Form 1100-001N (Rev. 10/12)

Wisconsin Department of Natural Resources
Natural Resources Board Agenda Item

Item No. 3.A.1.

SUBJECT: Presentation of the 2016 Laboratory of the Year

FOR: February 2016 Board meeting

TO BE PRESENTED BY: Steve Geis, Chief of Environmental Science Services Section

SUMMARY:

The Department annually presents the registered Laboratory of the Year Recognition to Wisconsin's best registered laboratories for their outstanding commitment to producing high quality data. Registered laboratories perform testing solely on behalf of their own facility or municipality, or a subsidiary or corporation under common ownership or control. This is the 21st year we will recognize a Laboratory of the Year. There are over 200 registered laboratories that were eligible to win the award this year.

The 2016 Registered Laboratory of the Year Recognition will be presented to the Columbus Wastewater Treatment Plant.

The nomination papers are included in the attached memorandum.

RECOMMENDATION: Information only

LIST OF ATTACHED MATERIALS (check all that are applicable):

☐ Background memo
☒ 2016 Wisconsin DNR Laboratory of the Year Instruction and Nomination Forms
☐ Type name of attachment or type N/A if not applicable
☐ Type name of attachment or type N/A if not applicable

Approved by	Signature	Date
Greg Pils, Bureau Director		1/21/2016
Mark Aquino, Administrator	Mark Aquino	1/22/16
Cathy Stepp, Secretary		2/1/16

cc: Board Liaison – AD/8

2016 Wisconsin DNR Registered Laboratory of the Year Instruction and Nomination Forms

The Wisconsin Department of Natural Resources is asking for nominations for registered laboratories that are worthy of receiving the prestigious "Registered Laboratory of the Year (LOY)" award. This award is presented annually* in order to recognize registered laboratories for their outstanding commitment to producing high quality data.

Notes:

- Nominees for the award must be registered laboratories located in the State of Wisconsin.
- Certified laboratories are not eligible and therefore will not be considered.
- Laboratories may be nominated multiple times and can win the award more than once.
- A LOY awards committee will choose the winner.
- Nominations can be made by anyone with the exception that laboratories may not nominate themselves.
- The audit report from the most recent WI DNR laboratory evaluation will be used as part of the nomination package.

Nominating a registered laboratory for the 2016 Laboratory of the Year Award:

1. Complete the Nomination Form presented on the next two pages of this document.
2. Write a summary describing the reasons why you are nominating the laboratory. In the summary, please address the questions asked. Answers to these questions will be used in choosing the winner. Each question may not apply to all labs. If a question does not apply then it does not need to be answered. Please limit the summary to two pages or less.
3. Please submit the completed Nomination Form to Steve Geis by **December 5, 2015** to:

By mail	Wisconsin DNR Laboratory of the Year Award c/o Steve Geis 101 S. Webster St. Madison, WI 53707
By email	steven.geis@wisconsin.gov
By fax	608-266-5226

* The Laboratory Certification and Registration Program reserves the right to decide if awards will be issued or not.

2016 Wisconsin DNR Registered Laboratory of the Year Nomination Form – Lab Data Sheet

Due December 5, 2015

Name of Laboratory	**City of Columbus Wastewater Treatment Plant Laboratory**
Laboratory Manager	**John Nehmer**
Key Laboratory Employees	**Ryan Hoffman and Kevin Neu**
Laboratory Address	**537 River Road Columbus, WI 53504**
Laboratory Phone Number	**(920) 296-0920**
Nominator (your name)	**George Bowman**
Your Affiliation with Laboratory	**None but I audited them in 2014**
Your Address	**WI DNR SS/7 101 S. Webster St., P.O. Box 7921 Madison, WI 53703-7921**
Your Phone Number	**(608) 219-6285**
Your Email Address	**George.bowman@wisconsin.gov**
Is a 1-2 page summary attached that answers the questions asked on the next page?	**Yes**

Nomination Form – Question / Answer sheet for the WDNR 2015 Laboratory of the Year Award:

Please provide an answer for each one of the questions listed below (unless it is not applicable). Specific examples are always helpful.

Limit your reply to these questions to 2 pages

1. Does the lab have a strong, working quality system? [*Discuss what makes that system effective and stand out.*] *The laboratory's quality system is outstanding that includes, but is not limited to excellent documentation for traceability of records, full commitment to training and quality improvement from the city's administration through each laboratory and plant team member and a very good corrective action system. This is one of the few registered laboratories I have visited that tracks their laboratory control samples (LCS) and reagent blank data and actually does trend analysis on those data. They use that information to make adjustments to help maintain data quality. More than a few labs track this information but few actually take review the data and make decision based on those data. This is one of the quality practices that make Columbus stand out among other registered laboratories.*

2. How does the lab respond to quality system "failures"? [*Discuss what triggers the lab to take action.*] *Generally when a blank, LCS or continuing calibration verification standard (CCV) fails to meet requirement, corrective action is initiated. However, the laboratory has also taken corrective when they see trends. For example, they observed their BOD LCS (glucose-glutamic acid check) trending to the high side of passing. This prompted action which included seeking assistance from their auditor who was an expert in the field of BOD testing. This corrective action was prompted before there was a failure. As with laboratory completes a corrective action form the document what failed, the cause of the failure, if known, what action was taken to address the failure and if the corrective action taken successfully resolved the problem.*

3. Does their corrective action program conform to the Plan-Do-Check-Act approach, or something else? [*Describe the lab's model for corrective action and whether it incorporates proactive checks, feeds back to the analysts, and results in continuous improvement.* Please provide an example.] *The corrective action program is based on the Plan-Do-Check-Act model. For example, in the summer of 2014 the staff observed the BOD LCS trending a bit high but still meeting QC limits. They knew if the trend continued the BOD LCS (GGA) would soon be outside the acceptable range on the high side. The initiated corrective action and took the systematic approach described below.*
    a. *Plan - Identified potential sources of the problem. LCS source and seed.*
    b. *Do – Systematically evaluated each potential source of problem.*
    c. *Act – Eliminated the LCS as problem since lot numbers had not changed and they were using single use vials.*
    d. *Plan – Assessed seed source as potential problem.*

e. *Do – Evaluated the mixed liquor seed source and observed red worms.*
f. *Act – Reduced the strength of the seed being used to determine if that resolved the problem.*
g. *Plan – Problem was still not resolved so they tried reducing the seed strength again.*
h. *Do – Performed more tests using the reduced strength seed.*
i. *Act – Determined a 2-3 mL addition of mixed liquor flock added to 200 mL of supernatant resolved the issue.*
j. *All corrective action was documented on their corrective action forms so they could demonstrate what they did to correct the potential problem and how they knew their corrective action was successful.*

4. Does the quality system consider things beyond failure of quality control sample? *Yes. They track and plot the results of their LCS, CCV and blanks. They have used the CCV and LCS data to determine when it may be appropriate to analyze a new calibration curve for total phosphorus or if their second source LCS is deteriorating. This activity allows the laboratory to take a preventative approach to take action before quality control samples fail.*

5. Do they have any unique practices to proactively avoid problems?
The action described in item 4 is unique in that most laboratories do not take the time to look for trends or take preemptive action before there are QC sample failures.

6. Do they have any innovative solutions to common lab problems?
I would not call their actions innovative; they were smart solutions. Like many facilities, they were faced with budget concerns. They to action to reduce the testing frequency from daily to every two weeks for ammonia and total phosphorus to improve efficiency and reduce labor costs. They also upgraded some instrumentation and moved to the test-n-tube® methods which also improve efficiency in the laboratory. In my expert opinion, their actions likely reduced laboratory labor expenses by at least 30%. Again, this may not be innovative but it is smart laboratory management. This action was based on the collective off of the laboratory staff and the superintendent; not just a top-down management decision.

7. Is the lab successful because of a single (or small number of) analyst(s), or is it because of a corporate/municipal culture and support system? *This lab is successful because of the commitment of the community from the City Administration to the plant and laboratory staff. The City is clearly committed to support the facility and laboratory both financially and through encouragement.*

8. Describe the lab's training program for new staff. [*If there was a major staff changeover, is there a sufficient trail of bread crumbs to guide the replacements*?] *The new employees must review the facility's Quality Manual, SOPs, NR149 and understand the testing requirements. The new employee then observes and experienced analyst performs the tests. Thereafter the new analyst performs the tests while being observed and must successfully meet QC requirements of the tests. A form is completed and signed by the analyst and Superintendent or trainer. A training file is maintained on-site for each analyst. The primary analysts must also demonstrate on-going proficiency by successfully analyzing a Proficiency Testing sample annually. The facility has a comprehensive training program with great supporting documentation.*

9. Does the lab communicate with DNR staff when issues/questions arise? Give examples *(check with other LabCert staff members as they may have contact with the lab as well). The facility does not hesitate to contact their DNR area engineer or Lab Certification staff if they need assistance. The laboratory staff sought assistance when they originally moved from the manual total phosphorus method to the Test-N-Tube® approach. They observed some false negative results before moving to the Test-N-Tube® method. They did not hesitate to contact me for assistance. After several plan-do-check-act cycles, the problem was isolated to over-acidifying samples prior to analysis. The problem was resolved they switched over to the new method.*

10. Has the lab made significant strides since its last audit? [*Does the lab deserve special consideration for its efforts to improve or overcome difficult circumstances? Give examples.*] *After the 2011on-site evaluation the laboratory:*
    a. *Upgraded their HVAC system to improve temperature control to keep the laboratory within the 17-23°C range which is required for BOD testing.*
    b. *They upgraded the mechanical pipettes to better quality two-stop pipettes.*
    c. *They upgraded their spectrophotometer and moved to more efficient ammonia and total phosphorus methods.*
    d. *The improved their record keeping system which includes a very well organized binder system for manual analytical records and a facility database system.*
    e. *They now track QC samples on-line and generate graphs so they can perform trend analysis.*
    f. *This laboratory is one of the most organized facilities I have visited the last 4 years.*

11. What makes this lab stand out from others? *This may seem a bit unusual but I think this lab stands out based, in part, on how they addressed a Notice of Non-compliance (NON) that was issued to them in 2014. The laboratory moved from the ion selective electrode (ISE) method for ammonia analysis to the Test-N-Tube® (TNT) method in 2014. The ISE method is an electrochemistry technology and the TNT is a colorimetric technology. The laboratory did not realized they needed to submit a modified application for certification when the moved from the electrochemistry technology to the colorimetric technology for*

ammonia testing. They are not alone in this assumption as about ten other facilities made the same mistake in the last couple of years. When they discovered they were testing without a valid certification for this technology, they took immediately took. They immediately stopped testing ammonia sample in their facility and sent all of these samples to a certified commercial laboratory. They submitted an application for certification along with all of the required technical documentation within two weeks and were granted certification within 2 ½ to 3 weeks. They did not resume testing for ammonia again until certification was granted. The facility took immediate action and the NON was resolved very quickly.

Every laboratory makes mistakes from time to time and this laboratory is no exception. What makes this laboratory outstanding is that it recognized it made a mistake so it took immediate action to resolve the problem. This is the kind of action I would expect from a great laboratory. Consequently, I highly recommend this facility for the 2015 Wisconsin DNR Registered Laboratory of the Year.

Geis, Steven W - DNR

From: Thiele, Doris K - DNR
Sent: Thursday, January 07, 2016 12:29 PM
To: Geis, Steven W - DNR
Subject: Lab of the Year

I would like support the City of Columbus nomination for laboratory of the year. John Nehmer and his staff have always been very responsive to the Department's request concerning their management and treatment of their wastewater. John leads his team with many years of experience including the lab work. Their results are always within acceptable ranges and are normally within permit limits. Please let me know if there is any other information I can provide. Thanks, Doris

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