

**Wisconsin Department of Natural Resources
Natural Resources Board Agenda Item**

SUBJECT: Presentation of the 2019 Laboratory of the Year

FOR: April 2019 Board meeting

TO BE PRESENTED BY: Steve Geis - Chief, Certification Services

SUMMARY:

The Department annually presents the registered Laboratory of the Year Award 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. There are over 200 registered laboratories that were eligible to win the award this year.

The 2019 Registered Laboratory of the Year Award will be presented to the Eagle River Wastewater Treatment Plant.

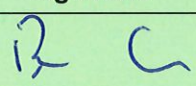
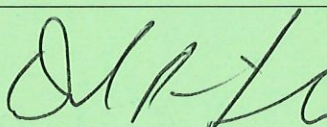
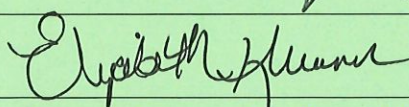
The nomination paper is included in the attached memorandum.

RECOMMENDATION: Information only

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

- Background memo
- Type name of attachment if applicable

- Type name of attachment if applicable
- Type name of attachment if applicable

Approved by	Signature	Date
Ben Callan - Acting Director, Environmental Analysis & Sustainability		3-7-2019
Dave Siebert - Administrator, External Services		3-10-2019
for Preston D. Cole, Secretary	 by Elizabeth Kluesner	3/15/2019

cc: Board Liaison - AD/8



2019 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 2019 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 14, 2018** 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

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



2019 Wisconsin DNR Registered Laboratory of the Year Nomination Form – Lab Data Sheet

Due December 14, 2018

Name of Laboratory	Eagle River Waste Water Treatment Plant
Laboratory Manager	Daryl Rutdowski
Key Laboratory Employees	Daryl Rutdowski and John Amorose
Laboratory Address	323 West Division Street Eagle River, WI 54521
Laboratory Phone Number	715-479-6739
Nominator (your name)	Brandy Baker-Muhich
Your Affiliation with Laboratory	Lab Auditor, last 3 audits
Your Address	1701 N 4 th St. Superior WI
Your Phone Number	715-969-4856
Your Email Address	Brandy.bakermuhich@wi.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 2019 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 lab staff have initiated and continually implemented many steps to improve the quality system. They have a clear and concise quality manual, which is easy to follow. The manual includes all the necessary lab responsibilities. In addition, the SOPs have been revised to include clear instructions and level of detail needed to analyze for compliance samples for TP, BOD and TSS.

All of the operators are trained to follow the SOPs and the Quality Manual and work with the QA Manager to obtain sufficient training and to resolve any problems. The training documentation is well done.

This is a story of a ‘most improved’ lab – in their initial audit done by me, the previous lab staff seemed somewhat disengaged from doing necessary improvements, but when Daryl took over, he really worked to make sure to take steps that improved the data quality of the sample results.

Here is how the lab has improved with #'s of audit findings:

2013 (previous to Daryl):	24 findings (12 due to traceability)
2016 (Daryl here but just took reigns):	18 findings (8 due to traceability)
2018: (Daryl in charge ~3yrs):	1 finding, (new MDL procedure). Resolved within days.

In addition to the reduction in lab findings, the amount of qualified data was dramatically reduced.

2. How does the lab respond to quality system “failures”? [*Discuss what triggers the lab to take action.*]

When I first audited the lab, there were many deficiencies- as mentioned it seemed due to a lack of motivation to improve data quality. The second audit had a large # of findings as well, which was due to lack of sufficient quality system. The lab staff took this as an opportunity to ‘take the bull by the

horns' and fix the problems. The next audit report only required a response to the implementation plan for the ongoing LOD for TP and NH3. This was very quickly resolved, once they understood the requirement, and the lab report was closed within 30 days of the audit.

The lab has step by step procedures in place for evaluating and correcting any quality control samples that don't meet the specified criteria. A failure or *close failure* will have the lab evaluate its approach and trigger the lab to take action if needed. Corrective actions are documented and updated until the problem is solved.

One example discussed during the onsite visit, were repeating issues related to commercial seed for BOD GGA samples. No matter how long the seed was prepped, or different techniques taken to try to resolve the issue, there was too much inconsistency. So, they worked to find a source from their own plant to develop what worked best, and now GGA failures are extremely rare. They also reached out to the DNR for technical advice and worked with the City of Rhinelander WWTP as well to get to the bottom of the issue.

Another example discussed during the onsite visit was related to the variability of the TNT vials used for TP, the lab would notice some slight changes (increases) in the method blanks and discussed this with the vendor – this diligence prevented the lab from running into some of the problems with data due to the reduced quality of the vials.

Additionally, if equipment is a suspected source for error, it is further investigated, and if needed is replaced.

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 lab goes above and beyond what the minimum may require, per discussing this, they 'consider if the reported results are reasonable for the test being evaluated. A passing control sample does not always mean the results are reasonable', so if there is a suspect result, the lab will take the additional time to re-check it. They 'plan' by keeping a good eye out on the results, if they notice a problem they follow up on what is the cause, and act to resolve it.

The lab staff have a good outlook and make improvements where needed.

Examples of their corrective action program in 'action' is included in the previous answer.

4. Does the quality system consider things beyond failure of quality control samples?

The lab is diligent about certain details that really help prevent problems from occurring.

For example, they have a rigorous cleaning procedure for the BOD bottles, allowing them to sit overnight with dilute HCl. This has alleviated all the blank problems that plagued the lab in previous years. The small details and the extra work it takes is worth it.

There were minor consistencies between auditors for BOD calibration in the past, and now those are also resolved, by not only using updated equipment, but by a very consistent calibration procedure.

When they see a problem that need to be resolved, they work on it immediately.

5. Do they have any unique practices to proactively avoid problems?

While it may not be unique an *idea* it can be tricky implementing this approach because it can take more time in the short term, so it isn't always done. The lab staff work with each other to solve a problem. Both Daryl and John will bounce ideas off one other another and they are also open to the DNR's advice or by those of other analysts.

This is only possible when they are all involved in knowing the methods and performing the testing consistently. They take turns w/the plant operation duties and the lab duties to make sure there is cross over for both responsibilities.

6. Do they have any innovative solutions to common lab problems?

One thing that stood out to me is the increase in training with good oversight. The lead operator initiates the training. This involves setting the new operator up for success and involves:

1. Reading the SOP for each test.
2. Hands on training, first they watch the analysis take place, while referring to each SOP step.
3. When ready, they will run tests on their own with supervision by the lead operator.
4. The staff continue training until they pass blind QC samples from the State Lab of Hygiene.
5. At this time, the SOPs are re-reviewed again and if needed, clarity is added.
6. All training is considered very important and documentation is well done.

The lab has contacted DNR staff with questions when necessary. The lab also has a working relationship Wisconsin Rural Water to answer questions including those about best lab practices.

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?

The lab does 3 tests (BOD, TSS and TP), and other testing related to non-compliance work. They strike a good balance and have trained staff for sample preparation and analysis (having clear SOPs and QM is a helpful tool) with all the duties of running the plant. The operators are responsible (and take responsibility) for all aspects of the plant and testing. They are successful due to the culture and support system.

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 lab has learned from experience that setting up a good training system, having easy to understand documents will prevent the situation in 2016 from occurring (an insufficient system will not be passed down to future staff). See #6 for details.

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*).

Yes, the DNR was contacted to help with GGA recovery issues and with the implementation of the new MDL procedure (and explanation of how to use the new spreadsheet).

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.*]

The lab has made many improvements over time (mainly since Daryl took over near the time of the FY2016 audit). At this November 2015 audit, there were findings for each of the technologies, many findings related the Quality System, and findings related to equipment. In November 2018 there was only a finding related to the new MDL procedure.

SOP's and Quality Manual were reviewed and revised to include the required detail and the format was re-organized, so they can be more easily followed. Training procedures were implemented that are more detailed and rugged.

All the bench sheets have been redone to include all required information and documentation is consistent. Record keeping has been reorganized to include a paper and computer record system. Sampling time and reagents/standard documentation sheets have been implemented. Overall records are very well kept, and documentation is well done.

Equipment verification and documentation are well done.

11. What makes this lab stand out from others?

What makes the lab stand out is the vast improvement the lab has made, due to the motivation to change and improve, to work together with each other, and DNR/Rural Water support to produce quality data. There are many pieces of the puzzle, so work on all the pieces is important.

It shows both in data qualifier reduction and in audit finding reduction that making many small changes for improvement results in better data quality.

In preparation of this report I asked Daryl a bit more of how this affected the process of WW treatment, he told me that getting a firm grasp on the P results meant that they could reduce waste, and sludge volume each year – that since the results were accurate they could also reduce the Ferric Cl needed/slowly turning it down.

In addition, that improving the testing and using automated benchsheets (DNR) that allow for calibration calculations and LOD calculations, (etc.), has decreased their time and labor for testing. In the past the lab used to do a 3 point calibration for P every day, and sometimes that would not pass, so it was a lot of re-doing the calibration. Now with training and improved technique, the lab does the calibration annually – they will do them again if needed but haven't really had to.

He also mentioned that when you see the findings written out, they seem like a lot, but once you start a new SOP or a new benchsheet (with correct traceability) it is very easy to implement. Then once it is set up, it is just part of the daily routine, and has actually reduced and refined what is needed to be done.

Daryl also recognizes the value that John brings to the lab, with his experience and background in lab analysis, he can really rely on him to help resolve issues and he has added efficiency because he was used to doing more analysis in his previous job. That recognition also results in good teamwork.

