NAF Noise Study Review

On behalf of Upstream Watch

What is Noise?

- Unwanted sound that can cause an Adverse Environmental Impact
- Chapter 375: NO ADVERSE ENVIRONMENTAL EFFECT STANDARDS OF THE SITE LOCATION OF DEVELOPMENT ACT
  - 10. Control of Noise
    - A. Preamble. The Department recognizes that the construction, operation and maintenance of developments may cause excessive noise that could degrade the health and welfare of nearby neighbors. It is the intent of the Department to require adequate provision for the control of excessive environmental noise from developments proposed after the effective date of this regulation.
    - B. Applicability
      - (1) …When a proposed development is located in a municipality which has duly enacted by ordinance an applicable quantifiable noise standard, which (1) contains limits that are not higher than the sound level limits contained in this regulation by more than 5 dBA…..This regulation applies to developments located within one municipality [Belfast] when the noise produced by the development is received in another municipality [Northport]….

Belfast Operational Noise Limits versus State Noise Limits?

- Proponent suggests in the report that the sound limit in 06-096 10(C)(1)(v) applies.
  - (v) When a proposed development is to be located in an area where the daytime pre-development ambient hourly sound level at a protected location is equal to or less than 45 dBA and/or the nighttime pre-development ambient hourly sound level at a protected location is equal to or less than 35 dBA, the hourly sound levels resulting from routine operation of the development and measured in accordance with the measurement procedures described in subsection H shall not exceed the following limits at that protected location:
    - 55 dBA between 7:00 a.m. and 7:00 p.m.
    - (the "daytime hourly limit"), and
    - 45 dBA between 7:00 p.m. and 7:00 a.m.
    - (the "nighttime hourly limit").
- Belfast Sound Limits proposed by Proponent as Applicable
- Sound Pressure Level Limit

	7:00 a.m.—9:00 p.m.	9:00 p.m.—7:00 a.m.
Commercial activities	60 dBA	55 dBA
Industrial activities	70 dBA	55 dBA

- **Since, the Belfast Limits are more than 5 dBA higher for a project in an existing quiet location, then the State limits apply for this project**

Will the Proposed Project Comply with Operational and Maintenance Limits?

- To suggest the proposed project complies, the proponent hired a sound specialty firm to acoustically model the facility.
- In Section 5 of the Noise Impact Assessment it states that…
  - "Sound associated with routine operation of the proposed Project will be produced by electric motors, water pumps, fans, filters, water flow, boilers, chillers, and engine-driven electric generators with all to be located inside industrial-grade Project buildings. Sounds associated with routine operation of exterior equipment will be produced by ventilation intakes and exhausts, cooling towers, and registered over-the-road trucks coming to and from the Project site. The Project will be available to operate 24-hours per day and seven days per week."
  - "Employees and drivers bringing trucks to and from the site will be required to drive slowly on site (e.g., 10mph limit with no Jake Brakes) and responsibly when entering and leaving the site."
    - **Where trucks included in the modelling and if so how many and when?**

Will the Proposed Project Comply with Operational and Maintenance Limits?

- It is unclear how the information provided on the previous slide in the sound study address all the equipment discussed at public meetings, throughout their permitting effort, and in responses to comments. At a minimum, this is the potential list of operation sound sources:
    1. **Mechanical equipment to operate the water recirculating, supply, and wasting at each and every tank**
    2. **HVAC equipment at each and in every building**
    3. **Chemical and fuel deliveries and charging of tanks or vessels with these materials**
    4. **Fish hatchery and associated activities**
    5. **Smolt operations and associated activities**
    6. **Fish harvesting, slaughtering, and fileting operations**
    7. **Wastewater treatment pumping operations**
    8. **Water supply pumping operations**
    9. **Wastewater treatment operations**
    10. **Water treatment operations**
    11. **Wastewater residuals handling, storage, and disposal operations**
    12. **Water treatment residuals handling, storage, and disposal operations**
    13. **Fish harvesting waste handling, storage, and disposal operations**
    14. **Power plant operations**
    15. **All power plant and exhaust stacks**

Will the Proposed Project Comply with Operational and Maintenance Limits?

- In Section 6 of the Noise Impact Assessment it states that…
  - "The diesel-engine driven electric generators will be fully enclosed within an industrial-grade insulated building together with mufflers specified to provide the necessary noise attenuation for the engine exhausts and cooling air inlets and exhausts."
    - **Silencers can very dramatically across the sound spectrum by design**
    - **There are many different "grades" of silencers**
    - **No silencer data is provided**
    - **"or equal" for sound should be provided.**
    - **The sound assumptions should be upper limit conditions in any permit**

Will the Proposed Project Comply with Operational and Maintenance Limits?

- In Section 6 of the Noise Impact Assessment it state that…
  - "Sound level specifications will be included in the bidding and purchase documents for the portions of noise producing machinery that are exposed to the outdoors including cooling towers, ventilation systems, and generators."
    - **While actual equipment may not be known, assumption for the acoustic modelling had to be made**
    - **No source sound data assumptions are provided. Specific equipment with "or equal" for sound should be provided.**
    - **The sound assumptions should be upper limit conditions in any permit**

Will the Proposed Project Comply with Operational and Maintenance Limits?

- In Section 6 of the Noise Impact Assessment it state that…
  - "Most facility machinery will be enclosed within facility buildings. The facility buildings will be constructed with industrial-grade sidewalls and roofs specified with the necessary sound transmission loss (STL) to contain noise and will include thermal/acoustic insulation to reduce the buildup of interior noise."
    - **There is no information provided that suggests which equipment will be enclosed and which will be exposed**
    - **There is no discussion of what is "necessary"**
    - **It is unclear whether enclosed sources were actually modelled, based upon this comment**
  - "The necessary dynamic insertion loss (DIL) will be specified in purchase documents for the mufflers to be installed at building ventilation inlets and exhausts."
    - **Sound will exit the building at intake and exhaust louvers so assumptions made in the model should be provided.**
    - **While it is possible to install acoustical louvers, the effectiveness of these are source specific and the assumptions made should be included in the assessment**
    - **The sound assumptions should be upper limit conditions in any permit**

Will the Proposed Project Comply with Operational and Maintenance Limits?

- In Section 5 of the Noise Impact Assessment it state that…
  - "Maintenance of the Project will include operations such as snow removal, machinery inspections, and machinery maintenance. Maintenance activities are not expected to require operations that produce significant off-site sounds that will be intrusive to residential neighbors."
    - **There are many more potential maintenance operations that will produce more sound including replacement of major pieces of equipment, vactoring out wastes, replacing filter, odor control media etc.**
    - **As described in the last slide, sound will exit buildings from intake and exhaust louvers. They will also leave through open doors used during operations or maintenance, or walls that have been removed for maintenance activities.**
    - **The example maintenance activities above likely will require that doors remain open or walls not be in place to complete these activities.**
    - **Did acoustic modeling of operations and maintenance activities include the potential for open doors or walls?**

Will the Proposed Project Comply with Construction Noise Limits?

- In Section 7 of the Noise Impact Assessment it states that…
  - "Most construction activities associated with the proposed Project will be located hundreds of feet and further from protected residential locations. Also, routine outdoor construction activities will be conducted during daytime hours. Construction sounds will vary from hour-to-hour and from day-to-day, depending on the equipment in use and the operations being performed at the site. The temporary sound associated with construction of the Project will be similar to the sound produced during construction activities at many other similar building projects. Equipment used in these activities will comply with applicable federal noise regulations."
    - **No, construction activities will occur much closer to residents in different phases of the construction of the proposed project**
    - **Any on-site construction facilities should be identified such as fill area, temporary spoils area, cement production facilities**
    - **Any construction sound assessment should include construction phasing and total construction trips included for each phase**

Will the Proposed Project Comply with Construction Noise Limits?

- In Section 4 of the Noise Impact Assessment it states that…
  - "Construction equipment noise levels are presented here for informational purposes. Maine's Site Location of Development Law Regulations and the City Ordinances do not regulate noise levels generated by daytime construction activities…."
    - **This is an incorrect statement as per one of DEP's Requests for Information**
    - **Unfortunately, Construction activities were not modelled**
    - **As a result of sound data being included only for informational purposes, the table included for construction equipment does not suggest how or where any of the equipment will be operated**
    - **The construction sound assumptions should be included as upper limit conditions in any permit**

Will the Proposed Project Comply with Construction Noise Limits?

- In Section 4 of the Noise Impact Assessment it states that…
  - "Construction of Phase 1 is expected to start within a few months after receiving all necessary approvals and to continue for about two years. Phase 2 will include additional smolt and grow out tanks. Total construction time for both phases is expected to be about six years.
  - "Initial activities will include site clearing, earth moving, excavation, infrastructure connections, and foundations. This will be followed by concrete pouring and steel erection and then by installation of machinery and piping inside and outside of the new buildings. Later stages of construction will include siding installation, completion of interior systems, paving, finishing, testing and commissioning of systems, and final grading."
    - **As can be seen by these two paragraphs, this will be a significant constructions project that will be built in multiple phases**
    - **All phases are being permitted at one time per the proponent's request**
    - **As proposed the construction will take at least six years, and likely longer, so construction sound is not a one-time or one-season concern, yet….**

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Will the Proposed Project Comply with Construction Noise Limits?

- When DEP asked a very simple open-ended question in its July 3, 2019 Request for Information letter to the proponent…
  - "5. Please clarify that any construction activities occurring between 7:00 pm and 7:00 am would meet the noise control provisions of Site Law Rule Chapter 375(10)(C)(2)."
  - The proponent replied, "All construction on site will comply with the noise control provisions of Site Law Rule Chapter 375(10)(C)(2)."
    - **No discussion of sources, no discussion of times, and no noise analysis**

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Will the Proposed Project Comply with Construction Noise Limits?

- This question was likely asked because of the unclear wording of the construction activities in the application…
  - In NAF's Application in Section 4 and 6, it states: "A majority of all exterior construction activities will occur during daytime hours from 7:00 a.m. to 7:00 p.m. or during daylight hours, whichever is longer."
  - In NAF's Application in Section 7, it concludes: "Neighbors may at times hear sounds associated with construction, operation, or maintenance of the Project, but the sound levels from the facility will be modest and in compliance with DEP and local noise level requirements.
    - **Again, no discussion of sources, no discussion of times, and no noise analysis…only a statement about construction noise being "informational"**
    - **There is no discussion of actual mitigation strategies to reduce construction noise that will occur over many years**

Has the Project Proponent Demonstrated Compliance with Noise Limits?

- **No, this noise analysis cannot be fully vetted without:**
  - The source total and tonal equipment data
  - Ambient sound assumptions
  - Model design parameters
  - Cadna modeling files
  - Construction sequencing
  - Construction phases
  - Reasonable worst case construction scenarios
  - Mobile source analysis
  - Operational scenarios
  - Maintenance scenarios

Questions?

Figure 1. Project Site and Surrounding Area

Table 2. Project Sound Levels That Will Not be Exceeded during Routine Operation of Both Phase 1 and Phase 2

Nearby Protected Locations and Distance From Project Center	Project Sound Levels Not to be Exceeded	
	Daytime	Nighttime
1 Northwest 975 ft.	< 55 dBA	< 45 dBA
2 North 585 ft.	< 55 dBA	< 45 dBA
3 Southeast 790 ft.	< 55 dBA	< 45 dBA
4 Southeast 1,230 ft.	< 55 dBA	< 45 dBA
5 South 950 ft.	< 55 dBA	< 45 dBA
6 West 2,115 ft.	< 55 dBA	< 45 dBA

Table 1. Representative Construction Equipment Workday Equivalent Sound Levels

Equipment	Sound Level in dBA at 500 ft
Truck	54
Dozer	58
Excavator	60
Loader	59
Grader	58
Backhoe	60
Crane	47
Compressor	57
Pump	50
Generator	52
Welder	46
Roller	55

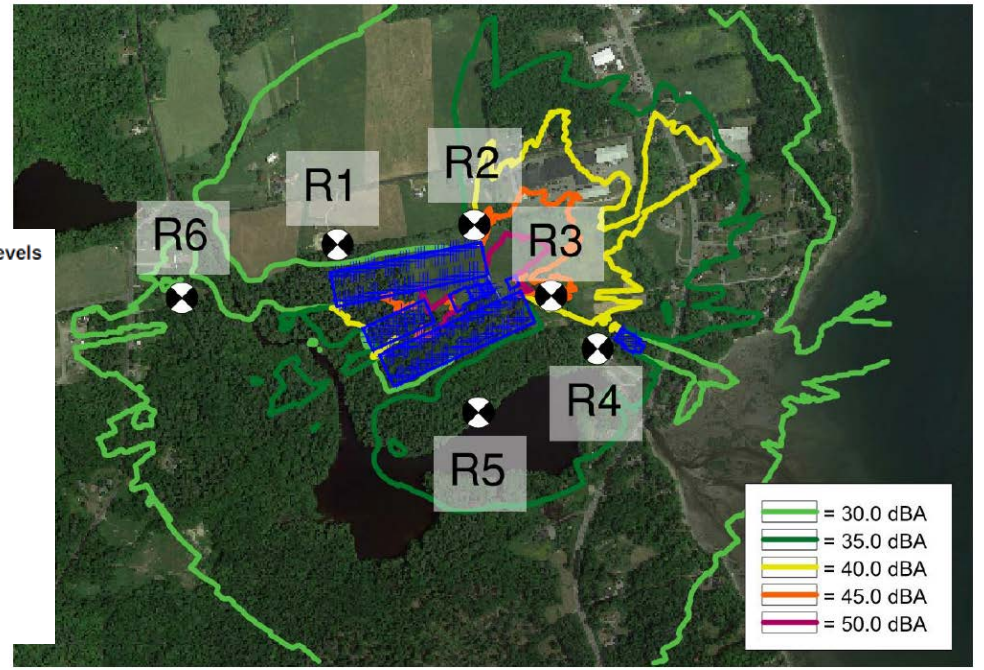

Figure 3. A-weighted Hourly Equivalent Leq Sound Level Contours from Regulated Equipment during Future Routine Operation of both Project Phase 1 and Phase 2