Permit Fact Sheet

1 General Information

Permit Number:	WI-0032026-08-0	
Permittee Name:	Delafield Hartland Pollution Control Commission	
Address:	416 Butler Drive	
City/State/Zip:	Delafield WI 53018-1871	
Discharge Location:	East bank of the Bark River, 3500 feet down stream of Genesee Lake Rd bridge, Village of Summit in the SW ¼ of SE ¼ of Section 26, T1N, R17E	
Receiving Water:	The Bark River, located in the Bark River watershed, in the lower Rock River Basin, in Waukesha County. The Bark River (miles 35-41) is on the 303(d) impaired waters list for total phosphorus – low DO impairment.	
Stream Flow ($Q_{7,10}$):	3.6 cfs	
Stream Classification:	Warmwater sport fish community, non-public water supply	
Design Flow(s)	Daily Maximum	6.54 MGD
	Weekly Maximum	3.87 MGD
	Monthly Maximum	3.38 MGD
	Annual Average	3.23 MGD
Significant Industrial Loading?	No, Triad Industries closed in 2011, the business was sold at auction to Medline Inc. Medline plans to start up production of mixing and packaging various pharmaceuticals in the first quarter of 2015. However, it should be noted that Medline is not considered to be a Significant Industrial Load.	
Operator at Proper Grade?	Yes, Scott Luczak, Grade IV	
Pretreatment Program Approval Date:	Not Applicable	

2 Facility Description

Delafield-Hartland (Dela-Hart) owns and operates a 3.23 MGD extended aeration activated sludge plant, which commenced operation in May 2004. Treatment processes include bar screening and grit removal, primary clarification, extended aeration activated sludge treatment, final clarification, and sand filtration. Seasonal disinfection is done by addition of liquid sodium hypochlorite and effluent dechlorination by addition of liquid sodium bisulfite. Effluent is discharged into the Bark River at a point about four miles away from the wastewater plant. Dela-Hart has a temperature phased anaerobic digestion (TPAD) system and generates a Class A Biosolids. Dela-Hart's facility is regional and serves the City of Delafield, the Villages of Hartland, Nashotah and Summit, and the Town of Delafield. The service area is a 100% separate sewer collection system.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)**
701	Influent Flow: Averaged 1.90 MGD from January 2011 – June 2014	Influent samples shall be taken from an ISCO composite sampler, drawing samples from the point preceding grit removal, after the bar screen at the odor control room.
001	Effluent Flow: Averaged 1.83 MGD from January 2011 – June 2014	Effluent composite samples shall be collected from the effluent automatic sampler, drawing from a point in the sand filter building effluent channel, after the tertiary sand filters; Grab samples shall be taken at the chlorine contact tank and at the pumping station #1 wet well (for chlorine residual).
002	Discharge occurs only when digesters are taken down for maintenance.	Class B Biosolids: anaerobically digested liquid sludge from storage tank. Liquid sludge is hauled away by permitted waste hauler and injected.
004	Waste Sludge (Biosolids): 435 dry Tons/Year (Application)	Class A Biosolids: anaerobically digested, belt press thickened, dried in drying beds. Cell dried cake sludge, transferred to storage building. Sludge is land applied or distributed as exceptional quality bulk biosolids.
101	Influent Flow: Averaged 1.90 MGD from January 2011 – June 2014	Field Blanks for Effluent Mercury

3 Influent - Proposed Monitoring

3.1 Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Continuous	Continuous	
BOD5, Total		mg/L	Daily	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	Daily	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Quarterly	24-Hr Flow Prop Comp	

3.1.1 Changes from Previous Permit:

No Changes

3.1.2 Explanation of Limits and Monitoring Requirements

These are standard municipal wastewater requirements. Tracking of BOD and Suspended Solids is required for percent removal requirements.

4 Inplant - Proposed Monitoring and Limitations

4.1 Sample Point Number: 101- Mercury Effluent Blanks

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Quarterly	Grab	

4.1.1 Changes from Previous Permit:

No Changes

4.1.2 Explanation of Limits and Monitoring Requirements

Required field blank for Mercury monitoring per NR 106.145 requirements.

5 Surface Water - Proposed Monitoring and Limitations

5.1 Sample Point Number: 001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Continuous	Continuous	
BOD5, Total	Weekly Avg	12 mg/L	Daily	24-Hr Comp	November 1 - April 30
BOD5, Total	Monthly Avg	12 mg/L	Daily	24-Hr Comp	November 1 - April 30
BOD5, Total	Weekly Avg	7.0 mg/L	Daily	24-Hr Comp	May 1 - October 31
BOD5, Total	Monthly Avg	7.0 mg/L	Daily	24-Hr Comp	May 1 - October 31
BOD5, Total	Weekly Avg	302 lbs/day	Daily	Calculated	November 1 - April 30
Suspended Solids, Total	Weekly Avg	14 mg/L	Daily	24-Hr Comp	November 1 - April 30
Suspended Solids, Total	Monthly Avg	14 mg/L	Daily	24-Hr Comp	November 1 - April 30
Suspended Solids, Total	Weekly Avg	10 mg/L	Daily	24-Hr Comp	May 1 - October 31

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total	Monthly Avg	10 mg/L	Daily	24-Hr Comp	May 1 - October 31
Suspended Solids, Total	Monthly Avg	226 lbs/day	Daily	Calculated	Effective January annually
Suspended Solids, Total	Monthly Avg	264 lbs/day	Daily	Calculated	Effective February annually
Suspended Solids, Total	Monthly Avg	248 lbs/day	Daily	Calculated	Effective March annually
Suspended Solids, Total	Monthly Avg	211 lbs/day	Daily	Calculated	Effective April annually
Suspended Solids, Total	Monthly Avg	173 lbs/day	Daily	Calculated	Effective May annually
Suspended Solids, Total	Monthly Avg	181 lbs/day	Daily	Calculated	Effective June annually
Suspended Solids, Total	Monthly Avg	135 lbs/day	Daily	Calculated	Effective July annually
Suspended Solids, Total	Monthly Avg	128 lbs/day	Daily	Calculated	Effective August and October annually
Suspended Solids, Total	Monthly Avg	105 lbs/day	Daily	Calculated	Effective September annually
Suspended Solids, Total	Monthly Avg	203 lbs/day	Daily	Calculated	Effective November annually
Suspended Solids, Total	Monthly Avg	233 lbs/day	Daily	Calculated	Effective December annually
Suspended Solids, Total	Weekly Avg	289 lbs/day	Daily	Calculated	Effective January annually
Suspended Solids, Total	Weekly Avg	338 lbs/day	Daily	Calculated	Effective February annually
Suspended Solids, Total	Weekly Avg	317 lbs/day	Daily	Calculated	Effective March annually
Suspended Solids, Total	Weekly Avg	270 lbs/day	Daily	Calculated	Effective April annually
Suspended Solids, Total	Weekly Avg	221 lbs/day	Daily	Calculated	Effective May annually
Suspended Solids, Total	Weekly Avg	232 lbs/day	Daily	Calculated	Effective June annually

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Suspended Solids, Total	Weekly Avg	173 lbs/day	Daily	Calculated	Effective July annually
Suspended Solids, Total	Weekly Avg	164 lbs/day	Daily	Calculated	Effective August and October annually
Suspended Solids, Total	Weekly Avg	134 lbs/day	Daily	Calculated	Effective September annually
Suspended Solids, Total	Weekly Avg	260 lbs/day	Daily	Calculated	Effective November annually
Suspended Solids, Total	Weekly Avg	298 lbs/day	Daily	Calculated	Effective December annually
Phosphorus, Total	Monthly Avg	1.0 mg/L	5/Week	24-Hr Flow Prop Comp	Note that this is an interim limit. See the Phosphorus Limitation section in the permit for the final water quality based phosphorus limit effective at the end of the compliance schedule.
Phosphorus, Total		lbs/day	5/Week	Calculated	See phosphorus footnotes in the permit for final limits. Calculate the daily mass discharge of phosphorus in lbs/day on the same day phosphorus sampling occurs. Daily mass (lbs/day) = daily concentration (mg/L) x daily flow (MGD) x 8.34.
Dissolved Oxygen	Daily Min	7.0 mg/L	Daily	Grab	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Nitrogen, Ammonia (NH3-N) Total	Daily Max	29 mg/L	5/Week	24-Hr Flow Prop Comp	November 1 - April 30 limit
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	4.9 mg/L	5/Week	24-Hr Flow Prop Comp	April limit
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	3.6 mg/L	5/Week	24-Hr Flow Prop Comp	May 1 - September 30 limit
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	6.9 mg/L	5/Week	24-Hr Flow Prop Comp	October limit
Nitrogen, Ammonia	Weekly Avg	11.4 mg/L	5/Week	24-Hr Flow	November 1 - March 30

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
(NH3-N) Total				Prop Comp	limit
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.2 mg/L	5/Week	24-Hr Flow Prop Comp	April limit
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	2.1 mg/L	5/Week	24-Hr Flow Prop Comp	May 1 - September 30 limit
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.2 mg/L	5/Week	24-Hr Flow Prop Comp	October limit
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.2 mg/L	5/Week	24-Hr Flow Prop Comp	November 1 - March 31 limit
Chlorine, Total Residual	Daily Max	38 ug/L	Daily	Grab	May 1 - September 30 and whenever chlorinating.
Chlorine, Total Residual	Weekly Avg	8.6 ug/L	Daily	Grab	May 1 - September 30 and whenever chlorinating.
Fecal Coliform	Geometric Mean	400 #/100 ml	2/Week	Grab	May 1 - September 30 only
Chloride	Weekly Avg	615 mg/L	4/Month	24-Hr Flow Prop Comp	This is an interim limit. Sampling shall be done on four consecutive days each month. See Chloride footnote in permit.
Mercury, Total Recoverable		ng/L	Quarterly	Grab	
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET monitoring footnote in permit.
Chronic WET		rTUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	See WET monitoring footnote in permit.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	
Temperature Maximum		Deg/F	3/Week	Continuous	Monitor in calendar year 2018

5.1.1 Rock River Total Maximum Daily Load

A total maximum daily load (TMDL) was developed for the Rock River Basin to determine the maximum amounts of phosphorus and sediment that can be discharged to protect and improve water quality. The Rock River Basin's TMDL was approved by the Environmental Protection Agency (EPA) in September 2011. These final effluent limits were

derived from and comply with the applicable water quality criterion and are consistent with the assumptions and requirements of the EPA-approved WLA for the Rock River. The entire report can be found at: http://dnr.wi.gov/topic/TMDLs/RockRiver/Final_Rock_River_TMDL_Report_with_Tables.pdf. The proposed permit includes limitations and requirements necessary to implement the recommendations of the TMDL. For specific limits see below.

5.1.2 Changes from Previous Permit

Total Suspended Solids: Weekly average and monthly average total suspended solids mass limits were calculated to comply with the TMDL. Dela-Hart had weekly average and monthly average TSS concentration limits of 14 mg/L for November through April and 10 mg/L for May through October, these limits are retained in this permit. The calculated TMDL TSS weekly average mass limits and the TMDL TSS monthly average mass limits are included in the new permit. Dela-Hart can easily meet the TSS mass limits, which are effective on the date of issuance therefore a compliance schedule for TSS is not needed.

Phosphorus: Monthly average phosphorus limits were calculated to comply with the TMDL. Since Dela-Hart will not be able to meet the final monthly average effluent limitations for phosphorus based on current operation of the treatment facility, a compliance schedule is necessary. The final phosphorus limits do not take effect until the end of the phosphorus compliance schedule. The current phosphorus limit of 1.0 mg/L is retained in the permit as the interim limit.

Chlorine: Due to revisions to s. NR 106.07 (2), mass limitations are no longer required.

Chloride: An analysis of chloride results reported during the current permit term show the need for a chronic (weekly average) chloride limit of 466 mg/L. However, Dela-Hart has applied for a chloride variance that must be approved by the US Environmental Protection Agency (EPA). Dela-Hart and the Department have agreed upon a chloride interim limit of 615 mg/L, a target value of 490 mg/L and source reduction measures. A chloride compliance schedule is also included as part of the permit.

Total Nitrogen: Total Nitrogen monitoring has been added on a quarterly basis.

Temperature: Temperature monitoring has been added during the fourth year of the permit term, calendar year 2018.

5.1.3 Explanation of Limits and Monitoring Requirements

Water Quality Based Limits and WET Requirements and Disinfection (if applicable)

Refer to the Water Quality Based Effluent Limitations (WQBELs) memo for the Delafield-Hartland Pollution Control Commission, prepared by Julia Orlowski dated July 23, 2014 and revised by Diane Figiel on October 2, 2014 used for this reissuance.

BOD, pH, and fecal coliforms: Standard municipal wastewater requirements for BOD, dissolved oxygen, pH, and fecal coliforms are included based on NR 210 Sewage Treatment Works requirements for discharges to fish and aquatic life streams.

Dissolved Oxygen: The determination of the BOD limits assumed a minimum dissolved oxygen concentration of 7.0 mg/L. Therefore, a daily concentration of 7.0 mg/L will apply to the reissued permit.

Total Suspended Solids: Weekly average and monthly average mass limits for total suspended solids were required to comply with the Rock River TMDL, and were derived consistent with the assumptions and requirements of the EPA-approved WLA for the Rock River. There are no changes proposed in concentration limits. Since the treatment plant can easily meet these new mass limits (see limits below), no compliance schedule is included. These limits are in addition to the concentration limits for suspended solids of 14 mg/L monthly and weekly average for November through April and 10 mg/L monthly and weekly average for May through October. The approved total suspended solids TMDL limits for this permittee are included in the following table, expressed as weekly average and monthly average mass effluent limits, and are effective immediately:

Month	Monthly Ave TSS Effluent Limit (lbs/day)	Weekly Ave TSS Effluent Limit (lbs/day)
Jan	226	289
Feb	264	338
March	248	317
April	211	270
May	173	221
June	181	232
July	135	173
August	128	164
Sept	105	134
Oct	128	164
Nov	203	260
Dec	233	298

Phosphorus: Recent revisions to the administrative rules for phosphorus discharges took effect on December 1, 2010. Details may be found at: http//dnr.wi.gov/topic/surfacewater/phorphorus.html. Mass limits were calculated to comply with the Rock River TMDL, and were derived consistent with the assumptions and requirements of the EPA-approved WLA for the Rock River. Limits for the permit were determined using the code changes and the provision of the TMDL. The final effluent limits for phosphorus are expressed as monthly averages. The facility currently treats for phosphorus but cannot meet the proposed mass limits year round. Since Dela-Hart is unable to immediately achieve the proposed WQBELs based on existing operations, a schedule of compliance is appropriate and necessary pursuant to s. NR 217.17, Wis. Adm. Code. A lengthy compliance schedule has been included because the permittee will need a significant amount of time to meet the stringent phosphorus water quality based effluent limits (WQBELs) contained in the permit. The overall compliance schedule takes place over a 9 year time period. Please see compliance schedule specifics in the Schedules section. Because a phosphorus compliance schedule was granted, and interim phosphorus limit was also calculated based on current effluent quality to prevent backsliding during the term of the permit. The current technology based limit of 1.0 mg/L is used as an interim limit. The approved total phosphorus TMDL mass limits for this permittee are included in the following table below:

Month	Monthly Average Total P Effluent Limit (lbs/day)
Jan	4.19
Feb	7.08
March	6.70
April	8.58
May	7.33
June	7.52
July	5.68
August	4.97

Sept	4.08
Oct	3.22
Nov	3.47
Dec	4.19

Ammonia: Ammonia limits are included in the proposed permit per Subchapter III of ch. NR 106 which establishes the procedure for calculating water quality based effluent limitations (WQBELs) effective March 1, 2004.

Total Residual Chlorine: Because chlorine is added as a disinfectant, effluent limitations are recommended to continue to assure proper operation of the dechlorination system. A daily maximum limit of 38 ug/L and a weekly limit of 8.6 ug/L are retained in the reissued permit. Due to revisions to s. NR 106.07(2) mass limitations are no longer required.

Chloride: The 1-day P99 effluent concentrations for chloride were below the applicable acute limitation, so a daily maximum limit is not required. The 4-day P99 of 614.92 mg/L was above the applicable chronic limitation of 466 mg/L, so a chronic (weekly average) limit needs to be continued for the reissued permit. However, the permittee has applied for a variance from the chronic chloride water quality criterion, which requires EPA approval. Dela-Hart and the Department have agreed upon an interim limit of 615 mg/L, a target value of 490 mg/L and the implementation of chloride source reduction measures that are intended to lead to compliance with the target value by the end of the permit term. See the schedules section below for the chloride compliance schedule. Acute and chronic chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105, Wis. Adm. Code, Subchapter IV of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for chloride.

Chloride Source Reduction Measures: Delafield-Hartland WTF's chloride is predominantly from domestic softener backwash. There are currently no industrial contributors, a small amount of hauled waste (septage) is accepted, and I/I problem do not seem to be an issue within the collection systems including all contributing communities. Most of the contributing communities use private wells for water supply and individually soften their water. Similar to other areas in Wisconsin, winter road salting operations are also contributor of chloride. Several of the contributing communities, e.g. The City of Delafield and Village of Hartland, do pre-wetting to reduce winter salt use.

Delafield-Hartland shall implement measures that focus mainly on reducing chloride from water softeners. The following Chloride Source Reduction measures shall be implemented during the permit term. These measures shall apply to all contributing communities. If any of these actions for reducing chloride in any waste stream are deemed infeasible, Delafield-Hartland shall, in its annual and final variance reports, provide clear analysis indicating why those specific actions are infeasible.

1) Amend Delafield-Hartland's wastewater facility's sewer use ordinance to require high efficiency demand initiated regeneration (DIR) type softeners for both newly installed and replacement softeners for residences, commercial and industrial businesses. *Although the Department of Commerce has revised the plumbing code to require DIR softeners for both new and construction replacements [Admin Rule at Comm 82.40(8)(j)], requiring it in a revised SUO will provide additional enforcement mechanism.*

2) Evaluate the imposition of installation restrictions so that outside hose bibs for gardening, etc. are on unsoftened water. If restrictions are imposed, new homes and those that are replacing water softeners should be required to have plumbing restrictions for hard water by-passes, and the requirement should apply to self-installed equipment as well. Request voluntary support from local water softening businesses and licensed installers in this regard. *In order to reduce baseline chloride levels at the plant*.

3) Investigate the possibility of brine leaching or being washed to the plant via run-off from the five municipalities' salt storage facilities and wash bays. Investigate also the structural conditions of all sewer manholes located close to these salt storage facilities. Work with these communities in finding ways to reduce possible salt migration into the sewer system from the salt storage facilities and during road deicing operation. Include in the Progress Reports, the outcome of these investigations and follow-up actions implemented or planned. *The operator indicated all five contributing municipalities*

have salt storage facilities. The Department has found out that salt storage facilities and truck washing could be significant chloride contributors to WWTFs.

4) Require the upcoming industry to evaluate its process and operation with regard to chloride discharge. This evaluation should include softened water requirements and optimization of softener operation; chemicals used in its operation; and any other potential measures to reduce chloride discharge to the minimum possible - not to exceed 400 mg/L. Track chloride and flow as soon as production starts. *Triad Industry, which had consistently discharged very high levels of chloride (sometimes averaging 1100 mg/L) to the Dela-Hart facility, closed in 2011, when the industry was sold. But the buyer plans to start a new industry early in 2015. Every measure must quickly be taken to ensure chloride discharge is limited.*

5) Evaluate chloride discharges from schools, hospitals, commercial institutions and other large water users, including Laundromats and car washes. Require high chloride contributors to implement measures to ensure implementation of all feasible strategies to reduce chloride discharge. Strategies should include hiring qualified professionals to inspect, calibrate, and/or replace water softening units. Include discussions on these efforts and proposed follow-up actions in required chloride reports. *In order to reduce baseline chloride levels at the plant*.

6) Identify areas in the collection system, including all contributing communities that may be experiencing high infiltration and inflow. Implement and/or require implementation of measures to address potential I/I problems. *Although no evidence of significant I/I has been found in the Delafield-Hartland collection system including all contributing communities, tracking of potential I/I problems and timely implementation of necessary measures to address faulty sewer pipes, failing manhole covers, and bad lateral connections in all areas of the collection system will serve to keep plant clear water to the minimum and reduce baseline chloride load.*

7) Continue to educate the public about softener efficiency and chloride reductions. *Over the years, plant staff have done a good job of educating the public about chloride and softener efficiency through articles on websites and public discussions (see chloride reports). Continuation of this effort will serve to reduce baseline chloride levels.*

Mercury: Mercury monitoring is continued in the proposed permit.

Whole Effluent Toxicity: Whole Effluent Toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code. See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist.

Total Nitrogen Monitoring (NO_2+NO_3, TKN and Total N): Based on the "Guidance for Total Nitrogen Monitoring in WPDES Permits" dated October 2012, quarterly effluent monitoring for Total Nitrogen is required for municipal majors discharging to the Mississippi River Basin.

Temperature: On October 1, 2010, revisions to chs. NR 102 and 106, Wis. Adm. Code, took effect. Details can be found at: http://dnr.wi.gov/topic/SurfaceWater/thermal.html. These revisions establish the criteria needed to calculate thermal limits. Dela-Hart supplied the Department with enough effluent data to evaluate the reasonable potential for limits. No calculated effluent limit had the reasonable potential to be exceeded and therefore no effluent limits are being placed in the permit. However, monitoring during the fourth year of the permit is included which will be used for the next reissuance process.

6 Land Application - Proposed Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
002	B	Liquid	Fecal Coliform	Injection when Land Applied	Land Application	Discharge when digester taken down for maintenance.
004	A	Cake	Fecal Coliform	Volatile Solids Reduction	Land Application & Distribution of EQ biosolids	435 dry U.S. tons
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? Yes If yes, special monitoring and recycling conditions will be included in the permit to track any potential problems in landapplying sludge from this facility						
Is a priority pollutant scan required? No Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

6.1 Sample Point Number: 004 - Cake sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Quarterly	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Quarterly	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Quarterly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Quarterly	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Quarterly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Quarterly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Quarterly	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nickel Dry Wt	Ceiling	420 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
Nitrogen, Total Kjeldahl		Percent	Quarterly	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Quarterly	Composite	
Phosphorus, Total		Percent	Quarterly	Composite	
Phosphorus, Water Extractable		Percent	Quarterly	Composite	
Potassium, Total Recoverable		Percent	Quarterly	Composite	
Radium 226 Dry Wt		pCi/g	Quarterly	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2016
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2016

6.1.1 Changes from Previous Permit:

No Changes.

6.1.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07 (6) and in s. NR 204.07(7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Radium requirements are addressed in s. NR 204.07(3)(n).

6.2 Sample Point Number: 002 - Liquid sludge

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	At Discharge	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	At Discharge	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	At Discharge	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Cadmium Dry Wt	Ceiling	85 mg/kg	At Discharge	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	At Discharge	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	At Discharge	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	At Discharge	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	At Discharge	Composite	
Lead Dry Wt	High Quality	300 mg/kg	At Discharge	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	At Discharge	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	At Discharge	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	At Discharge	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	At Discharge	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	At Discharge	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	At Discharge	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	At Discharge	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	At Discharge	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	At Discharge	Composite	
Nitrogen, Total Kjeldahl		Percent	At Discharge	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	At Discharge	Composite	
Phosphorus, Total		Percent	At Discharge	Composite	
Phosphorus, Water Extractable		Percent	At Discharge	Composite	
Potassium, Total Recoverable		Percent	At Discharge	Composite	
Radium 226 Dry Wt		pCi/g	At Discharge	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	At Discharge	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	At Discharge	Composite	

6.2.1 Changes from Previous Permit:

At this time, Outfall 002 and 003 are inactive and Delafield-Hartland will need to notify the Department in order to activate the outfalls.

6.2.2 Explanation of Limits and Monitoring Requirements

Land application of waste shall be done in accordance with permit conditions and applicable codes. All land application sites shall be approved prior to their use. To receive a list of approved sites, or to be notified of potential approvals, contact the basin engineer.

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204 Wis. Adm. Code. Ceiling and high quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07 (6) and in s. NR 204.07(7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Radium requirements are addressed in s. NR 204.07(3)(n).

7 Compliance Schedules

7.1 Chloride Target Value

Chloride Target Value for 2020: 490 mg/L. As a condition of the variance to the water quality based effluent limitation(s) for chloride granted in accordance with s. NR 106.83(2), Wis. Adm. Code, the permittee shall perform the following actions.

Required Action	Due Date
Annual Chloride Progress Report: Submit an annual progress report,that shall indicate which chloride source reduction measures have been implemented during the period from January 1, 2015 to December 31, 2015. The report shall also include an analysis of trends in weekly average, monthly average and annual total effluent chloride concentrations and mass discharge of chloride based on chloride sampling and flow data. The report shall also include an analysis of how chloride discharge and influent varies with time and with significant loadings of chloride such as loads from industries or road salt intrusion into the collection system. Note that the weekly average interim limitation of 615 mg/L remains enforceable until new enforceable limits are established in the next permit issuance. The first annual chloride process report is to be submitted by the Due Date.	01/31/2016
Annual Chloride Progress Report #2: Submit an annual progress report that shall indicate which chloride source reduction measures have been implemented during the period from January 1, 2016 to December 31, 2016. The report shall include an analysis of trends in weekly average, monthly average and annual total effluent chloride concentrations. The report shall include an analysis of how chloride discharge and influent varies with time and with significant loadings of chloride such as loads from industries or road salt intrusion into the collection system.	01/31/2017
Annual Chloride Progress Report #3: Submit an annual progress report that shall indicate which chloride source reduction measures have been implemented during the period from January 1, 2017 to December 31, 2017. The report shall include an analysis of trends in weekly average, monthly average and annual total effluent chloride concentrations. The report shall include an analysis of how chloride discharge and influent varies with time and with significant loadings of chloride such as loads from industries or road salt intrusion into the collection system.	01/31/2018
Annual Chloride Progress Report #4: Submit an annual progress report that shall indicate which chloride source reduction measures have been implemented during the period from January 1, 2018 to December 31, 2018. The report shall include an analysis of trends in weekly average, monthly average and annual total effluent chloride concentrations. The report shall include an analysis of how chloride discharge and influent varies with time and with significant loadings of chloride such as loads from industries or road salt intrusion into the collection system.	01/31/2019

Final Chloride Report: Submit a final report documenting the success in meeting the chloride target value of 490 mg/L, as well as the anticipated future reduction in chloride sources and chloride effluent concentrations. The report shall summarize chloride source reduction measures that have been implemented during the current permit term. The report shall include an analysis of trends in weekly average, monthly average and annual effluent concentrations covering the period from permit reissuance through September 30, 2019. The report shall include an analysis of how chloride discharge and influent varies with time and with significant loadings of chloride such as loads from industries or road salt intrusion into the collection system. This report shall also include proposed target values and source reduction measures for negotiations with the department if the permittee intends to seek a renewed chloride variance per s. NR 106.83, Wis. Adm. Code, for reissued permit. Note that the target value is the benchmark for evaluating the effectiveness of the chloride source reduction measures, but is not an enforceable limitation under the terms of this permit.	09/30/2019
Annual Chloride Reduction Reports Required After Permit Expiration: In the event that this permit is not reissued on time for a January 1, 2020 effective date, the permittee shall continue to submit annual chloride reduction reports by March 31st each year covering source reduction measures implemented and chloride concentration trends for the previous calendar year (i.e., the annual report covering calendar year 2019 shall be due January 31, 2020; the annual report covering calendar year 2020 shall be due January 31, 2021; etc.)	

7.2 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	Due Date
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 January 1, 2018. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than January 1, 2018 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 January 1, 2018 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', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet WQBELs', 'Complete Construction', 'Achieve Compliance'). 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	12/31/2015

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 schedule for achieving the final phosphorus WQBELs sooner than January 1, 2024.	
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.	12/31/2016
Preliminary Compliance Alternatives 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.	12/31/2017
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, Wis. Adm. Code. 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.	12/31/2018
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.	12/31/2019
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, Wis. Adm. Code, 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 are subject to s. 283.53(2), Stats.) Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section	12/31/2020

of this permit.	
Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41. Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	04/01/2021
Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	04/01/2022
Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.	04/01/2023
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.	12/01/2023
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.	01/01/2024

7.3 CMOM (Capacity, Management, Operation and Maintenance) Program Development

Required Action	Due Date
Complete Program Development: Complete development of CMOM Program by August 1, 2016. See CMOM requirements in the Standard Requirements section.	08/01/2016

7.4 Explanation of Compliance Schedules

Chloride Target Value

This compliance schedule is a condition of receiving a variance from the chronic water quality based chloride limit of 466 mg/L. Since a compliance schedule is being granted, an interim limit is required, and for Dela-Hart that limit is established at 615 mg/L, which is 105% of the highest weekly chloride monitoring conducted during the current permit term. The schedule requires annual reports shall indicate which source reduction measures Dela-Hart has implemented during each calendar year, and an analysis of chloride concentration and mass discharge data based on chloride sampling and flow data. The annual reports shall document progress made towards meeting the chloride target value of 500 mg/L by the end of the permit term.

Water Quality Base Effluent Limits (WQBELs) for Total Phosphorus

Subsection NR 217.17, Wis. Adm. Code, allows the department to provide a schedule of compliance for water quality based phosphorus limits where the permittee cannot immediately achieve compliance. This compliance schedule requires the permittee to comply with the final water quality based phosphorus limits within 9 years. The duration of this compliance schedule will be re-evaluated upon permit reissuance to determine if the compliance schedule length is still necessary and appropriate.

CMOM (Capacity, Management, Operation and Maintenance) Program Development

The permittee shall by August 1, 2016 submit to the Department verification that a CMOM program, for the sewage collection system, has been developed which is consistent with the requirements of NR 210.23, Wis. Adm. Code.

8 Other Comments:

Stormwater Coverage for Dela-Hart Communities

The City of Delafield and Villages of Hartland, Nashotah and Summit are covered under the General Municipal Separate Storm Sewer System (MS4) General Permit (No. WI-S050075-2) which took effect on May 1, 2014. These municipalities were originally covered under the MS4 General Permit effective January 19, 2006.

The Town of Delafield is covered under the Upper Fox River Watershed Group MS4 Permit (No. WI-S050105-3) which took effect December 1, 2014. The Town of Delafield was originally permitted under the Upper Fox MS4 Permit effective November 11, 2004.

Information regarding the programs and activities required under the MS4 permits can be found at; http://dnr.wi.gov/topic/stormwater/municipal/

Changes from Public Noticed Fact Sheet

See the 'Notice of Final Determination' for changes incorporated after the public notice period.

9 Attachments:

Substantial Compliance Determination – Dated September 16, 2014

Water Quality Based Effluent Limits – Dated October 2, 2014

Notice of Final Determination

10 Proposed Expiration Date:

December 31, 2019

Prepared By:

Laura Dietrich, Wastewater Permits Specialist

Date: December 2, 2014

cc: Timothy Thompson, WDNR Basin Engineer