MANUAL FOR THE CERTIFICATION OF LABORATORIES ANALYZING ENVIRONMENTAL SAMPLES FOR THE IOWA DEPARTMENT OF NATURAL RESOURCES

Criteria and Procedures Quality Assurance

Chapter 3 - Wastewater and Sewage Sludge

Prepared for

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by

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INTRODUCTION

The Code of Iowa sections 455B.113 and 455B.114 require certification for laboratories performing analyses of samples which are required to be submitted to the Iowa Department of Natural Resources (DNR) as a result of Iowa Code provisions, rules, operation permits, or Administrative Orders. The following procedures and criteria for certifying laboratories analyzing wastewater samples for submission of data to the DNR were developed under an agreement between the DNR and the State Hygienic Laboratory (SHL) in order to implement that certification.

The certification program applies to laboratory analytical methods for analysis of wastewater. Certain basic test procedures that must be done on-site are not included in this certification.

APPLICATION PROCEDURE

Initial inquiries regarding certification should be made either to DNR (mailing address on cover, or telephone 515-725-0343, or to SHL, Laboratory Extension Division (mailing address on cover, or telephone 319-335-4500). A packet of materials will be sent to the applicant including the DNR fee schedule, this guidance, and the pre-survey form. The material should be reviewed and the fee schedule sent along with a check or money order for the required fee to DNR. The pre-survey form should be completed (with additional materials attached to the pre-survey form as required) and sent to SHL.

Following receipt and review of the application and resolution of any apparent questions, a laboratory on-site visit by SHL personnel will be scheduled. SHL site visitors will be knowledgeable technical people under the direction of laboratory appraisal officers who have completed the USEPA laboratory certification course. The on-site inspection will use the criteria in this document as well as a review of the laboratory's capability of running the methodology required and general quality assurance of the laboratory. For out-of-state laboratories, the cost of the on-site visit is charged in addition to the fee required by DNR.

Following review of the laboratory, SHL may request certain items to be addressed prior to recommending certification. The laboratory will be given an opportunity to implement or otherwise respond to the request. SHL will then prepare a summary report of the site visit, including a recommendation for or against certification or provisional certification. The report will be submitted to DNR.

Upon receipt and review of SHL's recommendation, DNR will make a decision to issue or deny certification. A laboratory can be issued certification or provisional certification which is valid for up to a two year period. Provisional certification will be changed to full certification when all conditions of certification are met. Failure to meet all conditions of certification may result in revocation of the provisional certification.

Laboratories will be required to successfully participate in a blind proficiency testing study (PT) at least annually and must report the results of this proficiency examination (whether annual or more frequent) and corrective actions for failed PT's, if necessary, to DNR or SHL within 30 days of receipt of results. Most PT programs will directly submit results to the certifying agency and this is the preferred method of submission. DNR may grant temporary certification for a period not to exceed 120 days upon submission of the appropriate fees and a complete and accurate pre-survey form indicating a laboratory performs the required methodology satisfactorily and can be expected to meet certification requirements. Such temporary certification shall be granted only in cases where completion of the standard certification process may be delayed more than 60 days or other extenuating circumstance to be decided by DNR.

EVALUATION CRITERIA

The following evaluation criteria are adapted from USEPA's "Manual for the Certification of Laboratories Analyzing Drinking Water--Criteria and Procedures, Quality Assurance", 5th Ed., Change 2, EPA-814B-92-002, 2005. Evaluation of whole effluent toxicity testing laboratories will be performed according to the applicable sections of USEPA's "Manual for the Evaluation of Laboratories Performing Aquatic Toxicity Tests", EPA/600/4-90/031, January 1991.

1. Personnel

1.1 Director. A laboratory's volume and scope of services may not require this position. However, there must be a person either in this position or an individual available for consultation meeting the same requirements as the Director. If the Director is also a supervisor, the requirements of 1.2 must also be met.

1.1.1 Academic training: Minimum bachelor's degree in science is required. If bachelor's degree is in a field other than chemistry, the individual should have the number of credit hours in chemistry equivalent to a minor in chemistry.

1.1.2 Experience: Minimum of 2 years of experience in an environmental laboratory.

1.2 Supervisor. Minimum requirements for the supervisor position are listed below. If the supervisor is also an instrument operator, the requirements of 1.3 are also to be met.

1.2.1 Academic training: Bachelor's degree in science that includes the number of credit hours in chemistry courses required for a major in chemistry.

1.2.2 Experience: Minimum of 1 year experience in chemical analysis of environmental samples.

1.3 Instrument Operators. Operators for the atomic absorption spectrophotometers, inductively coupled plasma atomic emission spectrometers, gas chromatographs, or gas chromatograph/mass spectrometers are required to meet the following minimum standards.

1.3.1 Academic training: Bachelor's degree in chemistry or related field. The analyst need not have a bachelor's degree if the immediate supervisor has a bachelor's degree in chemistry or related field or if the analyst has the number of credit hours in chemistry courses required for a major in chemistry.

1.3.2 Specialized training: If ICP or GC/MS instrumentation is used, satisfactory completion of a short course offered by equipment manufacturer, professional organization, university, or other qualified training facility is essential for these operators. Specialized training for other instruments is recommended.

1.3.3 Experience: Minimum of six months experience in the operation of AA, ICP, GC, or other major instrumentation. Minimum of 12 months experience in the operation of the GC/MS.

1.3.4 Initial qualification: After appropriate training, it is essential that the analyst demonstrate acceptable results in the analysis of an applicable set of four QC samples or a single commercial PT sample. Commercially available PT samples are distinguished from QC samples in that the results of the PT sample are not known to the lab until the PT study is concluded.

1.3.5 Continuing qualification: On at least an annual basis, any analyst performing testing using a specific method shall complete the analysis of an applicable set of four QC samples or a single commercial PT sample.

1.4 Other Analysts. The following are required minimum standards for the other analyst position.

1.4.1 Academic training: Minimum of high school diploma or equivalent.

1.4.2 Initial qualification: After being trained in a methods training course or by a fully qualified analyst, the person being trained shall demonstrate acceptable results in the analysis of an applicable QC or PE sample.

1.4.3 Continuing qualification: On at least an annual basis, any analyst performing testing using a specific method shall complete the analysis of an applicable set of four QC samples or a single commercial PT sample.

1.5 Analysts and Operators in Training. Data produced by analysts and instrument operators while in the process of obtaining the required training or experience are acceptable when reviewed and verified by a fully qualified analyst or the laboratory supervisor.

1.6 Quality Assurance Officer. It is recommended laboratories have a designated quality assurance officer with a

minimum of a bachelor's degree in science and knowledge of statistics and quality control procedures. Ideally, this position should be independent of the analytical personnel and should report directly to the laboratory director in matters relating to their function.

1.7 Requirements for Basic Wastewater Parameters Only. For laboratories analyzing ONLY the basic wastewater parameters (total suspended solids, ammonia nitrogen, BOD5, and CBOD5), personnel requirements for director, supervisor and other analyst are relaxed to not require a bachelor's degree IF the person(s) in these positions has satisfactorily passed specific training for these tests, has had at least one year of experience in running these methods, AND has previously arranged access to additional technical expertise meeting the requirements so that resolution of analytical problems can be assisted.

1.8 Waiver of Academic Training Requirement. DNR may waive the need for specified academic training, on a case-by-case basis, for highly experienced analysts.

2. Laboratory Facilities

The laboratory facilities must be clean, have temperature and humidity adequately controlled in the instrument areas and have adequate lighting at the bench top. It is important for the laboratory to have provisions for the proper storage and disposal of chemical wastes. Exhaust hoods are required for preparation, extraction and analysis where applicable.

It is recommended a minimum of 150 to 200 square feet/laboratory person be available. It is recommended that the laboratory contain at least 15 linear feet of usable bench space per analyst. Workbench space needs to be convenient to sink, water, gas, vacuum and electrical sources free of surges. It is recommended that the organic chemical facilities be separate from other facilities. The analytical and sample storage areas must be isolated from vehicle service or parking areas, motor fuel storage, and all other potential sources of contamination.

3. Laboratory Equipment and Instrumentation

The laboratory is only required to have those instruments that are needed to perform the methods for which certification has been requested. The equipment must be in functioning order and meet the specifications given in the methodology.

4. General Laboratory Practices

4.1 Chemicals/reagents. "Analytical reagent grade" (AR) chemicals, ACS grade or better must be used for analyses where possible. Consult individual methods in Standard Methods for the Examination of Water and Wastewater or other standard references for more detailed information on reagent grades.

4.2 Laboratory safety. While specific safety criteria are not an aspect of laboratory certification, laboratory personnel are expected to apply general and customary safety practices as a part of good laboratory procedure. Each laboratory is strongly encouraged to have a safety plan as part of their standard operating procedure (see OSHA requirements, especially 29 CFR 1910.1450). Where safety practices are included in a method, they must be strictly followed.

4.3 Reagent water. The laboratory is to have a source of reagent water having a specific conductivity value greater than 0.5 megaohms (less than 2.0 microhms/cm) at 25°C. High quality water meeting such specifications may be purchased from commercial suppliers. Quality of reagent water is best maintained by sealing from the atmosphere. Quality checks to meet specifications above should be made and documented at planned intervals based on use. This planned interval should not exceed one month.

Reagent water for organic analysis is to be free of interferences for the analytes being measured. It may be necessary to treat water with activated carbon to eliminate all interferences.

4.4 Glassware preparation. Glassware must be washed in a warm detergent solution and thoroughly rinsed first with tap water and then with reagent water. This cleaning procedure is sufficient for general analytical needs, but the individual procedures must be referred to for precautions to be taken against contamination of glassware. It is advantageous to maintain separate sets of suitably prepared glassware for the nitrate, mercury, and lead procedures due to the potential for contamination from the laboratory environment.

For organic analytes, glassware and sample bottles must be washed in a detergent solution and thoroughly rinsed first in tap water and then in reagent water. Glassware should have a final organic solvent rinse or must be baked at 400oC for 30 minutes and then dried or cooled in an area free of organic contamination. Glassware should be covered with organic-free aluminum foil during storage. Bottles and cap liners, used for collection of samples for determination of volatile organic chemicals (VOCs), should be dried at 105oC for 1 hr., sealed, and stored in an area free of volatile organics.

5. Analytical Methodology

5.1 Required methodology. The approved analytical methods for wastewater analysis are required by Iowa Administrative Code 567--63.1(1) and are listed in 40 CFR Part 136. Approved sampling and analytical methods for sewage sludge are required by IAC 567--67.10.

5.2 Ancillary methodology. Other methods that may be more advantageous to use may be approved by DNR and must be documented and available for review by the laboratory appraisal officer. This includes alternate test procedures approved by EPA as provided for in IAC 567--63.1(2).

5.3 Methodology for which certification is not required. Some samples, such as those collected for operational testing pursuant to IAC 567--63.3(4), need not be done by approved methodology. However, commonly accepted test methods should be used. These may be reviewed and noted by the laboratory appraisal officer.

6. Sample Collection, Handling and Preservation

The manner in which samples are collected and handled is critical for obtaining valid data. A written sampling protocol with specific sampling instructions must be available to sample collectors and for inspection by DNR. Containers and preservatives for the approved methodology are required by IAC 567--63.1(3) and are contained in Table VI of chapter 63 or the current edition of 40 CFR 136.3. Chain of custody must be maintained and documented for cases that may involve legal action. Laboratories not responsible for sampling should still be aware of regulatory requirements in order to properly advise their clients and evaluate possible errors in collection.

6.1 Rejection of samples. The laboratory must reject any sample taken for compliance purposes not meeting the criteria in 6.2 through 6.6 of this manual and notify the individual requesting the analyses. When analysis is performed that does not meet these criteria, the laboratory must qualify (flag) the report of results explicitly and prominently, fully disclosing the nature of the deficiency(ies).

6.2 Sample containers and preservation. The type of sample container and the required preservative are listed in Table II of 40 CFR 136.3 or the method if not specifically listed.

6.3 Maximum holding times. Samples must be analyzed within the maximum holding times listed in Table II of 40 CFR 136.3 or the method if not specifically listed.

6.4 Sample collection and transport. When the laboratory has responsibility for sample collection, handling, and preservation, there needs to be strict adherence to correct sampling procedures, complete identification of the sample, and prompt transfer of the sample to the laboratory. If the laboratory is not responsible for sample collection, handling, and preservation, the sample custodian must check the samples for these items to the extent possible and document violations. The report of results must disclose the nature of the deficiency(ies).

6.5 Sample collector. The collector should be trained in sampling procedures and must adhere to sample collection instructions per DNR and EPA regulations.

6.6 Sample report form. The sample report form must contain the date, exact place and time of sampling; the dates (and times for tests with holding time of <72 hours) analyses were performed; who performed the analyses; the analytical techniques or methods used; and the results of such analyses. Indelible ink should be used.

7. Quality Assurance.

7.1 General requirements. All quality control information must be available for inspection by DNR at any time or by SHL during site visits. A manual of analytical methods and the laboratory's QA plan are also to be available to the analysts.

7.1.1 **QA Plan**. All laboratories analyzing compliance samples must adhere to defined quality assurance procedures. This is to insure routinely generated analytical data are scientifically valid and defensible and are of known and acceptable precision and accuracy. To accomplish these goals, each laboratory must prepare a written description of its quality assurance activities (a QA plan). The following items should be addressed in a QA plan:

a. Sampling procedures;
b. Sample handling procedures--specify procedures used to maintain integrity of all samples. Samples likely to be the basis for an enforcement action may require Chain-of-Custody procedures.
c. Instrument or equipment calibration procedures and frequency of their use.
d. Analytical procedures.
e. Data reduction, validation and reporting
   data reduction: conversion of raw data to final concentrations.
   validation: includes insuring accuracy of data transcription and calculations
   reporting: includes procedures and format for reporting data to clients and DNR
f. Types of quality control (QC) checks and frequency of their use. This may include preparation of calibration curves, instrument calibrations, replicate analyses, use of external QC check samples, and use of QC charts.
g. Preventive maintenance procedures and schedules.
h. Specific routine procedures used to determine data precision and accuracy for each contaminant measured. Precision is based on the results of replicate analyses. Accuracy is normally determined by comparison of results with "known" concentrations in spiked media.
i. Corrective action contingencies. Laboratory response after obtaining unacceptable results from analysis of PE samples and from internal QC checks.
j. Laboratory organization and responsibility. Include a chart or table showing the laboratory organization and line of authority. List the key individuals who are responsible for ensuring the production of valid measurements and the routine assessment of measurement systems for precision and accuracy (e.g., who is responsible for internal audits and reviews of the implementation of the plan and its requirements.)

The QA plan may be a separately prepared QA document or may incorporate, by reference, already available standard operating procedures (SOPs) that are approved by the laboratory director and address the listed items. If a particular listed item is not relevant, the QA plan should state this and provide a brief explanation (e.g., some laboratories do not collect samples and thus are not required to describe sampling procedures but should be aware of DNR requirements for sampling). A laboratory QA plan should be concise but responsive to the above- listed items. Minimizing paperwork while improving dependability and quality of data are the intended goals. The QA Plan should describe how and what the laboratory is actually doing, not theory or suggested practices.

7.1.2 ASTM Class I weights or better should be available to make periodic checks on balances. A record of these checks is to be available for inspection. The specific checks and their frequency are to be as prescribed in the laboratory's QA plan and the laboratory's operations manual, if appropriate. This frequency should not exceed annually.

7.2 Analytical Quality Control. The following are required for each method:

7.2.1 The laboratory must perform acceptably on PT samples at least annually for each method/matrix accredited by the Iowa program directly. For labs using Reciprocal accreditation the PT samples should be completed at the frequency required by the Primary Accrediting authority. The proficiency testing program in which the laboratory is enrolled must meet the criteria listed under "Criteria for Proficiency Programs" in this manual. Performance of this sample may serve as a Continuing Demonstration of Capability for an analyst in the lab. If multiple analysts are to be qualified each must run the PT sample independently.

7.2.2 At least once each quarter, the laboratory must analyze a QC sample independent of the materials and preparation of calibration standards. If the specified limits are exceeded, corrective action is to be taken and documented, and a follow-up quality control standard analyzed as soon as possible to demonstrate the problem has been corrected (applicable to all certified analytes analyzed during that quarter). Performance of this sample for all four quarters of a year may serve as a Continuing Demonstration of Capability for an analyst in the lab. If multiple analysts are to be qualified each must run these samples independently.

7.2.3 Calibration and quality control must be followed as specified in the method. In general, a standard curve composed of at least a reagent blank and three standards covering the sample concentration range are to be prepared. These standards should be from a different source than the quality control standard used for 7.2.2.

7.2.4 At the beginning of each day that samples are to be analyzed, the standard curve is to be verified by analysis of at least a reagent blank and one standard in the expected concentration range of the samples analyzed that day. All checks should be within +/- 20% of the standard curve or the system must be recalibrated.

7.2.5 If the reagent blank specified in 7.2.4 is not carried through the full analytical procedure, then some other blank (at least one per day per batch of 20 samples) is to be carried through the entire analytical procedure. Results from reagent blanks should not exceed the laboratory's method reporting limit (see paragraph 7.2.8).

7.2.6 The laboratory must analyze known matrix spikes and sample duplicates on a regular basis at a frequency of one per batch of up to 20 samples per day. <u>If the analyte is normally below the laboratory detection limit duplicate known spikes must be analyzed</u>. The known spike and sample duplicate are to be analyzed through the complete analytical system. Corrective action is to be taken in accordance with the laboratory's QA plan if any duplicate or spike result is out of the laboratory's statistical acceptance range or as stated in the referenced method (generally not to exceed 100 +/- 40% for organic or 100 +/- 20% for inorganic analysis) unless the laboratory can demonstrate matrix effect in the case of matrix spikes. Statistically based acceptance limits should be established once sufficient data is available.

7.2.7 Types and frequency of Quality Control samples are specified in 40 CFR 136.7 and Standard Methods Sections 1020/2020/3020/4020/5020, xx20.

7.2.8 The laboratory must calculate traditional control limits on an on-going basis for each analyte. The laboratory may use quality control criteria in the sections above more stringent than those stated, if their experience with on-going analytical operations demonstrates such limits to be appropriate for their operations.

7.2.9 It is further recommended the laboratory calculate the MDL at least annually in accordance with the procedure given in 40 CFR Part 136, Appendix B. This procedure is in the process of being updated as of February 2017 and will replace the current version in Appendix B after publication in the Federal Register.

8. Records and Data Reporting

8.1 Laboratory Records. Records of chemical analyses are to be kept by the laboratory for a minimum of 3 years. This includes all raw data, calculations, and quality control data. These data files may be either manual or computer based. Hard copy should be developed as soon as possible and stored for recordkeeping purposes.

8.2 Data Reporting. All laboratory reports must contain the following information:

a. The date, exact place and time of sampling.
b. The dates and time (as required) analyses were performed.
c. Who performed the analyses?
d. The analytical techniques or methods used, and
e. The results of such analyses.

REQUIREMENTS FOR MAINTAINING CERTIFICATION

To maintain laboratory certification in Iowa, laboratories must meet the following requirements:

a. Laboratories must use proper methodology for all analyses to be submitted to DNR;
b. Certified laboratories must satisfactorily analyze PT samples at least once annually for each method/matrix pairing. Results must be submitted to DNR or SHL along with a statement of method used within 30 days of receipt from the vendor (Note: most PT vendors will provide this data directly to DNR and this is the preferred method of delivery. Please check DNR on your submittal record with your PT provider). Labs utilizing reciprocal accreditation should submit PT samples on the same schedule required by their Primary Accrediting body ;
c. Laboratories must notify DNR in writing within 15 days of major changes in personnel, equipment, laboratory facilities, or other change which might alter analytical capability. Changes in staffing may result in a temporary halt on the lab's accreditation status until proof of new staff training is provided.
d. Laboratories must consent to a periodic site visit, normally at least every two years. However, an on-site

evaluation may be conducted more frequently if the laboratory undergoes a major change or fails a PT sample, or if DNR questions an aspect of data submitted which is not satisfactorily resolved.

CRITERIA AND PROCEDURE FOR DOWNGRADING/REVOKING CERTIFICATION STATUS

Criteria for Downgrading Certification Status. A laboratory may be downgraded for any of the following reasons:

a. Failure to analyze a performance testing sample annually within Iowa acceptance limits;
b. Failure of a certified laboratory to notify DNR within 15 days of changes which might impair analytical capability; or
c. Failure to satisfy DNR that the laboratory is maintaining the required standard of quality based on an on-site evaluation.

Procedure for Downgrading. If a laboratory is subject to downgrading on the basis of the indicated criteria, DNR will notify the laboratory director or owner, in writing. The laboratory director will review the problems cited and, within 30 days of receipt of the letter, send a letter to DNR specifying what corrective actions are being taken. DNR will consider the adequacy of the response and notify the laboratory by mail of its certification status and may follow up to insure corrective actions have been taken.

During any phase of this procedure, a laboratory may request SHL to provide technical assistance to help identify and resolve any problem.

Once DNR notifies a laboratory, in writing, that it has been downgraded to “provisional certification” the laboratory must correct its problem within 3 months for a procedural, administrative, or minor equipment deficiency and 6 months for a major equipment deficiency. If the laboratory was downgraded because of a failure to analyze a performance evaluation sample within the acceptance limits, the laboratory must correct its problems and satisfactorily analyze another PT sample within 2 months of being notified.

Criteria for Revoking Certification Status. Laboratory certification may be revoked for the following reasons:

a. Failure to analyze a PT sample within the Iowa acceptance limits for a provisionally certified laboratory;
b. Failure to satisfy DNR that the laboratory has corrected deviations identified during the on-site evaluation within 3 months for a procedural, administrative, minor equipment deficiency or 6 months for a major equipment deficiency;
c. Submission of a PT sample to another laboratory for analysis;
d. Falsification of data or other deceptive practices;
e. Failure knowingly to use required analytical methodology for analyses submitted to DNR, or
f. Failure to satisfy DNR that the laboratory is maintaining the required standard of quality based on an on-site evaluation.
g. Failure to properly report analytical results.

Procedure for Revoking Certification. DNR will notify the laboratory of its intent to revoke certification by commencement of a contested case proceeding as provided in 561 IAC 7.5(2) and consistent with Code 17A.18. Certification will be reinstated when and if the laboratory can demonstrate that all conditions of laboratory certification have been met through a new application for certification.

CRITERIA FOR LABORATORY PROFICIENCY EVALUATION PROGRAMS

Laboratories must be enrolled in a proficiency testing program to receive certification under Iowa Department of Natural Resources (DNR) regulations. The Water Pollution (“WP”) proficiency program approved by the USEPA or a similar program administered by another government agency and approved by DNR is preferred. Third-party testing programs may be acceptable but must be approved by DNR. Currently The NELAC Institute (TNI) and the NELAP standard approve PT program providers. To assure the adequacy of the evaluation of laboratory performance, the following criteria must be met by the third-party proficiency testing program.

1. The organization conducting the testing must be an independent proficiency testing organization not subject to influence by the laboratories enrolled in the proficiency testing program. The proficiency testing organization must have set QA procedures to ensure the validity of the test samples.

2. The program must be blind to the participating laboratories; that is, the true values, expected ranges other than very general orders of magnitude, or other identification that would provide assistance to a laboratory in determining the result must be unknown to the laboratory and remain so until past a cut-off date beyond which no results will be accepted by the proficiency testing organization.
3. The range of proficiency samples provided must include the analytes for which certification is being requested. At least one proficiency testing round per year must be conducted; many laboratories may wish more frequent rounds or the availability of remedial rounds.

Results of each proficiency testing round must be available by the proficiency testing organization within 90 days of issuance of the round. The report of results from the proficiency testing organization must give the “true value” along with the laboratory’s reported analysis. The proficiency testing organization should provide the results for any laboratory that requests it directly to DNR or SHL, as well as to the submitting laboratory. However, it is the responsibility of the enrolled laboratory(ies) to ensure that the proficiency testing organization submits the results to DNR or SHL or otherwise transmits the results to DNR or SHL within 30 days of receipt.

CERTIFICATION OF LABORATORIES ANALYZING
WASTEWATER SAMPLES
FOR THE IOWA DEPARTMENT OF NATURAL RESOURCES

PRESURVEY INFORMATION

The Iowa DNR will be launching a web application in early 2019 where many of these questions can be answered online and documents can be attached electronically. Please check our website at www.iowadnr.gov/labcert.

Please fill in appropriate information relevant to wastewater analyses only. Attach copies of the following documents, as available and applicable to these analyses:

- ☐ Quality Assurance Plan
- ☐ Sampling Instructions and Forms
- ☐ Example Analysis Report
- ☐ Performance Evaluation Program Results
- ☐ Directions or map to laboratory

Fill in appropriate information for those items for which certification is requested.

Return forms, fees, and all material requested to:

Iowa Department of Natural Resources
Laboratory Certification
6200 Park Ave Ste 200
Des Moines IA 50321

GENERAL

Laboratory Name: _____

Address: _____

City: _____ State: _____ Zip: _____

QA Officer (Contact Person): _____ Phone: _____

Email: _____ Fax (if available): _____

LABORATORY PERSONNEL

Director

Name: _____

Degree(s): _____ Field(s): _____

Experience (years): _____ Environ. Lab Experience (years): _____

Supervisor(s) - use additional space or duplicate pages as necessary

Name: _____

Degree(s): _____ Field(s): _____

Experience (years): _____ Environ. Lab Experience (years): _____

Quality Assurance Officer

Name: _____

Degree(s): _____ Field(s): _____

Experience (years): _____ Environ. Lab Experience (years): _____

To whom does QA Officer report? _____

Is QA Officer independent of analyses? ☐ Yes ☐ No

Analysts--For each person, list their Name, Degree, Field of Study, Total Years of Experience, and Years of Experience in Environmental Laboratory Work. Use additional pages if necessary.

Name	Degree, Field	Yrs Exper	Yrs. Env Lab

OTHER ANALYSTS (Briefly Indicate Responsibility, e.g., “extractions”)

Name, Responsibility	Degree, Field	Yrs Exper	Yrs. Env Lab

LABORATORY FACILITIES

Approximate square footage, total: _____

Approximate square footage, instrumentation area(s): _____

Approximate linear feet of bench space: _____

Approximate square footage, extraction area: _____

Approximate linear feet of bench space: _____

Number and size (width) of fume hoods: _____

Other comments: _____

LABORATORY EQUIPMENT AND INSTRUMENTATION:

Attach a list of major instrumentation used for wastewater analyses, including manufacturer, model number, appropriate options/capabilities (e.g., detectors for gas chromatographs) and year of purchase.

Equipment for Ancillary Methods, if used:

GENERAL LABORATORY PRACTICES

Source(s) of calibration standards used: _____

Briefly describe system used to generate organic-free water for blanks:

Briefly describe any special measures taken to minimize potential for contamination in the laboratory:

Is a safety manual written and implemented for the laboratory? ☐ Yes ☐ No

ANALYTICAL METHODOLOGY
Attach a list of analytical methods used and their dates/revision numbers.

SAMPLE COLLECTION, HANDLING AND PRESERVATION
Attach copies of sampling instructions and forms provided to samplers.

Briefly describe sample storage facilities:

QUALITY ASSURANCE
Attach a copy of the laboratory's QA plan.

Analytical quality control
Performance evaluation programs relevant to wastewater analyses that the lab participates in:

Submit copies of results in the last year along with identification of the methodology used for analysis of the PE sample.

Source of and frequency of external check samples for each method:

Frequency and type of blanks, duplicates and spikes for each method:

RECORDS AND DATA REPORTING
How long are records, including raw data, kept? _____

Include a copy of an example analysis report of a wastewater sample.

APPENDIX
Wastewater Parameters in NPDES Permits

Analytes that may be included in NPDES permits in the State of Iowa and approved methodology are those required by Iowa or federal regulations; DNR may add additional parameters to permits as deemed appropriate by the Department. Analytes and methods required for analysis of these parameters are listed in 40 CFR Part 136 as updated periodically in the Federal Register, and include USEPA methods as well as other methods taken from Standard Methods for the Examination of Water and Wastewater (SM), the American Society of Testing and Materials (ASTM), the United States Geological Survey (USGS), or other sources.