PUBLIC NOTICED KENDALL WWTF
PERMIT INFORMATION FORM

GENERAL INFORMATION	
Permit Number: WI-0020516-08	**FID:** 642006640
Permittee Name and Address (if different from discharge location): Village of Kendall, PO Box 216, Kendall, WI 54638	
Discharge Location: Kendall Wastewater Treatment Plant, 208 E. South Railroad St., Park Rd., Kendall, WI 54639	
Receiving Waters: Baraboo River in the Seymour Creek and Upper Baraboo River Watershed of the Lower Wisconsin River Basin in Monroe County	
Flows:	0.070 MGD **Annual Average Design Flow** 0.056 MGD **Actual Annual Average in 2012**
Stream Classification: Coldwater, Non-Public Water Supply	
$Q_{(7,10)}$: 1.8 cfs	
Discharge Type: Continuous	

FACILITY DESCRIPTION

Facility Description: The Kendall Wastewater Treatment Plant is a conventional package plant with aeration and re-aeration basins, a center clarifier, and aerobic sludge treatment. The facility treats domestic waste from the Village of Kendall. The annual average design flow is 0.070 million gallons per day (MGD), and had an actual annual average flow of 0.056 MGD in 2012. Effluent is disinfected via chlorination (and is followed by dechlorination) prior to discharge to the Baraboo River. Sludge generated at the facility is aerobically digested and hauled to the Elroy WWTF. No operational changes since the last permit term. Proposed monitoring changes since the last permit term include 1) removal of effluent copper limits and replaced with monitoring, 2) addition of effluent phosphorus limits and an associated compliance schedule, 3) effluent temperature monitoring in 2017, and 4) the removal of hardness monitoring.

Publishing Newspaper: The Messenger, 229 Main Street, Elroy, WI, 53929and The County Line, PO Box 7, Ontario, WI 54651

Significant Industrial Loading? No

SUBSTANTIAL COMPLIANCE DETERMINATION

	Compliance	Comments
Discharge Limits	Yes	The facility had significant problems with meeting limits earlier in permit term. Corrective actions were implemented. Since 2010 the facility has had only one violation of the limits.
Sampling/testing requirements	Yes	
Groundwater standards	NA	
Reporting requirements	Yes	DMRs tend to be a little late.
Compliance schedules	Yes	The facility completed the collection system rehabilitation project in November 2012. The project was delayed due to delays in receiving a large grant

		for the work. The collection system maintenance reports due on September 30, 2012 were also delayed. The one thing the facility did not complete was the inventory of residential sump pumps and roof leaders. However, the final report documents that the major improvements have significantly reduced I&I.
Other:	NA	
Enforcement considerations	NA	
In substantial compliance? Yes	**Name:** Peter Pfefferkorn **Date:** April 10, 2013	

SUBSTANTIAL COMPLIANCE DETERMINATION – LAND APP

	Compliance	**Comments**
Discharge Limits	Yes	
Sampling/testing requirements	Yes	Facility was told by J Friedrich that they did not need to test the sludge, even though their permit required it. I will require annually testing for this upcoming permit term.
Groundwater standards		
Reporting requirements	Yes	
Compliance schedules	Yes	
Other:		
Enforcement considerations	None	
In substantial compliance? Yes	**Name:** Leanne Hinke **Date:** April 2, 2013	

PROPOSED PERMIT MONITORING AND LIMITATIONS – INFLUENT

Sample Number: 701	**Sample Location:** Representative influent samples shall be collected at the force main prior to entering the plant.		
PARAMETER	**UNIT**	**SAMPLE FREQ.**	**SAMPLE TYPE**
BOD_5	mg/L	3/Week	24-hr Flow Prop Comp
Suspended Solids	mg/L	3/Week	24-hr Flow Prop Comp
Explanation of influent changes from previous permit: none			

PROPOSED PERMIT MONITORING AND LIMITATIONS – EFFLUENT

Outfall No: 001	**Sample Description**: Representative composite and grab samples shall be collected after de-chlorination and prior to discharge to the Baraboo River.		
PARAMETER	**LIMITATION**	**SAMPLE FREQ**	**SAMPLE TYPE**
Flow	MGD	Continuous	
BOD_5	45 mg/L weekly ave, 30 mg/L monthly ave	3/Week	24 hr Fl Prop Comp

Suspended Solids	45 mg/L weekly ave, 30 mg/L monthly ave	3/Week	24 hr Fl Prop Comp
pH	9.0 su Daily Max, 6.0 su Daily Min	Daily	Grab
Fecal Coliform May-Sept	400#/100 mL Monthly Geometric Mean	Weekly	Grab
Chlorine May-Sept	38 µg/L daily max	Daily	Grab,
Copper	µg/L	Quarterly	24 hr Fl Prop Comp,
Ammonia	mg/L	Monthly	24 hr Fl Prop Comp
Phosphorus effective upon permit issuance Limits effective beyond the permit term	6.0 mg/L monthly avg interim limit 0.225 mg/L monthly avg 0.075 mg/L 6 month avg 0.044 lbs/day 6 month avg	3/Week 3/Week	24 Hr Fl Prop Comp 24 Hr Fl Prop Comp Calculated
Temperature, Maximum 2017 only	Deg F	3/Week	Continuous
Acute WET Oct –Dec 2014 Apr-Jun 2016	TUa	2/Permit Term	24 hr Fl Prop Comp
Explanation of effluent changes from last permit: 1) removal of effluent copper limits and replaced with monitoring, 2) addition of effluent phosphorus limits and an associated compliance schedule, 3) the addition of effluent temperature monitoring in 2017, and 4) the removal of hardness monitoring. Also see memo dated March 19, 2013 and titled "Water Quality Based Effluent Limitations for the Village of Kendall" from Pat Oldenburg to Angela Parkhurst for more information.			
Chlorine monitoring or limits: May – Sept daily monitoring with a limit of 38 µg/L daily max			
Ammonia monitoring or limits: Monthly monitoring.			
Copper monitoring or limits: Based on data from the previous permit term, limits are no longer required and replaced with quarterly monitoring.			

Phosphorus monitoring or limits: This permit contains a compliance schedule to meet the water quality-based effluent limit (WQBEL) for phosphorus in accordance with s. NR 217.17, Wis. Adm. Code. As such an interim limitation is required. Considering previous phosphorus data, the facility's capabilities, and using Best Professional Judgment, monitoring 3/Week and a limit of 6.0 mg/L monthly average was deemed appropriate.

The proposed final 6 month average concentration limits for phosphorus of 0.075 mg/L and 0.044 lbs/day represents a very challenging level for wastewater facilities to meet with current technology and operation. The facility is an extended aeration activated sludge facility. Even with treatment optimization, facilities with plant processes similar to this facility are insufficient to meet either the proposed monthly or annual limits. Therefore, the Department believes that a compliance schedule is necessary to comply with the proposed limitations. It is also probable that, in order to consistently comply with the 0.075 mg/L limit, facilities will need to evaluate and implement any number of the following approaches:
--Plant optimization;
--Phosphorus source reduction;
--Additional treatment processes, or replacement or retrofitting of the current phosphorus removal process;
--Potential for adaptive management and/or pollutant trading with upstream contributors, and implementation of such trades.
The Department believes that the compliance schedule suggested in the draft permit provides the appropriate length of time for the permittee to evaluate these options, implement the chosen option and meet the final phosphorus limits (WQBELs). See compliance schedule section and limit memo for more information.

Temperature: Although temperature limits were recommended in the WQBEL memo dated March 19, 2013 from Pat Oldenburg to Angela Parkhurst, a dissipative cooling study was conducted and DNR staff concluded only temperature monitoring during the 4th year of the permit will be sufficient to protect the receiving waters.

The permittee conducted a dissipative cooling evaluation study during August 2013, submitted September 5, 2013, and approved by the Department October, 2013. The Department reviewed the results of that study and determined that adequate dissipative cooling was shown to occur.

BIOMONITORING REQUIREMENTS

Is biomonitoring required at this outfall? Yes, acute WET testing is required 2 during the permit term.	**IWC**= 19.4%	**Primary Control Water Location**: Baraboo River
Q_s:Q_e: 16.6:1	**Discussion of existing biomonitoring data**: See WET checklist.	
If the stream class at the discharge point is other than Fish and Aquatic Life (FFAL), how far down stream is the next Fish and Aquatic Life stream? Stream is Cold Water, which is more restrictive than FFAL.		

DISINFECTION

Is disinfection required for this discharge? Yes, seasonally May - September
Type of disinfection: Chlorination
Discussion: The disinfection season is May-September. All samples for chlorine and fecal coliform must be collected after the chlorination chamber and prior to discharge.

SLUDGE REQUIREMENTS

All sludge management requirements were determined ch. NR 204, Wis. Adm. Code

Sample Number: 002	**Sample Location:** As long as sludge is shipped to the City of Elroy WWTF for disposal, representative sludge grab samples shall be collected once per year from the sludge standpipe and monitored for List 1 parameters. Sludge samples shall be collected prior to hauling and test results shall be reported on Form 3400-49 "Waste Characteristics Report". Hauled sludge reports shall be submitted on Form 3400-52 "Other Methods of Disposal or Distribution Report" following each year that sludge is hauled.

Sludge # (3 digits)	Sludge Class (A or B)	Liquid or Cake	Pathogen Reduction Method	Vector Attraction Reduction Method	Reuse Option
002	B	Liquid	N/A	N/A	Sludge is hauled

Sludge Management Adequate? Yes
Sludge Storage Required? Sludge is hauled to the Elroy WWTF.
Radium Requirements: Is radium-226 present in the water supply at a level greater than 2 pCi/L? No
Is a priority pollutant scan required? No

PROPOSED COMPLIANCE SCHEDULES

Water Quality Based Effluent Limits (WQBELS) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 30 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Date Due
Operational Evaluation Report: The permittee shall prepare and submit to the Department for approval an operational evaluation report. The report shall include an evaluation of collected effluent data, possible source reduction measures, operational improvements or other minor facility modifications that will optimize reductions in phosphorus discharges from the treatment plant during the period prior to complying with final phosphorus WQBELs and, where possible, enable compliance with final phosphorus WQBELs by 12/31/2016. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than 12/31/2016 and state whether the measures, improvements, and modifications will enable compliance with final phosphorus WQBELs. Regardless of whether they are expected to result in compliance, the permittee shall implement the measures, improvements, and modifications in accordance with the plan and schedule specified in the operational evaluation report. If the operational evaluation report concludes that the facility can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the permittee shall comply with the final phosphorus WQBEL by 12/31/2016 and is not required to comply with the milestones identified below for years 3 through 9 of this compliance schedule ('Preliminary Compliance Alternatives Plan', 'Final Compliance Alternatives Plan', 'Treatment Plant Upgrade to Meet WQBELs','Final Plans and Specifications, 'Complete Construction, 'Achieve Compliance').	12/31/2014
Study of Feasible Alternatives:: If the Operational Evaluation Report concludes that the permittee cannot achieve final phosphorus WQBELs with source reduction measures, operational improvements and other minor facility modifications, the permittee shall initiate a study of feasible alternatives for meeting final phosphorus WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the Department may reopen and modify the permit to include an implementation	12/31/2014

schedule for achieving the final phosphorus WQBELs sooner than 12/31/2022.	
Compliance Alternatives, Source Reduction, Improvements and Modifications Status: The permittee shall submit a 'Compliance Alternatives, Source Reduction, Operational Improvements and Minor Facility Modification' status report to the Department. The report shall provide an update on the permittee's: (1) progress implementing source reduction measures, operational improvements, and minor facility modifications to optimize reductions in phosphorus discharges and, to the extent that such measures, improvements, and modifications will not enable compliance with the WQBELs, (2) status evaluating feasible alternatives for meeting phosphorus WQBELs.	12/31/2015
Preliminary Facilities Plan: The permittee shall submit a preliminary compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee's wastewater treatment facility is necessary to achieve final phosphorus WQBELs, the submittal shall include a preliminary engineering design report. If the plan concludes Adaptive Management will be used, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 without the Adaptive Management Plan. If water quality trading will be undertaken, the plan must state that trading will be pursued.	12/31/2016
Final Compliance Alternatives Plan: The permittee shall submit a final compliance alternatives plan to the Department. If the plan concludes upgrading of the permittee's wastewater treatment is necessary to meet final phosphorus WQBELs, the submittal shall include a final engineering design report addressing the treatment plant upgrades, and a facility plan if required pursuant to ch. NR 110 If the plan concludes Adaptive Management will be implemented, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 and an engineering report addressing any treatment system upgrades necessary to meet interim limits pursuant to s. NR 217.18, Wis. Adm. Code. If the plan concludes water quality trading will be used, the submittal shall identify potential trading partners. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2017
Progress Report on Plans & Specifications: Submit progress report regarding the progress of preparing final plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2018
Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance is subject to s. 283.53(2) Stats.) Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	12/31/2019
Treatment Plant Upgrade To Meet WQBEL: If the approved facility plan concluded upgrading of the permittee's wastewater treatment system is necessary to meet final water quality based limits, the permittee shall initiate construction of the upgrades in accordance with the approved plans.	03/31/2020
Construction Upgrade Progress Report: The permittee shall submit a progress report on construction of the upgrades.	03/31/2021
Complete Construction: The permittee shall complete construction of wastewater treatment system	

upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit. Date Due: This is a date range from 7-9 years from permit issuance because of new information that can be acquired before the next permit issuance.	
Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit. Date Due: This is a date range from 7-9 years from permit issuance because of new information that can be acquired before the next permit issuance.	

OTHER COMMENTS

Proposed expiration date: December 31, 2018
Prepared by: Angela Parkhurst
Date: October 9, 2013

CORRESPONDENCE / MEMORANDUM **State of Wisconsin**

DATE: March 19, 2013

TO: Angela Parkhurst - WCR

FROM: Pat Oldenburg - WCR

SUBJECT: Water Quality-Based Effluent Limitations for the Village of Kendall (WI-0020516)

This is in response to your request for an evaluation of water quality-based effluent limitations using chs. NR 102, 105, 106, and 217 of the Wisconsin Administrative Code (where applicable), for the Village of Kendall's discharge to the Baraboo River. The discharge is located in the Seymour Creek and Upper Baraboo River Watershed of the Lower Wisconsin River Basin in Monroe County.

Based on our review, the following recommendations are made on a chemical-specific basis:

Parameter	Limit Type	Limit and Units	Notes
Flow Rate		MGD	1
BOD_5, Total	Monthly Avg	30 mg/L	1
BOD_5, Total	Weekly Avg	45 mg/L	1
Suspended Solids, Total	Monthly Avg	30 mg/L	1
Suspended Solids, Total	Weekly Avg	45 mg/L	1
pH Field	Daily Max	9.0 su	1
pH Field	Daily Min	6.0 su	1
Copper, Total Recoverable		µg/L	
Nitrogen, Ammonia (NH_3-N) Total		mg/L	1
Fecal Coliform	Geometric Mean	400 #/100 ml	1,2
Chlorine, Total Residual	Daily Max	38 µg/L	1,2
Acute WET		TU_a	3
Phosphorus, Total	Monthly Avg	0.225 mg/L	
Phosphorus, Total	6 Month Avg	0.075 mg/L; 0.044 lbs/day	
Temperature, Maximum	Weekly Avg	ºF	4

1. Continued from current permit.
2. Monitoring and limit apply annually May - September.
3. 2 tests in permit term
4. Weekly average temperature limits by month:

Month	Weekly Ave Limit (°F)
Jul	71
Aug	69
Sep	68
Oct	63

Based on the copper monitoring data collected over the course of the last permit term, a limit is not warranted at this time. Continued monitoring is recommended, however a reduced frequency

(e.g. quarterly) would provide ample information.

Recent changes to chs. NR 102 and 217 include new phosphorus criteria and related procedures for calculating water quality based effluent limitations for phosphorus. These rule changes became effective on December 1st, 2010. There is recent data from the Baraboo River which indicates that the receiving water is above the 0.075 mg/L water quality criterion:

SWIMS ID	10013905
Station Name	Baraboo River at Hwy. 71 bridge, Kendall (Station 7)
Sample Count	7
First Sample	05/08/2012
Last Sample	10/10/2012
Mean	0.141
Median	0.134
NR 217 Median	0.138

Because the receiving stream is exceeding the criterion, the calculated water-quality based effluent limit would be equal to criterion (s. NR 217.13(7)). For the reasons explained in the April 30, 2012 paper entitled *Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin*, WDNR has determined that it is impracticable to express the phosphorus WQBEL for the permittee as maximum daily, weekly, or monthly values. The final effluent limit for phosphorus is expressed as a six-month average (0.075 mg/L). It is also expressed as a monthly average equal to three times the derived WQBEL (0.225 mg/L). This final effluent limit was derived from and complies with the applicable water quality criterion. Since the discharge is upstream of a phosphorus impaired water body (Lake Wisconsin) a mass limit is also recommended. The recommend mass limit is 0.044 lbs/day 6 month average and is based on the 6 month concentration limit and the facility design flow of 0.07 MGD.

Recent phosphorus data from Kendall indicate that the effluent concentration is well above the calculated water quality based limitation; therefore a limit is warranted per s. NR 217.15(1). The calculated water-quality based limitation is stringent enough that a compliance schedule is appropriate. Based on phosphorus data submitted to the Department during the past permit term, an interim phosphorus limit of 6.0 mg/L monthly average is recommended.

The Department intends to have developed a phosphorus total maximum daily load (TMDL) for the Baraboo River and its tributaries in the next 5 years. The water-quality based effluent limit phosphorus limit may change based on the TMDL.

Recent changes to chs. NR 102 and 106 include new temperature criteria and related procedures for calculating water quality based effluent limitations for temperature. These rule changes became effective on October 1st, 2010. A summary of the calculated limitations are as follows:

Month	Weekly Ave Limit (°F)	Daily Max Limit (°F)
Jan	84	120
Feb	78	104
Mar	61	82
Apr	76	98
May	70	80
Jun	74	80
Jul	71	78
Aug	69	87
Sep	68	93
Oct	63	94
Nov	74	120
Dec	89	120

Based on data collected over the past year there is no reasonable potential for the calculated daily maximum temperature limits to be exceeded. Likewise, there is no reasonable potential for the calculated weekly average temperature limits to be exceeded during November - June. Therefore, no limitations are recommended for those months. However, for the months of July – October, limits are recommended. Since this is an existing POTW outfall the department may account for dissipative cooling in accordance with s. NR 106.59(4). At this time there is insufficient data for the department to make a final determination on dissipative cooling.

Based on the data collected during the current permit term, the stream classification, and the guidance provided in the July 1, 2008 *Whole Effluent Toxicity Program Guidance Document - Revision #8*, two acute Whole Effluent Toxicity (WET) tests are is recommended for inclusion in the reissued permit.

If there are any questions or comments, please contact Pat Oldenburg at (715) 831-3262 or via e-mail at Patrick.Oldenburg@wisconsin.gov.

e-cc: Pete Pfefferkorn – WI Rapids
Kurt Rasmussen - La Crosse
Diane Figiel – WT/3
Amanda Minks – WT/3

Effluent limit calculations for: Village of Kendall
WPDES Permit #: 0020516
Permit Drafter: Angela Parkhurst
Basin Engineer: Pete Pfefferkorn – WI Rapids
WQ Reviewer: Kurt Rasmussen - La Crosse

Receiving Water Information:
Receiving Water: Baraboo River
Watershed: Seymour Creek and Upper Baraboo River Watershed
Basin: Lower Wisconsin River Basin
County: Monroe
Classification: Cold Water, Non-public Water Supply

Flows:	7Q10	7Q2	90Q10	Estimated Harmonic Mean	Basin Area (mi 2)
	1.8	2.6	2.2	5.4	

% Used For Mixing = 25
Hardness = 164 PPM geometric mean from Baraboo at Reedsburg

Background Metals Data Source: Kickapoo River @ Oil City

Substance	Result
Cadmium	0.025
Chromium	0.836
Copper	1.093
Lead	0.950
Mercury	
Zinc	2.935

Effluent Information: Outfall Number		f	Daily Average Flow (mgd)	(cfs)
	001		0.07	0.11
	Σ	0	0.07	0.11

Effluent Hardness = 189 PPM
Effluent Dilution due to ZID = NA
7Q10:Qe = 16.6 :1

CALCULATION OF EFFLUENT LIMITATIONS BASED ON ATC (ug/L)

SUBSTANCE	Ref. Hard. or pH	ATC	Daily Effl. Limit	1/5 of Effl. Limit	Mean Effl. Conc.	1-day P99	1-day Max. Conc.
Chlorine		19.03	38.06	7.61			
Arsenic		339.80	679.60	135.92	0.78		
Cadmium	189	21.39	42.78	8.56	<0.068		
Chromium (+3)	189	3036.89	6073.78	1214.76	<0.35		
Copper	189	28.29	56.58		18.6	51.7	45.1
Lead	189	197.78	395.56	79.11	<0.23		
Nickel	189	780.56	1561.12	312.22	6.78		
Zinc	189	210.04	420.08	84.02	39.2		
Chloride (mg/L)		757	1514.00		94.5	107.3	99.6

CALCULATION OF EFFLUENT LIMITATIONS BASED ON CTC (ug/L)

Receiving Water Flow = 0.45 cfs

SUBSTANCE	Ref. Hard. or pH	CTC	Mean Back-ground	Weekly Effl. Limit	1/5 of Effl. Limit	Mean Effl. Conc.	4-day P99	4-day Max. Conc.
Chlorine		7.28		37.53	7.51			
Arsenic		152.20		784.56	156.91	0.78		
Cadmium	164	3.63	0.025	18.61	3.72	<0.068		
Chromium (+3)	164	198.10	0.836	1017.69	203.54	<0.35		
Copper	164	15.81	1.093	76.96		18.60	32.7	
Lead	164	45.17	0.950	228.89	45.78	<0.23		
Nickel	164	79.32		408.88	81.78	6.78		
Zinc	164	185.53	2.935	944.17	188.83	39.2		
Chloride (mg/L)		395		2036.14		94.5	100.7	

CALCULATION OF EFFLUENT LIMITATIONS BASED ON HTC (ug/L)

Receiving Water Flow = 1.35 cfs

SUBSTANCE	Ref. Hard. or pH	HTC	Mean Back-ground	Monthly Effl. Limit	1/5 of Effl. Limit	Mean Effl. Conc.	30-day P99	30-day Max. Conc.
Cadmium		370	0.0253	4981	996	<0.068		
Chromium (+3)		3.82E+06	0.836	5.14E+07	1.03E+07	<0.35		
Lead		140	0.9501	1873	375	<0.23		
Nickel		4.30E+04		5.79E+05	1.16E+05	6.78		

CALCULATION OF EFFLUENT LIMITATIONS BASED ON HCC (ug/L)

Receiving Water Flow = 1.35 cfs

SUBSTANCE	Ref. Hard. or pH	HCC	Mean Back-ground	Monthly Effl. Limit	1/5 of Effl. Limit	Mean Effl. Conc.	30-day P99	30-day Max. Conc.
Arsenic		13.3		179	36	0.78		

AMMONIA (as N) LIMITS

Effluent Flow (mgd):	0.07
Effluent Flow (cfs):	0.108
Effluent pH data:	
Begin Date	01-Feb-10
End Date	31-Jan-13
# of Samples	1096
Maximum	7.4
Average	7.08
Standard Deviation	0.080
Estimated 99th Percentile	7.27
Max. Effluent pH (s.u.):	7.30

BACKGROUND INFORMATION:

	summer	***winter***	***spring***	***fall***
4Q3 (cfs)				
7Q10 (cfs)	1.8	1.8		
30Q5 (cfs)				
7Q2 (cfs)	2.6	2.6		
Ammonia (mg/L) (1)	0.1	0.1		
Temperature (deg C) (2)	20	10		
pH (std. units) (3)	8.21	7.97		
% of river flow used:	100	25		
Reference weekly flow:	1.8	0.45		
Reference monthly flow:	2.21	0.5525		
CRITERIA (in mg/L):				
Acute (@ effl. pH):	26.21	26.21		
4-day Chronic (@ backgrd. pH):				
early life stages present	3.10	6.35		
early life stages absent	3.10	8.50		
30-day Chronic (@ backgrd. pH)				
early life stages present	1.24	2.54		
early life stages absent	1.24	3.40		
EFFLUENT LIMITS (in mg/L):				
Daily maximum	52	52		
Weekly average				
early life stages present	53	32		
early life stages absent		43		
Monthly average				
early life stages present	24	15		
early life stages absent		20		

(1) Default Data
(2) Default Data
(3) Default Data

"Summer"		"Winter"	
Date	NH_3-N (mg/L)	Date	NH_3-N (mg/L)
06-Oct-08	0.53	03-Nov-08	10.6
04-May-09	9.88	02-Dec-08	0.08
01-Jun-09	1.27	06-Jan-09	0.3
06-Jul-09	3.77	03-Feb-09	6.65
03-Aug-09	3.5	03-Mar-09	3.94
01-Sep-09	0.3	07-Apr-09	15.2
07-Oct-09	0.11	04-Nov-09	3.09
03-May-10	15.1	02-Dec-09	0.68
03-Jun-10	0.2	12-Jan-10	7.99
06-Jul-10	0.46	03-Feb-10	5.58
02-Aug-10	5.96	23-Mar-10	7.04
09-Sep-10	10.2	07-Apr-10	3.98
09-Oct-10	5.24	03-Nov-10	2.6
04-May-11	4.35	08-Dec-10	0.83
08-Jun-11	1.92	05-Jan-11	1.14
05-Jul-11	2.2	02-Feb-11	0.1
31-Aug-11	0.08	02-Mar-11	0.72
20-Sep-11	0.22	05-Apr-11	3.97
03-Oct-11	1.13	01-Nov-11	0.14
02-May-12	1.19	05-Dec-11	0.54
04-Jun-12	0.17	04-Jan-12	0.07
02-Jul-12	0.35	08-Feb-12	0.24
19-Sep-12	1.86	26-Mar-12	1.84
02-Oct-12	1.85	02-Apr-12	0.34
		05-Nov-12	10.3
		03-Dec-12	0.18
		07-Jan-13	12.3
1-day P99	18.4	1-day P99	20.9
4-day P99	9.9	4-day P99	11.3
30-day P99	5.0	30-day P99	5.9
Max	15.1	Max	15.2

Date	Cu (µg/L)	Date	Cl- (mg/L)	Date	Hardness (mg/L as $CaCO_3$)
04-Aug-08	44.1	16-Aug-12	87.7	22-Oct-08	225
02-Sep-08	12.4	21-Aug-12	99.6	03-Mar-09	173
06-Oct-08	15.6	28-Aug-12	97.4	04-May-09	197
03-Nov-08	5.73	04-Sep-12	93.2	01-Sep-09	188
02-Dec-08	45.1			08-Oct-09	184
06-Jan-09	21.9			03-Feb-10	222
03-Feb-09	26.6			07-Apr-10	192
03-Mar-09	26.7			06-Jul-10	158
07-Apr-09	23.1			03-Nov-10	181
04-May-09	13.1			05-Jan-11	195
01-Jun-09	25.7			05-Apr-11	192
06-Jul-09	10.8			14-Sep-11	184
03-Aug-09	14.4			03-Oct-11	204
01-Sep-09	20.7			04-Jan-12	207
07-Oct-09	19.4			02-Jul-12	196
04-Nov-09	14.2			02-Oct-12	183
02-Dec-09	25			07-Jan-13	153
12-Jan-10	16.4				
03-Feb-10	29.7				
23-Mar-10	18.3				
07-Apr-10	30.8				
03-May-10	12				
03-Jun-10	18.8				
06-Jul-10	6.54				
02-Aug-10	8.08				
09-Sep-10	21				
03-Nov-10	18.6				
03-Nov-10	18.6				
05-Jan-11	1.14				
05-Apr-11	5.27				
14-Sep-11	24.6				
03-Oct-11	9.84				
04-Jan-12	25.1				
02-Apr-12	7.63				
02-Jul-12	9.4				
02-Oct-12	22.6				
08-Jan-13	19.3				

Date	Effluent Total Phosphorous (mg/L)	Monthly Average Effluent Flow Rate (MGD)	Phosphorous Discharged (lb./month)
14-Aug-12	3.57		
21-Aug-12	5.69		
28-Aug-12	4.3	0.0515	58
04-Sep-12	3.59		
11-Sep-12	4.72		
18-Sep-12	5.17		
25-Sep-12	4.8	0.0399	46
02-Oct-12	6.54		
09-Oct-12	4.79		
16-Oct-12	4.88		
23-Oct-12	3.78		
30-Oct-12	4.06	0.0455	50

WHOLE EFFLUENT TOXICITY (WET) TESTING CHECKLIST SUMMARY

	Acute	Chronic
IWC	Not Applicable for Acute	Instream Waste Concentration : 19 (< 35% = 0 pts; 36 - 65% = 1- pts; >65% = 15 pts) **Total Points: 0**
Historical Data	Acute RPF : 0 a limit is required if >= 0.3 **Total Points: 0**	Chronic RPF : 0 a limit is required if >= 0.3 **Total Points: 5**
Effluent Variability	Points assessed for effluent variability, permit violations and WWTP operations **Total Points: 0**	Same as Acute **Total Points: 0**
Stream Classification	Points assessed due to receiving water classification **5**	Same as Acute **Total Points: 5**
Chemical Specific Data	Acute WQBEL required: 1 Substances detected without WQBEL: 5 Additional compounds of concern: 0 **Total Points: 8**	Chronic WQBEL required: 0 Substances detected without WQBEL: 5 Additional compounds of concern: 0 **Total Points: 3**
Additives	# Biocide(s): 1 # Water Quality Conditioners: 1 **Total Points: 4**	Same as Acute **Total Points: 4**
Discharge Category	# of industrial contributor(s): **Total Points: 0**	Same as Acute **Total Points: 0**
Wastewater Treatment	Points assessed for effluent variability, permit violations and WWTP operations **Total Points: 0**	Same as Acute **Total Points: 0**
Downstream Impacts	Points assessed due to ecological impacts solely or partially due to the discharge **Total Points: 0**	Same as Acute **Total Points: 0**
TOTAL POINTS	**Acute : 17**	**Chronic : 17**

Facility Type:	Municipal
Secondary values considered and no WET data?	N
Is this facility classified as either a Major Municipal or Primarily Industrial Facility?	N
Effluent limits based on a dissolved water quality criterion?	N
Acute Frequency:	2 tests in permit term
Chronic Frequency:	No WET tests needed
Recommended Chronic Dilution Series:	100% 30% 10% 3% 1%
NEW IWC:	19

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

Facility:	Kendall	**Data Range**	**7Q10 or 4Q3:**	1.8	cfs
Outfall(s):	001	**Start:** 08/01/08	**Dilution:**	25%	
Date Prepared:	21-Feb-13	**End:** 01/31/13	**f:**	0	
Design Flow (Qe):	0.07 mgd		**Stream type:**	Cold water community	
			Qs:Qe ratio:	4.2 :1	
			Calculation Needed?	**YES**	

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)	Representative Highest Effluent Flow Rate (Qe)		Representative Highest Monthly Effluent Temperature		99th Percentile of Representative Data		**Calculated Effluent Limits**	
	Ta (default)	Sub-Lethal WQC	Acute WQC		7-day Rolling Ave (Qesl)	Daily Max Flow Rate (Qea)	Weekly Ave	Daily Max	Weekly Ave	Daily Max*	**Weekly Ave Limit**	**Daily Max Limit**
	(°F)	(°F)	(°F)	(cfs)	(mgd)	(mgd)	(°F)	(°F)	(°F)	(°F)	(°F)	(°F)
JAN	35	47	68	0.45	0.095	0.135	62	91	67	75	84	120
FEB	36	47	68	0.45	0.102	0.257					78	104
MAR	39	51	69	0.45	0.364	0.683					61	82
APR	47	57	70	0.45	0.150	0.237					76	98
MAY	56	63	72	0.45	0.308	0.564	57	58	57	59	70	80
JUN	62	67	72	0.45	0.216	0.367	66	68	65	68	74	80
JUL	64	67	73	0.45	0.240	0.488	**73**	75	**73**	76	**71**	78
AUG	63	65	73	0.45	0.145	0.201	**76**	76	**76**	77	**69**	87
SEP	57	60	72	0.45	0.106	0.205	**74**	75	**73**	77	**68**	93
OCT	49	53	70	0.45	0.111	0.252	**66**	67	**66**	69	**63**	94
NOV	41	48	69	0.45	0.079	0.112	58	59	58	60	74	120
DEC	37	47	69	0.45	0.070	0.147	64	64	64	64	89	120

*NA - Indicates that there are greater than 100 daily maximum values, therefore 99th percentile would be a value less than the recorded daily maximum.