Point Source Implementation Strategy for Nutrients in the Louisiana Pollutant Discharge Elimination System (LPDES) Program

In Support of the Louisiana Nutrient Management Strategy
Strategic Action 9.d. Monitor nutrients in point sources

Water Permits Division
Office of Environmental Services
Louisiana Department of Environmental Quality

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1. Overview of Nutrient Monitoring in the LPDES Program

The Louisiana Nutrient Management Strategy (Strategy) released in May 2014 provides a collaborative approach for addressing progress towards nutrient management within the state of Louisiana (Louisiana Nutrient Management Strategy Interagency Team 2014). The Strategy is an interagency effort of the Louisiana Department of Environmental Quality (LDEQ), Louisiana Department of Agriculture and Forestry (LDAF), Louisiana Department of Natural Resources (LDNR), and the Coastal Protection and Restoration Authority of Louisiana (CPRA). The Strategy is supported by key activities through coastal protection and restoration, nonpoint source management, point source management, leveraging opportunities with other programs such as state and federal programs, and incorporation of new science-based technologies/approaches. These key Strategy activities provide for a comprehensive view for management of nutrients in Louisiana water bodies.

In regard to point source management of nutrients, the LDEQ is responsible for the implementation of the Louisiana Pollutant Discharge Elimination System (LPDES) Program, as delegated by the USEPA. As authorized by the Clean Water Act (CWA) and by USEPA, the LPDES Permit Program controls water pollution by regulating point sources that discharge pollutants into waters of the state. A strategic action under the Strategy is *9.d. Monitor nutrients in point sources* which can be accomplished through permitted dischargers in the LPDES Program (Louisiana Nutrient Management Strategy Interagency Team 2014).

In 2016, the Mississippi River/Gulf of Mexico Watershed Nutrient (Hypoxia) Task Force (HTF) presented two point source measures for tracking progress on nutrients in the Task Force states (Gilinsky and Northey 2014; HTF 2016). These two point source measures are 1) the number of major Publicly Owned Treatment Works (POTW) permits with monitoring requirements for nitrogen and phosphorus; and 2) the number of major POTW permits with nitrogen and phosphorus limits. The HTF Coordinating Committee provided further details on the measures for reporting and tracking process, which included information input and error correction, establishment of documenting baselines for each state of the number of POTWs with monitoring and those with limits at the start of this tracking, and direct access of the information using USEPA's data reporting tool (HTF 2016).

The LDEQ has implemented nitrogen and phosphorus monitoring in general and individual permits based on Total Maximum Daily Load (TMDL) determinations (see Appendix A) and in wetland assimilation projects (see Appendix B). LDEQ also addresses nutrients through the General Permit LAG750000 for Discharges of Exterior Vehicle Wash Wastewater, which requires the use of low-phosphate, low-surfactant soaps and detergents (see Appendix C). Nutrient monitoring and limits may be part of permits for specific facility types such as fertilizer plants or poultry operations (see Appendix D).

The LDEQ will continue nutrient monitoring for those permitted dischargers where monitoring is currently indicated as mentioned above. In addition, the LDEQ is implementing an enhanced approach for determining inclusion of nutrient monitoring in all discharges that may contain

nutrients (described below). This will allow LDEQ to gather data necessary to determine the extent of nutrient contributions from these dischargers to water bodies of Louisiana.

2. Enhanced Nutrient Monitoring Approach

The enhanced nutrient monitoring approach includes:

1) **For Major and Minor Sanitary Individual Permits:**
    a. Implementation of nutrient monitoring in all renewal and new Major and Minor Sanitary Individual Permits including **Publicly Owned Treatment Works (POTWs) and Privately Owned Treatment Works** dischargers with an SIC of 4952.
        i. *Monitoring Parameters*: Total Nitrogen (TN, Storet Code 00600) and Total Phosphorus (TP, Storet Code 00665)
        ii. *Monitoring Frequency*: Quarterly basis
        iii. *Reporting*: as concentration (mg/L) and loading (lb/day)
        iv. Beginning May 1, 2016

2) **For Other Major and Minor Individual Permits:**

    Nutrient monitoring on process wastewater outfalls shall be established for any one or more of the following 4 situations below. Monitoring may also be included on storm water or other wastewater (e.g. utility or washwater) outfalls on a case-by-case basis; for example, if the facility identifies a source of nitrogen or phosphorus in the application that has the potential to contaminate storm water or other types of discharges.

    Process waste water discharges:

    a. Facility types to include a) Food Processing, b) Petroleum Refineries, c) Sugar Production/Mills/Refineries, d) Paper Mills, e) Animal Farming Operations, i.e., alligators, chickens, cattle, and other livestock, f) Fertilizer Plants, g) Wood processing, h) Landfills, i) any other facility where there is a potential for high levels of nutrient discharge such as would occur with facilities dealing with the degradation/digestion of dense/high volume biomass/organic materials
    b. Receiving waterbody is impaired for nutrients (nitrite/nitrate, total phosphorus, ammonia, or dissolved oxygen as the indicator parameter), whether or not a TMDL has been finalized.
    c. A TMDL includes a wasteload allocation for nutrients, regardless as to whether or not the receiving water is currently impaired.
    d. Existing or new permit includes monitoring for nutrient parameter(s).

        i. *Monitoring Parameters*: Total Nitrogen (TN, Storet Code 00600) and Total Phosphorus (TP, Storet Code 00665)

ii. *Monitoring Frequency*: Semi-annually basis at a minimum, or more frequent if permit conditions warrant
iii. *Reporting*: as concentration (mg/L) and/or loading (lb/day)
iv. *Monitoring Duration*: Requirements will be established in the permit and continue until a TMDL is complete or an alternate water quality management strategy is developed, such as the 303(d) New Vision approach, or the facility is no longer discharging nutrients.
v. Beginning March 2017

3. Language for Permit Fact Sheet/Statement of Basis

The following language may be used in development of a permit fact sheet or statement of basis regarding implementation of nutrient monitoring under the Louisiana Nutrient Management Strategy. Language for those Major and Minor Sanitary Permits where nutrient monitoring is being directly implemented as well as language for those Major and Minor non-Sanitary and Industrial Facilities Permits where nutrient monitoring may be implemented as the result of a Nutrient Review are given below.

1) For Major and Minor Sanitary Individual Permits

PROPOSED PERMIT LIMITS:
Louisiana Nutrient Management Strategy
The Louisiana Nutrient Management Strategy, released in 2014, is a collaborative approach among stakeholders for making progress toward managing nutrients within the state's waterbodies. As part of the Louisiana Nutrient Management Strategy, the LPDES Permit Program aims to gather and evaluate information on nutrients through monitoring in permitted dischargers that may have the potential to cause or contribute to an impairment of Louisiana water bodies. Therefore, monitoring for Total Nitrogen (TN) and Total Phosphorus (TP) will be included in this permit.

Basis for Limitations:
Total Nitrogen and Total Phosphorus: Requirements are in accordance with the Louisiana Nutrient Management Strategy.

Citation for References:
Louisiana Nutrient Management Strategy Interagency Team. 2014. *Louisiana Nutrient Management Strategy: Protection, Improvement, and Restoration of Water Quality in Louisiana's Water Bodies*. Coastal Protection and Restoration Authority of Louisiana, Louisiana Department of Agriculture and Forestry, Louisiana Department of Environmental Quality, and Louisiana Department of Natural Resources. Baton Rouge, Louisiana. http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/NutrientManagementStrategy/FinalReport.aspx.

2) For Other Major and Minor Individual Permits where a Nutrient Review was performed

A. Nutrient Review where determined to implement monitoring at this time

Louisiana Nutrient Management Strategy

The Louisiana Nutrient Management Strategy, released in 2014, is a collaborative approach among stakeholders for making progress toward managing nutrients within the state's waterbodies. As part of the Louisiana Nutrient Management Strategy, the LPDES Permit Program aims to gather and evaluate information on nutrients through monitoring in permitted dischargers that may have the potential to cause or contribute to an impairment of Louisiana water bodies. Therefore, monitoring for Total Nitrogen TN and Total Phosphorous TP will be included in this permit.

Basis for Limitations:

Total Nitrogen and Total Phosphorus: Requirements are in accordance with the Louisiana Nutrient Management Strategy and LAC 33:IX.2705.A.

Citation for References:

Louisiana Nutrient Management Strategy Interagency Team. 2014. *Louisiana Nutrient Management Strategy: Protection, Improvement, and Restoration of Water Quality in Louisiana's Water Bodies*. Coastal Protection and Restoration Authority of Louisiana, Louisiana Department of Agriculture and Forestry, Louisiana Department of Environmental Quality, and Louisiana Department of Natural Resources. Baton Rouge, Louisiana. http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/NutrientManagementStrategy/FinalReport.aspx.

B. Nutrient Review where determined to not implement nutrient monitoring at this time

Louisiana Nutrient Management Strategy

The Louisiana Nutrient Management Strategy, released in 2014, is a collaborative approach among stakeholders for making progress toward managing nutrients within the state's waterbodies. As part of the Louisiana Nutrient Management Strategy, the LPDES Permit Program aims to gather and evaluate information on nutrients through monitoring in permitted dischargers that may have the potential to cause or contribute to an impairment of Louisiana water bodies. Results of the review of the application, receiving water body status and facility type indicate this discharge may not have the potential to cause or contribute to impairment; therefore, monitoring for TN and TP will not be included in this permit at this time.

Citation for References:

Louisiana Nutrient Management Strategy Interagency Team. 2014. *Louisiana Nutrient Management Strategy: Protection, Improvement, and Restoration of Water Quality in Louisiana's Water Bodies*. Coastal Protection and Restoration Authority of Louisiana, Louisiana Department of Agriculture and Forestry, Louisiana Department of Environmental Quality, and Louisiana Department of Natural Resources. Baton Rouge, Louisiana. http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/NutrientManagementStrategy/FinalReport.aspx.

4. Laboratory Costs of Nutrient Monitoring

Monitoring for TN and TP will result in increased laboratory analytical costs for the permitted discharger. Estimated cost for TN is $32 and for TP $18 per analysis, for a total of $50 for a TN and TP analysis. At quarterly monitoring, the laboratory cost for TN and TP analysis would be $200 per discharger.

5. Summary

The implementation of the Louisiana Nutrient Management Strategy provides a statewide strategy for managing nutrients in Louisiana's water bodies through coastal protection and restoration, nonpoint source management, point source management, incentives, and leveraging programs. Through further development and implementation of this Point Source Implementation Strategy for Nutrients in Louisiana by the LDEQ Water Permits Division, a focus on monitoring for nutrients in permitted dischargers that are likely to discharge nutrients will enhance information gathering for nutrients toward continued progress in environmental protection and restoration in Louisiana's water bodies.

6. References

Gilinsky, E. (USEPA) and Northey, B. (Iowa Department of Agriculture and Land Stewardship). 2014. *Co-chairs Memo: Follow-up to Hypoxia Task Force Meeting in Alton, IL October 20-22, 2014*. December 10, 2014.

Hypoxia Task Force (HTF). 2016. *Report on Point Source Progress in Hypoxia Task Force States*. https://www.epa.gov/ms-htf/report-point-source-progress-hypoxia-task-force-states. Accessed March 15, 2016.

Louisiana Department of Environmental Quality (LDEQ). 2014. *Final Permit (Including Interested Parties Notification, Addendum to Fact Sheet, Response to Public Comments); (Permit LAG750000)*. March 15, 2014. EDMS document ID 9250656. http://edms.deq.louisiana.gov/app/doc/view.aspx?doc=9250656&ob=yes&child=yes.

Louisiana Nutrient Management Strategy Interagency Team. 2014. *Louisiana Nutrient Management Strategy: Protection, Improvement, and Restoration of Water Quality in Louisiana's Water Bodies*. Coastal Protection and Restoration Authority of Louisiana, Louisiana Department of Agriculture and Forestry, Louisiana Department of Environmental Quality, and Louisiana Department of Natural Resources. May 2014. Baton Rouge, LA. http://www.deq.louisiana.gov/portal/DIVISIONS/WaterPermits/WaterQualityStandardsAssessment/NutrientManagementStrategy/FinalReport.aspx.

Tetra Tech, Inc. 2012. *Louisiana's Nutrient Framework Technical Support Document*. Prepared for the U.S. Environmental Protection Agency. December 4, 2012.

Appendix A – Nutrient Monitoring in Permits Resulting From Total Maximum Daily Loads (TMDLs) in the Lake Pontchartrain Basin

Several TMDLs in the Lake Pontchartrain Basin resulted in nutrient monitoring for TN and TP for permitted dischargers to support collection of data to inform future water quality studies in those subsegments. The Grays Creek TMDL for Subsegment 040304, developed in 2010, was the first approved TMDL in the Lake Pontchartrain Basin that included nutrient monitoring for General and Individual Permits. Most of the facilities in that area had permits that were expiring in 2012 or 2013, thus this is the likely timeframe beginning implementation of nutrient monitoring under these TMDLs in the Lake Pontchartrain Basin.

Nutrient monitoring resulting from TMDLs is being implemented in 16 subsegments in Lake Pontchartrain Basin:

1) 040201 Bayou Manchac
2) 040303 Amite River
3) 040304 Grays Creek
4) 040305 Colyell Creek
5) 040505 Pontchatoula Creek
6) 040603 Selsers Creek
7) 040802 Tchefuncte River-from Bogue Falaya to LA-22
8) 040803 Tchefuncte River-from La-22 to Lake Pontchartrain
9) 040901 Bayou LaCombe-from headwaters to US190
10) 040902 Bayou LaCombe-from US190 to Lake Pontchartrain
11) 040903 Bayou Cane-from headwaters to US190
12) 040904 Bayou Cane-US190 to Lake Pontchartrain
13) 040905 Bayou Liberty-from headwaters to LA433
14) 040906 Bayou Liberty-from La433 to Bayou Bonfouca
15) 040907 Bayou Bonfouca-from headwaters to LA433
16) 040908 Bayou Bonfouca-from La433 to Lake Pontchartrain

Appendix B – Nutrient Monitoring in Point Source Wetland Assimilation Projects

A specific type of permit under the LPDES Program is the point source wetland assimilation permit (LAC 33:IX.1109.J and LAC 33:IX.1113.B.12.b). Wetland areas naturally act as biological filters for pollutants including nitrogen wastes from sewage pollutants and nutrients which are trapped in the soils where they are taken up by the roots of wetland plants thus promoting wetland health. Point source wetland assimilation projects facilitate the efficient capture and removal of nutrients in wastewater by flowing treated wastewater through a wetland area. This type of project provides nutrients to the wetland to promote growth, and also removes a majority of the nutrients in the wastewater. Environmental benefits of point source wetland assimilation projects include removing direct discharges of treated wastewater into rivers, lakes or streams; helping to prevent saltwater intrusion into the wetland; adding an abundance of needed nutrients into the wetland to stimulate plant growth; and carbon sequestration.

There are currently 10 permitted point source wetland assimilation projects in south Louisiana and 5 more have been proposed. Nutrient monitoring, including TN and TP, by the permittee occurs as part of these wetland assimilation projects.

Appendix C – Low-phosphate requirement in General Permit LAG75 for Discharges of Exterior Vehicle Wash Wastewater

The LAG750000 General Permit for Discharges from Exterior Vehicle Washwater was reissued March 15, 2014 (LDEQ 2014). LDEQ included a requirement for facilities to use low-phosphate, low-surfactant soaps and detergents in Part 1.A of the General Permit. This decision is based on public comments regarding the potential contributions of soaps and other detergents to water quality impairment and the availability of and common use of low-phosphate and phosphate-free soaps and detergents.

Appendix D – Nutrient Limits for Specific Facility Types

In the LPDES Program, there are 14 facilities in Louisiana which currently have permit limits for nitrogen and/or phosphorus (see table below and Tetra Tech, Inc. 2012). These facilities are typically fertilizer plants or poultry operations that may have nutrients in their discharge. Limits are based on federal guidelines.

Master AI#	Master AI Name	Activity #	Permit #	Subject Item Designation	Basin Name	Phosphorus	Nitrogen
585	CLECO Power LLC - Dolet Hills Power Station	PER20100004	LA0062600	Outfall 001	Red River Basin	5.0 mg/L	N/A
2532	Mosaic Fertilizer LLC - Uncle Sam Plant	PER20080002	LA0004847	Outfall 001	Mississippi River Basin	15,000 lbs/day	N/A
2532	Mosaic Fertilizer LLC - Uncle Sam Plant	PER20080002	LA0004847	Internal Outfall 003	Mississippi River Basin	35 mg/L	N/A
3732	PCS Nitrogen Fertilizer LP - Geismar Agricultural Nitrogen & Phosphate Plant	PER20080008	LA0066257	Internal Outfall 201	Mississippi River Basin	35 mg/L	N/A
2425	Mosaic Fertilizer LLC - Faustina Plant	PER20080003	LA0029769	Outfall 001	Mississippi River Basin	35 mg/L	N/A
2425	Mosaic Fertilizer LLC - Faustina Plant	PER20080003	LA0029769	Internal Outfall 101	Mississippi River Basin	35 mg/L	N/A
2720	Mosaic Fertilizer LLC - Taft Plant	PER20080001	LA0003638	Internal Outfall 202	Mississippi River Basin	35 mg/L	N/A
10041	Sanderson Farms Inc - Hammond Processing Plant	PER20100001	LA0007102	Outfall 001	Lake Pontchartrain Basin	N/A	103 mg/L
10041	Sanderson Farms Inc - Hammond Processing Plant	PER20100001	LA0007102	Outfall 003	Lake Pontchartrain Basin	N/A	103 mg/L
25163	House of Raeford Farms of Louisiana LLC - Processing Plant	PER20090001	LA0002844	1	Red River Basin	N/A	103 mg/L
27951	Pilgrim's Pride Corp - Natchitoches Processing Plant	PER20070001	LA0054178		Red River Basin	N/A	103 mg/L
42182	Lafayette Consolidated Government - Composting Facility	PER20110001	LA0086231	2	Vermilion-Teche Basin	2.0 mg/L	N/A
2663	Pro Boll Chemical & Fertilizer Co Inc	GEN20110001	LAR05P288		Blank	2.0 mg/L	N/A
29881	The Scotts Co LLC - Hyponex Geismar Facility	GEN20110001	LAR05P333		Blank	2.0 mg/L	N/A
32050	Merck Animal Health	GEN20110001	LAR05N545		Blank	2.0 mg/L	N/A
163385	Acadiana Compost	GEN20110001	LAR05P154		Blank	2.0 mg/L	N/A
181556	Oak Heart Farms	GEN20120001	LAR05P544		Blank	2.0 mg/L	N/A