STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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**To:** Board of Environmental Protection

**From:** Jeff Crawford, Bureau of Air Quality

**Date:** May 12, 2020

**Re:** Memo for Board's Deliberative Sessions of Nordic Aquafarm

## Chapter 115 Requirements

This memorandum summarizes Nordic Aquafarm's application for a Chapter 115 Air Emissions License, the staff's analysis of that application to date, and the criteria for license approval. It also discusses issues raised by intervenors and possible compliance assurance mechanisms if the license were to be granted. Nordic has applied for a minor source license, meaning that total licensed emissions from the facility will be less than 100 tons per year of any single regulated pollutant (such pollutants including particulate matter, sulfur dioxide, nitrogen oxides, and carbon monoxide) and less than 50 tons per year of volatile organic compounds. In its application, Nordic applied for approval to install eight distillate fuel-fired generators, that will operate intermittently to offset electricity supplied by Central Maine Power during peak local demand, with no more than seven generators operating at any one time. If it were to be granted, this license would allow Nordic to operate these distillate fuel-fired generators at the proposed project site with a fuel limit of 900,000 gallons per year.

Air Emission License Application

- Application received from Nordic: May 17, 2019
  - Nordic applied for a minor source license under Chapter 115, *Major and Minor Source Air Emission License Regulation.*
  - The application included completed, State-prescribed application forms, along with a supplemental document that provided a greater level of detail about the project. The application included the following required elements that were used, in part, to determine the acceptability and completeness of the application:
    - Identifying information (Owner name, facility location, responsible official);
    - Identification and description of processes and products;
    - Emissions-related information (equipment, fuel type, proposed fuel limit, emission controls, pollutants and emission rates, etc.);
    - Best Available Control Technology (BACT) analysis;
    - Certification by Responsible Official;
    - Public Notice of Intent to File; and
    - Title, Right or Interest demonstration.

- Application was reviewed for completeness, accepted for processing June 13, 2019.
- The primary emissions units addressed in the application included 8 generator sets at 2 megawatts each of electrical generating capacity.
- Proposed operating restrictions included only operating 7 of the 8 generators at one time (one present for backup) and a combined annual fuel use limit of 900,000 gallons of distillate fuel per year.
- Nordic proposed a fuel limit to limit their annual potential emissions to less than major source levels and to less than levels that would require submittal of an ambient air quality analysis as part of the application as shown in the following table generated by Department staff:

| **Pollutant** | **Initial Proposed Annual Emissions** (Based on Tier IV Limits) **(tpy)** | **Final Proposed Annual Emissions** (Based on actual engine test data) **(tpy)** | **Modeling Thresholds (tpy)** | **Major Source Levels (tpy)** |
|---|---|---|---|---|
| PM | 1.4 | 0.5 | -- | 100 |
| $PM_{10}$ | 1.9 | 1.0 | 25 | 100 |
| $PM_{2.5}$ | 1.9 | 1.0 | 15 | 100 |
| $SO_2$ | 0.1 | 0.1 | 50 | 100 |
| $NO_x$ | 49.8 | 13.4 | 50 | 100 |
| CO | 49.8 | 51.0 | 250 | 100 |
| VOC | 2.7 | 2.8 | -- | 50 |

Ambient Air Quality Modeling Demonstration

- The level of ambient air quality analyses (modeling) required for a new minor source is determined by the Department on a case-by-case basis. Typically, if proposed annual emissions are below modeling threshold levels contained in Chapter 115 (see table, above), the Department does not require a modeling analysis to be completed.
- In response to concerns raised during the public comment period by the public and interested parties about the proposed facility's potential emissions and their impact on local air quality, the Department decided to perform modeling to address these concerns.
- Before conducting modeling, on November 8, 2019, the Department requested from Nordic clarification and additional information on some key pieces of information needed to conduct modeling.
- The first modeling analysis performed by the Department in November/December and based on modeling inputs provided by Nordic, demonstrated that operation of the facility as proposed would comply with all national ambient air quality standards. Modeling incorporated the proposed operating scheme, presumed fence line locations, building configurations, engine specifications, and stack exhaust parameters submitted by the applicant in response to the Department's November 8, 2019, information request.
- A summary of the modeling assumptions, results, and supporting data was released by the Department on December 19, 2020.
- Written testimony received prior to the public hearings held in February 2020 and verbal testimony heard during the public hearings contained conflicting information with some of the inputs used in the Department's first modeling analysis. Specifically:

  - Mechanical penthouses (structures on the rooftops which may house piping, HVAC equipment, etc.) and that could influence ambient air modeling results, were identified that were not included in the original building configuration provided to the Department and therefore not included in the model analysis;
  - Fence line location, which is used to determine placement of the receptors for the modeling analysis, was identified as different than was originally presumed and used by the Department; and
  - Intervenors challenged the validity of the expected engine exhaust temperatures and exhaust flow rates that were provided by the applicant and used in the first modeling analysis.
- Based on the information heard at the public hearing, the Department requested that the BEP keep the record open after the conclusion of the hearing to allow the Department time to perform a second modeling analysis using updated, more representative information. The second modeling analysis performed by the Department in March of 2020 used updated information, including manufacturer's expected engine exhaust temperatures and flow rates. This modeling analysis demonstrated that operation of the facility would comply with all national ambient air quality standards.
- A summary of the second modeling analysis conducted by the Department, including all assumptions, results, and supporting data, was released by the Department on March 16, 2020.
- Intervenors have since asserted that the modeling was not complete as it did not factor construction activities (construction vehicle emissions, fugitive dust, etc.) into the predicted impacts. The Department asserts that the modeling performed is consistent with applicable regulations, methods, and practices for a minor source applying for an air emission license in Maine.

<u>Department's Discussion of Issues Raised</u>

- **Issue:** Nordic should have submitted a new application when information about the proposed project changed.

  **Department's Discussion:** Chapter 115, (2)(G) ***Authority to request additional information*** states: "*The Department's determination that an application is accepted as complete for processing is not a review of the sufficiency of that information, and does not preclude the Department from requesting additional information*." Department staff routinely works with applicants to incorporate updated information in the license draft after their applications have been accepted without requiring the submittal of a new application package.

- **Issue:** Nordic should have completed modeling and submitted it as part of their application.

  **Department's Discussion:** The level of ambient air quality analyses (modeling) required for a new minor source is determined by the Department on a case-by-case basis. If proposed annual emissions are below modeling threshold levels contained in Chapter 115 and there are no extenuating circumstances, the Department does not require the applicant

to complete a modeling analysis. In response to concerns raised during the public comment process, however, the Department completed ambient air quality impact modeling in this instance.

- **Issue:** Emissions from construction activities should have been included in any modeling analysis.

  **Department's Discussion:**
  Traditionally, emissions from temporary and fugitive sources are accounted for in modeling results by using conservative, representative background values added to modeled values for emissions from licensed stationary sources. Emissions from construction activities are not handled directly in modeling because they are fugitive, not easily quantified (would have to make many assumptions without the ability to confirm their validity), temporary for the duration of the construction only, and not likely to occur all at the same time. The Site Law permit is likely to address requirements such as Tier II engines for earthwork/construction equipment, coverings to be used on trucks hauling material, limiting of idling time for vehicles not actively in use, and other constraints as appropriate. In addition, construction is proposed to happen in phases, and the licensed engines are not likely to be in operation during early phases of construction.

  The Ch. 115 air emission license will include as a standard condition the requirement for a management plan to control and minimize fugitive emissions from construction activities and from operations.

- **Issue:** Emissions during Startup/Shut down periods should have been modeled.

  **Department's Discussion:** Startup and shutdown events are of limited duration (startup and shutdown events typically last less than 30 minutes each) and are not considered "normal operation;" therefore, they are not routinely included in modeling analyses. The modeling the Department conducted conservatively included emissions from seven engines operating concurrently and continuously all year long at maximum output. With the fuel limit proposed by Nordic, the engines will only be able to operate for approximately 10% of the total time in a year. The Department considers the modeling as conducted to appropriately address emissions from these units under all operating scenarios.

- **Issue:** Construction activities may include the use of a portable concrete batch plant on-site which should be addressed in the modeling.

  **Department's Discussion:** Any portable concrete batch plant that may be located at this construction site would be required to be licensed, either through a Chapter 115 license or a general permit, by the owner/operator of that plant.

Criteria for License Approval

- Chapter 115, (3) (F) contains the criteria the Department uses in determining whether or not an air emission license is granted. These criteria include the following:
    - The Department has received a complete application for a license pursuant to Chapter 115;
    - Emissions will receive best practical treatment (BPT), including, but not limited to, requirements specified in subsection 3(D)(2) of Chapter 115;
    - Emissions will not violate state standards adopted by the Department pursuant to Title 38 MRS §585 or can be controlled so as not to violate the same;
    - Emissions, either alone or in conjunction with existing emissions, will not violate or can be controlled so as not to violate applicable ambient air quality standards including, but not limited to, ambient increments as adopted by the Department pursuant to Title 38 MRS §584;
    - Conditions of the license provide for compliance with all state requirements and the relevant requirements of Chapter 115;
    - The Department and applicant have complied with the public participation and review procedures for issuance of a license pursuant to subsection 2(D) of Chapter 115; and
    - All control technology requirements, including, but not limited to, BPT, BACT, RACT, LAER, and other operating limitations for any emissions unit will be complied with.

Compliance Assurance if a License Were to Be Granted

- In accordance with Chapter 115, (3) (E), the Department may impose any appropriate and reasonable license conditions to ensure or maintain compliance with any requirements, emission limitations, ambient air quality standards, or regulations, including:
    - Equipment descriptions and emission limitations;
    - Compliance assurance requirements, including monitoring and analysis procedures and test methods, recordkeeping requirements, and reporting requirements;
    - A summary of any required ambient air quality impact analysis; and
    - All standard license conditions from Chapter 115.
- Compliance requirements covering applicable, air-related State and federal laws and regulations are addressed in the standard and specific conditions written into the air emission license and specify the methods a facility must use to demonstrate compliance. For a facility with multiple diesel-fired generators and a sitewide annual fuel use limit, appropriate compliance methods might include the following:

    - Engine certifications to ensure the engines were manufactured to meet required EPA emission standards;
    - Monitoring requirements (i.e., visible emissions, parametric monitoring);
    - Compliance inspections;
    - Incident investigations (i.e., from specific public complaints); and
    - Documentation and record keeping, including sitewide fuel usage records, operating logs for each engine, and maintenance records.

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