

NATURAL RESOURCES BOARD AGENDA ITEM

SUBJECT: Presentation of the 2010 Laboratory of the Year Awards

FOR: MARCH 2010 BOARD MEETING

TO BE PRESENTED BY: David Webb, Bureau of Science Services

SUMMARY:

The Department presents annually the Registered Laboratory of the Year Awards to recognize Wisconsin's best registered laboratories for their outstanding commitment to producing high quality data. Awards are offered in two categories: Large Registered Facility and Small Registered Facility. This will be the 15th consecutive year the Department has presented the awards.

The 2010 Large Registered Facility Award will be presented to the Wolf Treatment Plant. The 2010 Small Registered Facility Award will be presented to the City of Waupaca Wastewater Facility.

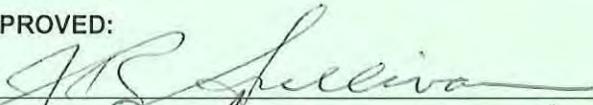
The nomination papers for each laboratory, along with an overview of the award selection criteria, are included in the attached memorandum.

RECOMMENDATION:

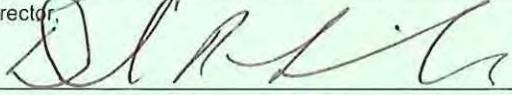
LIST OF ATTACHED MATERIALS:

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|----|-------------------------------------|---|-----|-------------------------------------|----------|
| No | <input checked="" type="checkbox"/> | Fiscal Estimate Required | Yes | <input type="checkbox"/> | Attached |
| No | <input checked="" type="checkbox"/> | Environmental Assessment or Impact Statement Required | Yes | <input type="checkbox"/> | Attached |
| No | <input type="checkbox"/> | Background Memo | Yes | <input checked="" type="checkbox"/> | Attached |

APPROVED:


Bureau/Director,

2/23/2010
Date


Administrator,

2/24/10
Date


Secretary, Matt Frank

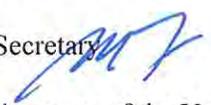
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Date

- cc: Laurie J. Ross - AD/8
- David Webb - SS/7
- John R. Sullivan - SS/7
- David Siebert - OE/7
- Joseph W. Renville - LS/8

- Alfredo Sotomayor - SS/7
- Camille Johnson - SS/Oshkosh

DATE: February 22, 2010

TO: Natural Resources Board Members

FROM: Matthew J. Frank, Secretary 

SUBJECT: 2010 Registered Laboratory of the Year Awards

The Department has presented the "Registered Laboratory of the Year Awards" since 1996. The awards recognize registered laboratories that have developed superior systems for producing high quality environmental data. Registered laboratories perform testing solely on behalf of their own facility, municipality, subsidiary or corporation under common ownership or control. The Laboratory Certification and Registration Program coordinates nomination and selection activities, but a laboratory can be nominated by anyone familiar with it and its operations.

Yearly recipients are selected based on the following criteria:

1. The laboratory's commitment to exceeding the minimum requirements for compliance with Department rules and guidance.
2. The laboratory's commitment to correcting instances of non-compliance.
3. The measures taken by the laboratory to ensure the production of high quality data.
4. The manner in which the laboratory uses its quality assurance program to evaluate and improve laboratory procedures.
5. The laboratory's engagement in other noteworthy practices or achievements deserving recognition.

Two awards are presented, one for a small and another for a large facility. Only registered laboratories are eligible to be nominated. Laboratories that meet any of the following criteria may be nominated to receive the "Small Facility" award:

- Registered to perform limited testing, such as oxygen demand, nitrogen, phosphorus, and solids.
- Associated with a facility with an average annual flow of less than 1 MGD.
- Unaffiliated with a large corporation or large public entity.

Laboratories that meet any of the following criteria may be nominated to receive the "Large Facility" award:

- Registered to perform tests of greater complexity in any of the Ch. NR 149 categories.
- Associated with a facility with an average annual flow greater than 1 MGD.
- Affiliated with a large corporation or large public entity.

2010 Laboratory of the Year Award Selections

Large Registered Facility Award: Wolf Treatment Plant.

The laboratory is registered to perform testing for biochemical oxygen demand (BOD), total suspended solids (TSS), total volatile solids (TVS), and phosphorus. The laboratory has been evaluated on site eight times by the Laboratory Certification and Registration Program. The Wolf Treatment Plant laboratory was especially commended for establishing a quality assurance program that exceeds the minimum requirements, developing a comprehensive documentation system, cross-training its analytical staff, and achieving such a high level of compliance with Chapter NR 149 that no deficiencies were noted during the laboratory's last evaluation.

Small Registered Facility Award: City of Waupaca Treatment Facility

The laboratory is registered to perform testing for BOD, carbonaceous BOD (CBOD), ammonia, TSS and phosphorus. The laboratory has been evaluated on site eight times by the Laboratory Certification and Registration Program. The City of Waupaca Treatment Facility Laboratory was especially commended for the degree of accuracy and precision of its analyses, performance of quality control analyses beyond the required minimum, attention to resolving deficiencies expeditiously, and expertise of the lead laboratory analyst.

Copies of each laboratory's nomination papers are attached.



*2010 Wisconsin DNR
Registered Laboratory of the Year
Nomination Form*

Due February 1, 2010

Name of Laboratory	Wolf Treatment Plant
Laboratory Manager	Dave Hartmann
Other Key Laboratory Employees	Names Unknown
Laboratory Address	P.O. Box 452, Shawano, WI 54166
Laboratory Phone Number	715.524.2176 x 225
Nominator (your name)	Tom Trainor
Your Affiliation with Laboratory	WDNR Laboratory Audit Chemist
Your Address	WDNR, 2984 Shawano Avenue, Green Bay, WI 54313
Your Phone Number	920.662.5475 office, 920.412.5970 cell
Your Email Address	tom.trainor@wisconsin.gov
Is a 1-2 page summary attached?	Yes

WOLF TREATMENT PLANT

2010 Nomination Criteria for Laboratory of the Year Award:

- 1. Describe what quality control (QC) samples the laboratory analyzes that are above minimum requirements (if possible give the frequency that each of them is analyzed).**
 - QCS samples (blinds) are still analyzed even though they are no longer required.
 - ICV standards are analyzed even though they are not required because the laboratory analyzes QCS samples.
 - ICV standards are performed at 3 different concentrations when only one concentration is required.
 - Sample replicates are still analyzed even though they are no longer required.
 - Three different weights are used to verify the analytical balance instead of the required two.
 - The DO probe is used to measure room temperature and it is calibrated monthly instead of yearly.
 - Three dilutions each are analyzed for BOD on the influent, effluent and seed controls. Three is not required.
 - Two BOD blanks are analyzed when only one is required.
 - TP curves are generally performed quarterly but they are only required annually.
 - Five different concentration standards are used in the TP calibration curve while only 3 are required.
 - Three different buffer solutions are used to calibrate the pH meter instead of two. Fresh buffers are always used. The pH meter slope is always recorded and evaluated against the acceptable slope criteria.
 - Mechanical pipettes are calibrated monthly instead of quarterly using the WSLH procedure.
 - Each TP curve is graphed in order to obtain a visual display of how well the curve fits a line. This is not required.
- 2. Discuss how often the laboratory has QC failures and how they respond to them.**
 - Quality Control results are almost always in control. An example years worth of assessment:
 - ◆ In 2009 there were no TSS failures
 - ◆ In 2009 the BOD Blanks and GGA failed 7 times each over the entire year (365 samples)
 - ◆ In 2009 there were no TP spike failures that occurred
 - When QC failures do occur, DMR qualification is extremely well documented. The date of the failure and the date of next in control sample are both documented. In addition, when known, the likely causes of the failures are included. This laboratory practices one of the best qualifications of data I have seen.
 - The system to track QC failures is very well done. First, when a QC failure occurs, it is highlighted on the benchsheet with a colored highlighter marker so that it can be easily noticed during a review. Then, a corrective action form is completed and it is stapled to the benchsheet. This corrective action form is an orange colored form so they are easily detected when leafing through piles of paperwork. Lastly, all corrective actions require supervisor sign off so that the lab supervisor is well aware of all out of control situations and he can assess whether or not the corrective action taken is appropriate and he can assess any trending and/or impact on the data. With all of these checks and balances in place it is highly unlikely that an out of control sample will be missed on the DMR and that out of control situations are allowed to continue without being addressed.
- 3. Describe how well the laboratory documents maintenance activities and corrective actions.**
 - The maintenance records are documented in detail for all equipment used in the laboratory.
 - Corrective action records are very well thought out and documented in fine detail. Detailed records were available all the way back to 2006 proving that this wasn't something just recently implemented.
 - Records are documented neatly so they are easy to read.
- 4. Explain if the laboratory performs any testing of registered parameters beyond what is required by their permit.**

- BOD and TSS are required 5 times per week by permit. The laboratory collects, analyzes, and reports BOD and TSS 7 days a week.
- 5. Describe any unique or advanced techniques the laboratory uses to improve their data quality.**
- Unknown.
- 6. Discuss any special ways the laboratory uses QC or compliance sample results to improve their operations.**
- Unknown.
- 7. Discuss the laboratory's success in coming into full compliance with the new NR 149 code requirements that took effect on September 1, 2008.**
- This laboratory was audited in December 2009 and had zero deficiencies from that evaluation.
 - The new code requirements were being met in full. In fact, ever since the new code became effective on September 1, 2008, the laboratory has been in frequent contact with me to discuss any questions on coming into full compliance of the code. As a result, this laboratory was very proactive in terms of meeting the new code requirements.
 - Benchsheets contained all of the required information for traceability. The chemicals used for each analysis are identified in detail for traceability on each benchsheet.
 - The Quality Manual and Method SOPs are written to mirror the requirements listed in the new code – so it is crystal clear that the code requirements have been met. An excellent revision history is used to track changes.
 - Method SOPs were also created for pH, residual chlorine and fecal coliform even though not required.
 - The chemicals tracking documentation is superbly done. As received chemicals are tracked electronically. Prepared chemicals are tracked electronically and on paper.
 - IDC are well established and perfectly documented.
- 8. Discuss any unique or exceptional ways in which the laboratory performs their testing that improves data quality.**
- Composite sampler containers, sampler tubing, and laboratory containers are well cleaned frequently and include a disinfection step.
 - The lab changes the DO membrane every 2 weeks as part of their routine maintenance.
 - A timer is used to measure the time from color reagent addition to the time of absorbance measurement for TP samples so that as much consistency as possible is maintained in having all measurements made at about the same time in the color reaction.
 - The laboratory has a very detailed and inclusive list of maintenance items that are assessed weekly.
 - In general, the laboratory has many, many forms that document all aspects of their operations from plant monitoring, to sampling, through laboratory operations.
 - All calibrations are very well done and all wide bore pipettes are a high volumetric class grade pipette.
- 9. Discuss the degree to which the laboratory has established their quality system and how well it is adhered to.**
- The Quality system is well established and adhered to by all analysts.
- 10. Discuss any other reasons why you believe this laboratory is worthy of nomination for the Laboratory of the Year award.**
- It is very hard for a laboratory with multiple analysts to be consistent with their testing protocols and documentation. Dave has spent many hours troubleshooting and training three other analysts so that consistency is achieved. The four analysts all go through a complete rotation so they stay current with the testing. The analysts and Dave are very close so they often meet to discuss laboratory improvements or any issues that may come up
 - Dave was very easy to work with during the evaluation and he has a very good understanding of the tests he is performing. Dave was very willing and interested to listen to all recommendations.



*2010 Wisconsin DNR
Registered Laboratory of the Year
Nomination Form*

Due February 1, 2010

Name of Laboratory	City of Waupaca Wastewater Facility
Laboratory Manager	Jeffrey Dyer, Wastewater Team Leader Lead Lab Analyst
Other Key Laboratory Employees	Ken Karth-Operations, Maintenance & Lab Wayne Johnson, Operations, Maintenance & Lab
Laboratory Address	Waupaca Wastewater Treatment Facility 325 S. Oborn St. Waupaca, WI 54981
Laboratory Phone Number	(715)258-4424
Nominator (your name)	Mark Corbett, P.E. – Engineer Oshkosh DNR Service Center
Your Affiliation with Laboratory	DNR compliance contact
Your Address	Oshkosh DNR Service Center 625 E. Cty. Rd. Y – Suite 700 Oshkosh, WI 54901
Your Phone Number	(920)424-4403
Your Email Address	mark.corbett@wisconsin.gov
Is a 1-2 page summary attached?	Yes. Attached memo and Criteria.

DATE: January 26, 2010

FILE REF: 3400

TO: Camille Johnson, Lab Audit Chemist
Oshkosh DNR Service Center

FROM: Mark K. Corbett, P.E.-Engineer
Oshkosh DNR Service Center

SUBJECT: *2010 Lab of the Year Nomination – Small Lab Category*
City of Waupaca Wastewater Treatment Facility

The following text supports the nomination of the City of Waupaca, Publicly Owned Treatment Works(POTW) laboratory (FID:469005680) for the *2010 Lab of the Year Award-Small Category*. For the past 31 years, I've served as the primary regulatory contact for the Waupaca POTW.

The City owns and operates this advanced-activated sludge wastewater treatment facility, and the plant complex experienced it's most recent construction upgrade in 1997. The facility was sized for an Annual Average Design Flow of 1.5 million gallons per day(MGD), and the plant services the City, Chain O' Lakes Sanitary District and Wisconsin-King Veterans Home. The POTW is classified as a *major municipal discharger*.

All facility operation, maintenance and lab testing procedures are coordinated by City staff, under the supervision of Jeff Dyer-Wastewater Facility Leader. A staff consisting of Ken Karth and Wayne Johnson assist Jeff with all daily wastewater activities. Jeff is certified under DNR's required Grade#4 wastewater classification, in all necessary subclasses for the facility. Jeff also serves as the lead analyst, for this NR 149 Registered lab.

Jeff, Ken and Wayne continually apply exceptional wastewater system process control measures that result in effluent quality which is consistently in compliance with WPDES permit limitations. This unblemished compliance record can be a daunting challenging, given the rigors of maintaining steady-state control of all units, particularly the Biological Phosphorus Removal-Anoxic treatment vessel.

Effective process control and excellent effluent quality can only be achieved with a stellar, self monitoring lab program. The Waupaca POTW runs such a lab, and Jeff has made remarkable progress in complying with most required aspects of revised NR 149. The lab's outstanding overall performance is a direct result of Jeff's conscientious nature and meticulous testing protocol.

Nomination Criteria for 2010 Laboratory of the Year Award

1. Per past practice (and well above the requirements), the lab routinely conducts matrix spikes of ammonia and phosphorus, and duplicates of total suspended solids, ammonia and phosphorus. This is done on a monthly basis. Two blanks are analyzed on each analysis day and assessed separately as required. A TSS blank, is also analyzed.
2. The laboratory seldom has QC failures. When possible, the analysis is repeated. A method for addressing QC failures is in place and described in the Waupaca lab Quality Assurance Document. Corrective actions are taken and recorded in corrective action log.
3. Thorough lab equipment maintenance records are kept in a maintenance log. Reagent/chemical traceability is tracked in a log per NR149 requirements. A corrective action log is used on the rare occasion that QC exceedances occur.
4. Raw wastewater is analyzed for total Kjeldahl Nitrogen on a weekly basis by an outside lab. While not wastewater related, periodically, water from the City's wells are tested for nitrates by the wastewater lab. All other samples are analyzed per permit requirements.
5. Not applicable.
6. The lab performs daily process control testing including; mixed liquor suspended solids, waste-activated-sludge(WAS) solids and return-activated-sludge(RAS) solids, settleability testing, D.O. monitoring. At least weekly, anaerobic digester streams are analyzed for solids, volatile solids and pH. Those results as well as the standard test results are used to maximize performance of the plant.
7. The Feb.20, 2009 laboratory audit by Camille Johnson-Audit Chemist revealed some lab *deficiencies* with the new NR149 requirements. Shortly after the audit, the Waupaca lab achieved compliance with the NR 149. Although this lab was not fully compliant with the revised NR 149, at the time of their audit, they quickly and thoroughly responded to the report and made all corrections needed. They are currently in full compliance and only had a few deficiencies.
8. The lab adheres to stringent guidelines and is meticulous with detail, to assure that results are precise. They do an outstanding job in many ways. Quality control results indicate superior accuracy and precision are achieved in testing. There were virtually no QC exceedances found in the last several years of data even though the data is evaluated against very strict control limits. BOD blanks and GGA samples meet the control limits consistently. Phosphorus curve correlation coefficients have all been at least 0.9999 for over the last 5 years. Spikes, replicates, blanks, and standards all meet the acceptance criteria routinely. Phosphorus spike recoveries are usually within 98-102%.
9. The lab adheres to the methods and procedures described in its Quality Assurance Document, which accurately meet the expectations outlined in NR149 code. The records are clear and well organized. The analyst pays close attention to detail and insures the quality system requirements are implemented.
10. Overall this lab does an excellent job. See narrative for more detail.