide data

Appendices

Appendix A	Facility Summary
Appendix B	Explanation of measurements
Appendix C	Chemical Analyses of Effluent

EPA End Sheet

City Industries Ground Water Remediation, 3825 Forsyth Road, Orlando, Orange County, Florida, 32792. NPDES #FL0043265.

Facility Overview

City Industries Ground Water Remediation is an existing facility which pumps, treats and discharges groundwater from an EPA Superfund Site. See Appendix A for a description of the facility, summary of permit limits, Administrative Order (AO) and Discharge Monitoring Report (DMR) information.

Methods

Effluent grab samples for toxicity testing, biological and chemical analyses were collected on August 11, 2014. All samples were collected from the EFF-01 NPDES sampling point for Outfall D-001 by Jenny Farrell, William Hesser, Phil Kane and Ali Kazi (FDEP Central District) following DEP-SOP-001/01 FS 2400 Wastewater Sampling (see Appendix B).

The 96-hour acute definitive toxicity tests and algal growth potential test were performed following internal DEP SOPs TA07_01, TA07_02, and TA08_01 through TA08_09 (see Appendix B).

Results

Chemistry Results (See Tables 1, 2, 3 and Appendix C)

- The total ammonia concentration in the composite sample collected and preserved for chemical analysis was 0.2 mg N/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was < 0.02 mg/L.
- Total phosphorus, total nitrogen, turbidity, alkalinity, fluoride, iron, and 1, 4-dioxane were detected in the effluent at levels that comply with Class III Fresh Water Quality Criteria (62-302.530, F.A.C.) and/or the facility's permit limit. Carbonaceous biochemical oxygen demand (CBOD), arsenic, and chromium were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL).
- 1,4-dioxane, 1,1-dichloroethylene, nitrate+nitrite, copper, and nickel were detected in the field blank.

Algal Growth Potential (See Table 4 and Appendix C)

- The effluent Algal Growth Potential (AGP) was 13.4 A mg dry wt/L of the unicellular green alga, *Pseudokirchneriella subcapitata*, formerly known as *Selenastrum capricornutum*. Raschke and Schultz (1987) determined that AGP values above 5.0 mg dry weight/L, which represents a "problem" threshold for fresh receiving waters, imply nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen limited (Miller et al. 1978).

Toxicity Test Results (See Appendix C)

- Tests were performed August 12 - 16, 2014.

Ceriodaphnia dubia 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours
Pimephales promelas 96-hour acute definitive bioassay –	LC_{50} > 100%, 0%* mortality in 100% sample at 96 hours

*NOTE: In a 96-hour acute definitive test of 100% effluent, mortality of <20% provides confidence that the effluent meets the acute toxicity criterion of Florida's Surface Water Quality Standards (Rule 62-302.500 (1) (a) 4, F.A.C.). Mortality between 20-50% indicates low to moderate levels of toxicity, and further action may be required. Mortality of >50% indicates that the effluent fails to meet the minimum requirement to discharge to waters of the state (Rule 62-4.244(3) (a), F.A.C.).

- The bioassay samples were not acutely toxic to the test organisms.

Conclusion

The effluent sample collected from the EFF-01 NPDES sampling point for this facility on August 11, 2014, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result was greater than the "problem" threshold for fresh receiving waters suggesting that nutrient enrichment may be an issue. Effluent water quality samples collected on August 11, 2014, did not exceed any applicable water quality standards or represent an excursion from any permit conditions.

For additional information concerning this sampling event, including bioassay bench sheets and SRT data, please contact Diane.Power@dep.state.fl.us and/or Joseph.Faircloth@dep.state.fl.us.

Literature Cited

Miller, W. E., T. E. Maloney, and J. C. Greene. 1978. The Selenastrum capricornutum Printz algal assay bottle test. EPA-600/9-78-018. U. S. EPA, Cincinnati, Ohio. 126 p.

Raschke, R. L. and D. A. Schultz. 1987. The use of the algal growth potential test for data assessment. J. Wat. Poll. Cont. Fed. 59(4): 222-227.

Stevenson, R. J. and L. L. Bahls. 1999. Periphyton protocols. Pp. 6.1-6.22 in: Rapid bioassessment protocols for use in wadeable streams and rivers. 2nd edition. By: M. T. Barbour, J. Gerritsen, B. D. Snyder and J. B. Stribling. EPA 841-B-99-002. U. S. Environmental Protection Agency, Office of Water, Washington, D. C.

USEPA. 2002. Methods for measuring the acute toxicity of effluents to freshwater and marine organisms. 5th edition. EPA-821-R-02-012.

USEPA. 2000. Nutrient Criteria Technical Guidance Manual – River and Streams. EPA-822-B-00-002.

Table 1. Effluent limits, Class III Freshwater Criteria and field parameters

City Industries Ground Water Remediation Treatment	Units	Class III Criteria	Effluent Permit Limits	City
Temperature	°C	-	Report	29.03
pH	SU	6.0 - 8.5	-	7.72
Specific Conductance	umhos/cm	≤ 1,275	-	156.7
Salinity	ppth	-	-	0.1 c
Dissolved Oxygen	% saturation	≥ 38	-	98.9
Dissolved Oxygen	mg/L	≥ 5.0	≥ 6.0	7.6
Flow (July 2013-June 2014)	MGD	-	≤ 0.08 m	0.03 r
Total Residual Chlorine	mg/L	≤ 0.01	-	< 0.03 UQ[1]

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
m - Monthly average
r - Annual average
Q - Sample held beyond normal holding time
U - Material analyzed for but not detected; value reported is the method detection limit
1 - Measurement taken in the FDEP laboratory

Table 2. Effluent limits, Class III Freshwater Criteria and analytical water chemistry data

City Industries Ground Water Remediation Treatment	Units	Class III Criteria	Effluent Permit Limits	City
Ortho-phosphate	mg P/L	-		1.3
Total Phosphorus	mg P/L	-	≤ 1.6 s	1.4
Total Ammonia	mg N/L	-	-	0.2
Un-ionized Ammonia (calculated salinity)	mg/L	≤ 0.02 s	≤ 0.02 s	< 0.02 c
Nitrate and Nitrite	mg N/L	-	-	0.11
Total Kjeldahl Nitrogen	mg N/L	-	-	0.36
Organic Nitrogen	mg N/L	-	-	0.2 c
Total Nitrogen	mg N/L	-	≤ 4.8 s	0.47 c
Total Organic Carbon	mg C/L	-	-	4.7 A
Chemical Oxygen Demand	mg/L	-	Report	12
CBOD, 5 day, N - inhibited	mg/L	-	≤ 8 s	0.39 IJ
Total Suspended Solids	mg/L	-	-	2 U
Turbidity	NTU	< 29 t	-	1.7
Color (true)	PCU	-	-	16
Alkalinity	mg CaCO3/L	≥ 20	-	55 A
Chloride	mg Cl/L	-	-	7.1
Fluoride	mg F/L	≤ 10.0	-	0.43
Sulfate	mg SO4/L	-	-	9.1
Toxicity (Acute Definitive,% LC50)				
Bioassay - Water flea *(Ceriodaphnia dubia)*	%	≥ 100	≥ 100	> 100
Bioassay - Fish *(Pimephales promelas)*	%	≥ 100	≥ 100	> 100

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
c - Value is calculated
s - Single sample
t - Shall not exceed 29 NTUs above background
A - Value reported is the mean of two or more determinations
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
J - Estimated value

Table 3. Effluent limits, Class III Freshwater Criteria and analytical metals data

City Industries Ground Water Remediation Treatment	Units	Class III Criteria	Effluent Permit Limits	City
Hardness	-	-	Report	65.4 c
Aluminum	ug/L	-	-	194
Arsenic	ug/L	≤ 50	-	0.25 I
Cadmium	ug/L	≤ 0.198 b	-	0.050 U
Calcium	mg/L	-	-	22.6
Chromium, Total [2]	ug/L	≤ 60.8 b	-	0.45 I
Copper	ug/L	≤ 6.49 b	≤ 6.49 b	0.50 U
Iron	ug/L	≤ 1,000	≤ 1,000 s	230
Lead	ug/L	≤ 1.85 b	-	0.20 U
Magnesium	mg/L	-	-	2.17
Nickel	ug/L	≤ 36.4 b	-	0.25 U
Selenium	ug/L	≤ 5.0	-	0.20 U
Silver	ug/L	≤ 0.07	-	0.025 U
Sodium	mg/L	-	-	5.5
Zinc	ug/L	≤ 83.6 b	-	5.0 U

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
2 - Class III Freshwater Quality Criterion (62-302.530(19)(a), F.A.C.) is for chromium-III
b - Value is calculated based on hardness, (62-302.530(3))
c - Value is calculated
s - Single sample
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit
U - Material analyzed for but not detected; value reported is the method detection limit

Table 4. Measured and predicted algal growth potential (AGP; mg dry weight/L) for total soluble inorganic nitrogen (TSIN), ortho-phosphate (OP), total nitrogen (TN) and total phosphorus (TP) limitation and ratios of nitrogen to phosphorus

City Industries Ground Water Remediation Treatment								
Location	**Test Species**	**AGP (measured)**	**Predicted AGP (TSIN) ± 20%**	**Predicted AGP (OP) ± 20%**	**Predicted AGP (TN) ± 20%**	**Predicted AGP (TP) ± 20%**	**Inorganic N:P ratio**	**Total N:P ratio**
City	*Pseudokirchneriella subcapitata*	13.4 A	11.8 ± 2.4	559 ± 111.8	17.9 ± 3.6	602 ± 120.4	0.2	0.3

A - Value reported is the mean of two or more determinations

Table 5. Effluent limits, Class III Freshwater Criteria and analytical organic and pesticide data

City Industries Ground Water Remediation Treatment	Units	Class III Criteria	Effluent Permit Limits	City
1,4-Dioxane	ug/L	-	Report	29
1,1-Dichloroethylene	ug/L	≤ 3.2 a	≤ 3.2 a	0.20 U

A dash (-) indicates sample/measurement was not collected or criterion/limit does not exist.
a - Annual average
U - Material analyzed for but not detected; value reported is the method detection limit

Appendix A

Facility Summary

State of Florida
Department of Environmental Protection
Facility Introduction & Summary

PART I: Information gathered prior to sampling event	
Prepared By: William Hesser	Contact Number: 407-893-3313
Facility Name (as it appears on permit): City Industries Ground Water Remediation (Minor Non-POTW NPDES)	Former Names:
NPDES Permit Number: 48-FL0043265-007-IW7B	Permit Expiration Date: January 5, 2015
Physical Address: 3825 Forsyth Road, Orlando, Orange County, FL	
District: Central District	County: Orange
Function of Facility: Ground Water Remediation	
Facility Type: Ground Water Remediation	Permitted Capacity (MGD): 0.08 MGD Monthly Average, 0.10 MGD Daily Maximum
Mean Flow for previous 12 months for all EXTERNAL outfalls listed in permit (list date range including months): 0.03 MGD (July, 2013 – June, 2014)	
If applicable, Mean Flow for previous 12 months for REUSE outfall(s) (list date range including months):	
Description of type of Discharge: ☒ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify	

Description of Sampling Location(s) - actual permit designation of permitted sampling point(s):

Outfall D-001 to Crane Strand Canal

Description of Permitted Outfall(s):

An existing 0.08 MGD average daily flow (ADF) discharging at outfall D-001 to the Crane Strand Canal, thence to the Union Park Canal and finally to the Little Econlockhatchee River (Class III Fresh waters). The Outfall to surface waters outfall line is approximately 1.0 feet in length, discharges at a depth of approximately 0.0 feet and the point of discharge is located approximately at latitude 28° 36' 5.48" N, longitude 81° 17' 40.25" W.

Description of Treatment Process (if multiple discharge points, include a detailed map or diagram of facility):

City Industries Ground Water Remediation is an existing facility which pumps, treats, and discharges groundwater from an EPA Superfund Site. The Superfund site is a former solvent recycling facility. The contaminants of interest include trichloroethylene, cis-1, 2-dichloroethene, and vinyl chloride. The facility has a permitted monthly average flow of 0.08 million gallons per day (MGD) with a maximum daily flow of 0.10 MGD. The average monthly flow from July 1, 2013, through June 30, 2014, was 0.03 MGD. Contaminated groundwater is pumped from the ground through 13 wells. Flows are recorded at each well. The water from each well is pumped to the treatment facility via a pipe system. Wastewater is combined in a distribution header and treated in an air-stripper tower (treatment is part of a remediation plan approved by the Federal EPA and not part of the state permit). Chlorine is not used at the facility. Treated wastewater is discharged via a 15.24 cm (6 in) diameter, 76 m (250 ft) long pipe through Outfall D-001 to the Class III Freshwaters of the Crane Creek Canal, thence to Union Park Canal, and finally to the Little Econlockhatchee River. Outfall D-001 is located approximately at latitude 28º 36’ 5.48” N and longitude 81º 17’ 40.25” W.

PART I: Continued
List current Effluent Limits of Outfall(s) to be Sampled: This should include any AO or CO limits the facility may be under (Leave cell blank if not applicable)

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	Monthly Average	Daily Maximum	Daily Minimum	Monitoring Frequency	Sample Type	Sample Point
Flow (MGD)	**0.08**	**0.10**	**--**	**Daily**	**Calculated**	**EFF-01**
Oxygen, Dissolved (DO) (MG/L)	**NA**	**NA**	**6.0**	**Weekly**	**Meter**	**EFF-01**
Chemical Oxygen Demand (COD) (MG/L)	**NA**	**Report**	**--**	**Weekly**	**Grab**	**EFF-01**
BOD, Carbonaceous 5 day, 20C (MG/L)	**5.0 ****	**8.0 ****	**--**	**Weekly**	**Grab**	**EFF-01**
Nitrogen, Total (MG/L)	**3.0 ****	**4.8****	**--**	**Weekly**	**Grab**	**EFF-01**
Phosphorus, Total (as P) (MG/L)	**1.0 ****	**1.60 ****	**--**	**Weekly**	**Grab**	**EFF-01**
Ammonia, Total unionized (as N) (MG/L)	**Report**	**0.02**	**--**	**Monthly**	**Grab**	**EFF-01**
Temperature (F), Water (DEG.F)	**NA**	**Report**	**--**	**Monthly**	**Grab**	**EFF-01**
1,1-dichloroethylene (UG/L)	**3.2***	**NA**	**--**	**Monthly**	**Grab**	**EFF-01**
1, 4 dioxane (UG/L)	**NA**	**Report***	**--**	**Monthly**	**Grab**	**EFF-01**
Fecal Coliform (#/100ML)	**NA**	**Report**	**--**	**Monthly**	**Grab**	**EFF-01**
Total Coliform (#/100ML)	**NA**	**Report**	**--**	**Monthly**	**Grab**	**EFF-01**

	Discharge Limitations			Monitoring Requirements		
Parameters (units)	Monthly Average	Daily Maximum	Daily Minimum	Monitoring Frequency	Sample Type	Sample Point
pH (SU)	**NA**	**8.5**	**6.0**	**Monthly**	**Grab**	**EFF-01**
Copper, Total Recoverable (UG/L)	**NA**	**See Cond. I.A.3.**	**--**	**Quarterly**	**Grab**	**EFF-01**
Iron, Total Recoverable (MG/L)	**NA**	**1.00**	**--**	**Quarterly**	**Grab**	**EFF-01**
Hardness, Total (as CaCO3) (MG/L)	**--**	**Report See Cond. I.A.3**	**--**	**Quarterly**	**Grab**	**EFF-01**
Whole Effluent Toxicity	**See Permit Condition I.A.4**	**--**	**--**	**Annually**	**Whole Effluent Toxicity**	**See Permit Condition I.A.4**

*** Compliance with numeric target clean up level is required in accordance with Chapter 62-777 and the remediation requirements of other DEP Programs. Annual Average concentration of 1,1-dichloroethylene shall not exceed 3.2 ug/L. Compliance with the requirements of Rule 62-302.500 (1) (a) F.A.C. is also required.**

**** See Permit Condition I.A.7.**

PART I: Continued	
Receiving Waters: **Crane Strand Canal, thence to the Union Park Canal and finally to the Little Econlockhatchee River (Class III Fresh waters).**	Classification (indicate whether fresh or marine): **Class III Fresh Waters**

Toxicity Test Requirements (routine and/or additional test language, test species, salinity adjustment, etc.):

The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

a. Effluent Limitation

(1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]

(2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.] Acute toxicity testing is not required except as provided in 5.g.(4)

b. Monitoring Frequency

(1) Routine toxicity tests shall be conducted annually, the first starting within 60 days following the issuance of this permit and lasting for the duration of this permit.

c. Sampling Requirements

(1) For each routine test or additional follow-up test conducted, a total of three grab samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.

(2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.

(3) Samples for routine and additional follow-up tests shall not be collected on the same day.

d. Test Requirements

(1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: 100%, 50%, 25%, 12.5%, and 6.25% final effluent.

(2) The permittee shall conduct a daphnid, Ceriodaphnia dubia, Survival and Reproduction Test and a fathead minnow, Pimephales promelas, Larval Survival and Growth Test, concurrently.

(3) All test species, procedures and quality assurance criteria used shall be in accordance with Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, 4th Edition , EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.

(4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements

(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.

(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or does not meet "test acceptability criteria", the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (Ceriodaphnia dubia) and Section 11.11 (Pimephales promelas). The repeat test shall begin within 21 days after the last day of the invalid test.

(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.

(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

Administrative or Consent Orders (date executed, specific requirements, interim limit dates-if applicable, etc.):

The facility has no Administrative Orders (AO) or Consent Orders (CO). A warning letter was issued on December 7, 2005, due to permit limit violations for total phosphorus. This enforcement case has been closed. There are no mixing zones established for this facility. A review of discharge monitoring report (DMR) data (April, 2012 to June, 2014) did not reveal any noticeable trends. The DMR data showed violations of permit limits for CBOD5 in July, 2012 (8.2) and February, 2013 (8.9). A low pH of 5.71 was reported in September, 2013. Total phosphorus exceedances were reported in September, 2013; December, 2013; March, 2014; and June, 2014.

Facility Mixing Zone Details (if applicable):
N/A

List Permit Violations (DMR data) and plant upsets that occurred at the plant within this review period:

Date	Parameter and Units	Limit (mg/L)	Result (mg/L)
July, 2012	$CBOD_5$, Daily Max.	8.0	8.2
February, 2013	$CBOD_5$, Daily Max.	8.0	8.9
September, 2013	pH Minimum	6.0	5.71
September, 2013	Total Phosphorus, Daily Max.	1.6	2.24
September, 2013	Total Phosphorus, Monthly Average	1.0	1.13
December, 2013	Total Phosphorus, Daily Max.	1.6	5.48
December, 2013	Total Phosphorus, Monthly Average	1.0	1.81
March, 2014	Total Phosphorus, Daily Max.	1.6	7.95
March, 2014	Total Phosphorus, Monthly Average	1.0	3.29
June, 2014	Total Phosphorus, Daily Max.	1.6	4.77
June, 2014	Total Phosphorus, Monthly Average	1.0	1.87

Describe previous FYI and WQBEL study:

The following data was included in the bioassay report for samples collected on January 12, 2009:

Toxicity Test Results

Tests were performed January 13 - 17, 2009.
Ceriodaphnia dubia 96-hour acute definitive bioassay – LC50 > 100%, 5% mortality in 100% sample at 96 hours
Cyprinella leedsi 96-hour acute definitive bioassay – LC50 > 100%, 0% mortality in 100% sample at 96 hours
The bioassay sample was not acutely toxic to the test organisms.
See Appendix B for bioassay bench sheets. See Appendix C for results of the last 20 standard reference toxicant (SRT) tests and the bench sheets and statistical analyses of the SRT tests that correspond to these facility tests. See Appendix D for test organism receipts.

Algal Growth Potential

The effluent Algal Growth Potential (AGP) was 21.6 mg dry wt/L of the unicellular green alga, Pseudokirchneriella subcapitata, formerly known as Selenastrum capricornutum. Raschke and Shultz (1987) found that AGP values above 5.0 mg dry weight/L represent a "problem" threshold for fresh receiving waters, implying nutrient enrichment. The analytical chemistry suggests that the effluent is nitrogen-limited. The predicted AGP based on inorganic nitrogen concentrations was 10.5 (±20%) mg dry wt/L (Table 1; Miller et al. 1978).

Chemistry Results

Total residual chlorine and total ammonia were not detected in the bioassay sample in the laboratory. The total ammonia concentration in the sample collected and preserved for chemical analysis was estimated at 0.057 mg/L. Based on the pH, salinity, and temperature of the effluent as collected, the calculated unionized ammonia concentration was ≤0.02 mg/L.
Iron was detected in the effluent at levels that comply with Class III fresh water quality criteria (62-302.530, F.A.C.). Arsenic and Chromium-III were detected between the laboratory method detection limits (MDL) and practical quantitation limits (PQL). Aluminum, calcium, and magnesium were also detected in the bioassay sample in the laboratory.
Total phosphorus was detected at 0.82 mg/L.

Conclusion

The effluent sample collected from the EFF-01 NPDES sampling point for Outfall D-001 for this facility on January 12, 2009, was not acutely toxic to either test species during the 96-hour acute definitive bioassays. The effluent AGP result exceeded the "problem" threshold for fresh receiving waters, suggesting that nutrient enrichment may be an issue. Effluent water quality samples did not exceed any applicable water quality standards or violate any permit conditions.

Describe previous or current Enforcement Actions (including WLs):

Warning Letter No. OWL-WW-05-0051 dated December 7, 2005 included the following statement:

A review of the Discharge Monitoring Reports (DMRs) from October 2004 to July 2005 indicated that Total Phosphorus exceeded the maximum permit limit of 1.6 mg/L and the monthly average permit limit of 1.0 mg/L as follows:

Month	Maximum	Monthly avg.
11/04	1.9 mg/L	---
4/05	28 mg/L	7.5 mg/L
5/05	1.7 mg/L	1.16 mg/L
7/05	3.3 mg/L	1.27 mg/L

This enforcement case was closed after the facility agreed to modify its treatment process in order to reduce phosphorus levels in the effluent.

Describe any violations or problems noted in previous inspection:

None.

Discuss whether DMR trends within previous five years are improving or declining:

Phosphorus excursions continue to be a problem with this facility.

Additional Comments (this should include a trend of the Effluent, i.e. if the facility is now Reuse):

PART II: Sampling Event Information

Date(s) sample collected:	Sampler(s):
Temperature (Deg C):	pH (SU):
Dissolved Oxygen (mg/L):	Conductivity (umhos/cm):
Total Residual Chlorine (mg/L):	Total Residual Chlorine - after Disinfection (mg/L):
Method of Chlorination:	Method of De-chlorination:

Flow During Sample Collection for each outfall(MGD):

Mean Flow for each outfall for previous 12 months based on sampling date (If samples are taken on more than one day, indicate Mean Flow for each day):

Describe Discharge during Sampling Event:

☐ Continuous ☐ Intermittent ☐ Seasonal ☐ Rainfall Dependent ☐ Other, please specify

Describe any conditions, difficulties or abnormal events that occurred during the sample collection and any other additional comments here:

Appendix B

Explanation of Measurements

(1) Quality Assurance and Quality Control

FDEP's quality assurance requirements for analytical laboratories and field activities are codified in Chapter 62-160, F.A.C., Quality Assurance (QA Rule) and in internal Standard Operating Procedures (FDEP SOPs). Methods for all analyses are on file at the FDEP Central Laboratory in Tallahassee and may be viewed on the web at http://www.dep.state.fl.us/labs/library/lab_sops.htm and/or http://www.dep.state.fl.us/water/sas/sop/sops.htm.

(2) Chemical Analyses of the Effluent

The effluent was analyzed for nutrients, metals, organic constituents (base, neutral, and acid extractables) and pesticides following FDEP SOPs. The results from these analyses were compared with Water Quality Criteria (62-302, F.A.C.) and facility permit limits.

(3) Toxicity Bioassays

Greater than 50% mortality in an acute toxicity test may constitute an exceedance of 62-302.500(1)a and/or facility permit limits. A 25% inhibition concentration (IC25) is the effluent concentration causing a 25% reduction in a biological response such as biomass or reproduction when compared to a control population. An IC25 of less than 100% in a chronic test may constitute exceedances of 62-302.530(20), 62-302.530(61) and/or facility permit limits. A no observed effect concentration (NOEC) less than 100% effluent in a chronic test may constitute an exceedance of 62-302.530(61) and/or facility permit limits. Standard reference toxicant (SRT) tests are conducted monthly to ensure quality in toxicity testing.

(4) Bacteriological Testing

High levels of fecal coliform bacteria may constitute an exceedance of 62-302.530(6) and/or facility permit limits. Fecal coliform and enterococci results often are based on colony counts outside the acceptable range (B-qualifier). The dilutions performed on the sample did not yield results within the method acceptable range of 20- 60 colony forming units per plate. The B-qualifier does not affect data quality.

(5) Chlorophyll *a* Content

Chlorophyll *a* content is an estimate algal biomass. High algal biomass implies nutrient stress (Stevenson and Bahls 1999) and may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C., and/or 62-302.530(47)(b), F.A.C..

(6) Algal Growth Potential (AGP)

The algal growth potential (AGP) value is the peak growth of the alga within that 14-day period, recorded as mg dry weight/L. Raschke and Shultz (1987) found that an AGP above 10.0 mg dry weight/L represents a “problem” threshold for marine receiving waters, implying nutrient enrichment. High AGP values may constitute exceedances of 62-302.530(46), F.A.C., 62-302.530(47)(a), F.A.C. and/or 62-302.530(47)(b), F.A.C..

The concentration of nutrients in a water sample may be used to calculate the expected yield of AGP in a low salinity sample under the assumption that other required nutrients (e.g. silicon, micronutrients) are present in excess (Miller *et al*. 1978). The expected amount of production is calculated as 38 times the total soluble inorganic nitrogen (nitrate and nitrite plus ammonia) under nitrogen limitation or 430 times the ortho-phosphate (OP) concentration under phosphorus limitation with an error of $\pm$ 20%. When the ratio of nitrogen to phosphorus (N:P) is less than 10:1, nitrogen limitation of algal production is likely. When the N:P ratio is 20:1 or greater, phosphorus limitation is likely (EPA-822-B-00-002). For ratios in-between, co-limitation may occur. Production of lower biomass than expected may be evidence of growth inhibition related to toxic compounds

present in the water sample tested and may constitute an exceedance of 62-302.530(61) F.A.C. Expected AGP is not calculated for marine samples incubated with *Dunaliella*.

(7) Definition of Qualifiers

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate
Z - Colonies were too numerous to count (TNTC)

Appendix C

Chemical analysis of effluent

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 9:40	CITY	AGP/LN	Algal Growth Potential	13.4 A	mg DryWt/L	0.3	0.9
8/11/2014 9:40	CITY	Chlorophyll/Grain Size/BOD	Biochemical Oxygen Demand-5 Day,N-Inhi	0.39 IJ	mg/L	0.2	2
8/11/2014 9:30	CITY	Toxicology	Bioassay-Acute-Def-FW-Fish, LC50	100 L	LC50		
8/11/2014 9:30	CITY	Toxicology	Bioassay-Acute-Def-FW-C.dubia, LC50	100 L	LC50		
8/11/2014 9:40	CITY	Metals	Calcium	22.6	mg/L	0.075	0.3
8/11/2014 9:40	CITY	Metals	Cadmium	0.050 U	ug/L	0.05	0.2
8/11/2014 9:40	CITY	Metals	Chromium	0.45 I	ug/L	0.3	1.2
8/11/2014 9:40	CITY	Metals	Aluminum	194	ug/L	5	20
8/11/2014 9:40	CITY	Metals	Lead	0.20 U	ug/L	0.2	0.8
8/11/2014 9:40	CITY	Metals	Selenium	0.20 U	ug/L	0.2	0.8
8/11/2014 9:40	CITY	Metals	Hardness	65.4	mg/L	0.4	1.6
8/11/2014 9:40	CITY	Metals	Zinc	5.0 U	ug/L	5	20
8/11/2014 9:40	CITY	Metals	Nickel	0.25 U	ug/L	0.25	1
8/11/2014 9:40	CITY	Metals	Arsenic	0.25 I	ug/L	0.25	1
8/11/2014 9:40	CITY	Metals	Silver	0.025 U	ug/L	0.025	0.1
8/11/2014 9:40	CITY	Metals	Iron	230	ug/L	30	120
8/11/2014 9:40	CITY	Metals	Copper	0.50 U	ug/L	0.5	1
8/11/2014 9:40	CITY	Metals	Sodium	5.5	mg/L	0.5	2
8/11/2014 9:40	CITY	Metals	Magnesium	2.17	mg/L	0.04	0.16
8/11/2014 9:40	CITY	Nutrients	TSS	2 U	mg/L	2	10
8/11/2014 9:40	CITY	Nutrients	Chloride	7.1	mg Cl/L	0.2	0.5
8/11/2014 9:40	CITY	Nutrients	Kjeldahl Nitrogen	0.36	mg N/L	0.08	0.2
8/11/2014 9:40	CITY	Nutrients	Organic Carbon	4.7 A	mg C/L	0.5	1
8/11/2014 9:40	CITY	Nutrients	Fluoride	0.43	mg F/L	0.035	0.1
8/11/2014 9:40	CITY	Nutrients	Alkalinity	55 A	mg CaCO3/L	0.65	2.5
8/11/2014 9:40	CITY	Nutrients	O-Phosphate-P	1.3	mg P/L	0.08	0.2
8/11/2014 9:40	CITY	Nutrients	NO2NO3-N	0.11	mg N/L	0.004	0.01
8/11/2014 9:40	CITY	Nutrients	Sulfate	9.1	mg SO4/L	0.2	0.5
8/11/2014 9:40	CITY	Nutrients	Color (true)	16	PCU	2.5	6
8/11/2014 9:40	CITY	Nutrients	Total-P	1.4	mg P/L	0.025	0.25
8/11/2014 9:40	CITY	Nutrients	Turbidity	1.7	NTU	0.1	0.1
8/11/2014 9:40	CITY	Nutrients	Ammonia-N	0.2	mg N/L	0.01	0.025

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 9:40	CITY	Overflow	Chemical Oxygen Demand	12	mg/L	5	10
8/11/2014 9:40	CITY	Pesticides	Chlorpyrifos Ethyl	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Alachlor	0.060 U	ug/L	0.06	0.24
8/11/2014 9:40	CITY	Pesticides	Demeton	0.024 UJ	ug/L	0.024	0.096
8/11/2014 9:40	CITY	Pesticides	Fonofos	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Simazine	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Atrazine Desethyl	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Diazinon	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Disulfoton	0.0050 U	ug/L	0.005	0.02
8/11/2014 9:40	CITY	Pesticides	Fenamiphos	0.030 U	ug/L	0.03	0.12
8/11/2014 9:40	CITY	Pesticides	Parathion Ethyl	0.020 U	ug/L	0.02	0.08
8/11/2014 9:40	CITY	Pesticides	Prometon	0.020 U	ug/L	0.02	0.08
8/11/2014 9:40	CITY	Pesticides	Prometryn	0.020 U	ug/L	0.02	0.08
8/11/2014 9:40	CITY	Pesticides	Azinphos Methyl	0.020 U	ug/L	0.02	0.08
8/11/2014 9:40	CITY	Pesticides	Butylate	0.020 U	ug/L	0.02	0.08
8/11/2014 9:40	CITY	Pesticides	Ethoprop	0.0050 U	ug/L	0.005	0.02
8/11/2014 9:40	CITY	Pesticides	Metalaxyl	0.040 U	ug/L	0.04	0.16
8/11/2014 9:40	CITY	Pesticides	Phorate	0.0050 U	ug/L	0.005	0.02
8/11/2014 9:40	CITY	Pesticides	Atrazine	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Atrazine Desisopropyl	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Chlorpyrifos Methyl	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Ethion	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Ametryn	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Metribuzin	0.020 U	ug/L	0.02	0.08
8/11/2014 9:40	CITY	Pesticides	Hexazinone	0.030 UJ	ug/L	0.03	0.12
8/11/2014 9:40	CITY	Pesticides	Metolachlor	0.060 U	ug/L	0.06	0.24
8/11/2014 9:40	CITY	Pesticides	Naled	0.040 U	ug/L	0.04	0.16
8/11/2014 9:40	CITY	Pesticides	Norflurazon	0.030 U	ug/L	0.03	0.12
8/11/2014 9:40	CITY	Pesticides	Parathion Methyl	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Bromacil	0.040 U	ug/L	0.04	0.16
8/11/2014 9:40	CITY	Pesticides	Malathion	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Pesticides	Mevinphos	0.010 U	ug/L	0.01	0.04
8/11/2014 9:40	CITY	Priority Organic Pollutants	1,4-Dioxane	29	ug/L	0.2	1
8/11/2014 9:40	CITY	Priority Organic Pollutants	Pyrene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	ug/L	1.9	7.5
8/11/2014 9:40	CITY	Priority Organic Pollutants	Pentachlorophenol	2.8 U	ug/L	2.8	11

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 9:40	CITY	Priority Organic Pollutants	2-Nitrophenol	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Chrysene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	2,4-Dinitrotoluene	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Fluoranthene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8 U	ug/L	2.8	11
8/11/2014 9:40	CITY	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Phenol	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	2,4-Dimethylphenol	9.4 U	ug/L	9.4	38
8/11/2014 9:40	CITY	Priority Organic Pollutants	2-Chlorophenol	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8 U	ug/L	2.8	11
8/11/2014 9:40	CITY	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	ug/L	1.9	7.5
8/11/2014 9:40	CITY	Priority Organic Pollutants	Dimethyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Hexachloroethane	2.8 U	ug/L	2.8	11
8/11/2014 9:40	CITY	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.8 U	ug/L	2.8	11
8/11/2014 9:40	CITY	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	ug/L	1.9	7.5
8/11/2014 9:40	CITY	Priority Organic Pollutants	Acenaphthylene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Benzidine	94 U	ug/L	94	380
8/11/2014 9:40	CITY	Priority Organic Pollutants	Fluorene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Hexachlorobenzene	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Hexachlorobutadiene	2.8 U	ug/L	2.8	11
8/11/2014 9:40	CITY	Priority Organic Pollutants	Isophorone	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 UJ	ug/L	1.9	7.5
8/11/2014 9:40	CITY	Priority Organic Pollutants	1,1-Dichloroethene	0.20 U	ug/L	0.2	0.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	ug/L	38	150
8/11/2014 9:40	CITY	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Diethyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	2,4-Dinitrophenol	14 UJ	ug/L	14	57
8/11/2014 9:40	CITY	Priority Organic Pollutants	2,6-Dinitrotoluene	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	2-Chloronaphthalene	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Acenaphthene	0.19 U	ug/L	0.19	0.75

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 9:40	CITY	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Di-n-butyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Naphthalene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Phenanthrene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.38 U	ug/L	0.38	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	2,4-Dichlorophenol	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8 U	ug/L	2.8	11
8/11/2014 9:40	CITY	Priority Organic Pollutants	4-Nitrophenol	14 UJ	ug/L	14	57
8/11/2014 9:40	CITY	Priority Organic Pollutants	Anthracene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	ug/L	0.19	0.75
8/11/2014 9:40	CITY	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Butyl benzyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Di-n-octyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 9:40	CITY	Priority Organic Pollutants	Nitrobenzene	1.9 U	ug/L	1.9	7.5
8/11/2014 9:40	CITY	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.94 U	ug/L	0.94	3.8
8/11/2014 9:30	CITY	Nutrients	Specific Conductance	156.7	umhos/cm		
8/11/2014 9:40	CITY	Nutrients	Specific Conductance	156.7	umhos/cm		
8/11/2014 9:30	CITY	Nutrients	Dissolved Oxygen	7.6	mg/L		
8/11/2014 9:30	CITY	Nutrients	pH	7.72			
8/11/2014 9:30	CITY	Nutrients	Temperature	29.03	C		
8/11/2014 9:40	CITY	Nutrients	pH	7.72			
8/11/2014 9:40	CITY	Nutrients	Dissolved Oxygen	7.6	mg/L		
8/11/2014 9:40	CITY	Nutrients	Temperature	29.03	C		
8/11/2014 10:30	FIELD BLANK	Metals	Iron	30 U	ug/L	30	120
8/11/2014 10:30	FIELD BLANK	Metals	Zinc	5.0 U	ug/L	5	20
8/11/2014 10:30	FIELD BLANK	Metals	Silver	0.025 U	ug/L	0.025	0.1
8/11/2014 10:30	FIELD BLANK	Metals	Selenium	0.20 U	ug/L	0.2	0.8
8/11/2014 10:30	FIELD BLANK	Metals	Potassium	0.30 U	mg/L	0.3	1.2
8/11/2014 10:30	FIELD BLANK	Metals	Magnesium	0.040 U	mg/L	0.04	0.16
8/11/2014 10:30	FIELD BLANK	Metals	Copper	1.09	ug/L	0.5	1
8/11/2014 10:30	FIELD BLANK	Metals	Arsenic	0.25 U	ug/L	0.25	1
8/11/2014 10:30	FIELD BLANK	Metals	Nickel	2.14	ug/L	0.25	1
8/11/2014 10:30	FIELD BLANK	Metals	Cadmium	0.050 U	ug/L	0.05	0.2
8/11/2014 10:30	FIELD BLANK	Metals	Aluminum	5.0 U	ug/L	5	20
8/11/2014 10:30	FIELD BLANK	Metals	Hardness	0.40 U	mg/L	0.4	1.6
8/11/2014 10:30	FIELD BLANK	Metals	Chromium	0.30 U	ug/L	0.3	1.2

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 10:30	FIELD BLANK	Metals	Sodium	0.50 U	mg/L	0.5	2
8/11/2014 10:30	FIELD BLANK	Metals	Calcium	0.075 U	mg/L	0.075	0.3
8/11/2014 10:30	FIELD BLANK	Metals	Lead	0.20 U	ug/L	0.2	0.8
8/11/2014 10:30	FIELD BLANK	Nutrients	Turbidity	0.10 U	NTU	0.1	0.1
8/11/2014 10:30	FIELD BLANK	Nutrients	O-Phosphate-P	0.004 U	mg P/L	0.004	0.01
8/11/2014 10:30	FIELD BLANK	Nutrients	Organic Carbon	0.50 U	mg C/L	0.5	1
8/11/2014 10:30	FIELD BLANK	Nutrients	Fluoride	0.035 U	mg F/L	0.035	0.1
8/11/2014 10:30	FIELD BLANK	Nutrients	Color (true)	2.5 U	PCU	2.5	6
8/11/2014 10:30	FIELD BLANK	Nutrients	Ammonia-N	0.002 U	mg N/L	0.002	0.005
8/11/2014 10:30	FIELD BLANK	Nutrients	Kjeldahl Nitrogen	0.080 U	mg N/L	0.08	0.2
8/11/2014 10:30	FIELD BLANK	Nutrients	Total-P	0.002 U	mg P/L	0.002	0.005
8/11/2014 10:30	FIELD BLANK	Nutrients	NO2NO3-N	0.018	mg N/L	0.004	0.01
8/11/2014 10:30	FIELD BLANK	Nutrients	Alkalinity	0.65 U	mg CaCO3/L	0.65	2.5
8/11/2014 10:30	FIELD BLANK	Nutrients	Chloride	0.20 U	mg Cl/L	0.2	0.5
8/11/2014 10:30	FIELD BLANK	Nutrients	Sulfate	0.20 U	mg SO4/L	0.2	0.5
8/11/2014 10:30	FIELD BLANK	Overflow	Chemical Oxygen Demand	5.0 U	mg/L	5	10
8/11/2014 10:30	FIELD BLANK	Pesticides	Ethoprop	0.0047 U	ug/L	0.0047	0.019
8/11/2014 10:30	FIELD BLANK	Pesticides	Ethion	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Norflurazon	0.028 U	ug/L	0.028	0.11
8/11/2014 10:30	FIELD BLANK	Pesticides	Parathion Ethyl	0.019 U	ug/L	0.019	0.076
8/11/2014 10:30	FIELD BLANK	Pesticides	Prometryn	0.019 U	ug/L	0.019	0.076
8/11/2014 10:30	FIELD BLANK	Pesticides	Atrazine	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Mevinphos	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Metalaxyl	0.038 U	ug/L	0.038	0.15
8/11/2014 10:30	FIELD BLANK	Pesticides	Fonofos	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Fenamiphos	0.028 U	ug/L	0.028	0.11
8/11/2014 10:30	FIELD BLANK	Pesticides	Atrazine Desisopropyl	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Atrazine Desethyl	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Demeton	0.023 UJ	ug/L	0.023	0.091
8/11/2014 10:30	FIELD BLANK	Pesticides	Chlorpyrifos Methyl	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Chlorpyrifos Ethyl	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Alachlor	0.057 U	ug/L	0.057	0.23
8/11/2014 10:30	FIELD BLANK	Pesticides	Diazinon	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Disulfoton	0.0047 U	ug/L	0.0047	0.019
8/11/2014 10:30	FIELD BLANK	Pesticides	Simazine	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Prometon	0.019 U	ug/L	0.019	0.076

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 10:30	FIELD BLANK	Pesticides	Parathion Methyl	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Metribuzin	0.019 U	ug/L	0.019	0.076
8/11/2014 10:30	FIELD BLANK	Pesticides	Malathion	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Hexazinone	0.028 UJ	ug/L	0.028	0.11
8/11/2014 10:30	FIELD BLANK	Pesticides	Butylate	0.019 U	ug/L	0.019	0.076
8/11/2014 10:30	FIELD BLANK	Pesticides	Phorate	0.0047 U	ug/L	0.0047	0.019
8/11/2014 10:30	FIELD BLANK	Pesticides	Naled	0.038 U	ug/L	0.038	0.15
8/11/2014 10:30	FIELD BLANK	Pesticides	Bromacil	0.038 U	ug/L	0.038	0.15
8/11/2014 10:30	FIELD BLANK	Pesticides	Azinphos Methyl	0.019 U	ug/L	0.019	0.076
8/11/2014 10:30	FIELD BLANK	Pesticides	Ametryn	0.0095 U	ug/L	0.0095	0.038
8/11/2014 10:30	FIELD BLANK	Pesticides	Metolachlor	0.057 U	ug/L	0.057	0.23
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2-Chloronaphthalene	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	4-Chlorophenyl phenyl ether	1.9 U	ug/L	1.9	7.5
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Di-n-butyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Diethyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodimethylamine	1.9 U	ug/L	1.9	7.5
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Pentachlorophenol	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Phenol	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	1,1-Dichloroethene	0.20 U	ug/L	0.2	0.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	4-Chloro-3-methylphenol	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Acenaphthene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Benzo(a)anthracene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethyl)ether	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Bis(2-ethylhexyl)phthalate	1.9 U	ug/L	1.9	7.5
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Butyl benzyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrotoluene	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2-Chlorophenol	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2-Methyl-4,6-dinitrophenol	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2-Nitrophenol	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Acenaphthylene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Benzo(b)fluoranthene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Hexachlorobutadiene	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Isophorone	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2,4,6-Trichlorophenol	0.38 U	ug/L	0.38	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Benzo(a)pyrene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Chrysene	0.19 U	ug/L	0.19	0.75

Date Sampled	Field ID	Analysis Group	Component	Result	Units	MDL	PQL
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Fluoranthene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Fluorene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Hexachlorobenzene	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Hexachloroethane	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Indeno(1,2,3-cd)pyrene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Phenanthrene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Pyrene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	4-Bromophenyl phenyl ether	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Benzidine	94 U	ug/L	94	380
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Benzo(g,h,i)perylene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodiphenylamine/ Diphenylamine	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	1,2,4-Trichlorobenzene	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2,4-Dimethylphenol	9.4 U	ug/L	9.4	38
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2,4-Dinitrophenol	14 UJ	ug/L	14	57
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Anthracene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Benzo(k)fluoranthene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroisopropyl)ether	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Di-n-octyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Hexachlorocyclopentadiene	2.8 U	ug/L	2.8	11
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Naphthalene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2,4-Dichlorophenol	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	2,6-Dinitrotoluene	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Dibenzo(a,h)anthracene	0.19 U	ug/L	0.19	0.75
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Dimethyl phthalate	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	1,4-Dioxane	0.14	ug/L	0.02	0.1
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	3,3'-Dichlorobenzidine	38 U	ug/L	38	150
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	4-Nitrophenol	14 UJ	ug/L	14	57
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Bis(2-chloroethoxy)methane	0.94 U	ug/L	0.94	3.8
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	N-Nitrosodi-n-propylamine	1.9 UJ	ug/L	1.9	7.5
8/11/2014 10:30	FIELD BLANK	Priority Organic Pollutants	Nitrobenzene	1.9 U	ug/L	1.9	7.5
8/11/2014 9:30	TRIP BLANK	Priority Organic Pollutants	1,1-Dichloroethene	0.20 U	ug/L	0.2	0.8

EPA End Sheet

The Bioassay of City Industries Ground Water Remediation effluent sampled on August 11, 2014. NPDES #FL0043265.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
1	N	3 FL0043265	11 12	14 08 11		18 **B**	19 **S**	20 2

Remarks

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The Priority Pollutants Analysis of City Industries Ground Water Remediation effluent sampled on August 11, 2014. NPDES #FL0043265.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
1	N	3 FL0043265	11 12	14 08 11		18 **X**	19 **S**	20 2

Remarks

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Biological Analyses of City Industries Ground Water Remediation effluent sampled on August 11, 2014. NPDES #FL0043265.

Fill Out This Section For All Surface Water Discharger Inspections(CEI, CSI, CBI, PAI, XSI-RI Optional)

Transaction Code		NPDES NUMBER		YR/MO/DA		Insp Type	Inspector	Fac Type
1	N	3 FL0043265	11 12	14 08 11		18 **S**	19 **S**	20 2

Remarks

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