USTATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

NORDIC AQUAFARMS, INC.	)
Belfast and Northport	)
Waldo County, Maine	)
	)
A-1146-71-A-N	)
L-28319-26-A-N	)
L-28319-TG-B-N	)
L-28319-4E-C-N	)
L-28319-L6-D-N	)
L-28319-TW-E-N	)
W-009200-6F-A-N	)

INTERVENOR UPSTREAM WATCH'S POST-HEARING BRIEF

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INTRODUCTION

Intervenor Upstream Watch ("Upstream") submits this Post-Hearing Brief to assist the Maine Board of Environmental Protection ("BEP"), the Maine Department of Environmental Protection ("DEP"), The Commissioner of Environmental Protection (the "Commissioner") and the DEP Staff ("Staff") to evaluate the applications of Nordic Aquafarms, Inc. submitted under the Maine Site Location of Development Act, ("SLODA"), the Maine Natural Resources Protection Act ("NRPA"), the Maine Pollution Discharge Elimination System ("MPDES"), and a Chapter 115 Air Emission License.

Procedural Background

Nordic Aquafarms, Inc. submitted an application for a Maine Pollutant Discharge Elimination System Permit/Waste Discharge License (MEPDES/WDL) to the Maine Department of Environmental Protection ("Department') on October 19, 2018 and accepted as complete for processing on November 9, 2018. On May 17, 2019, Nordic submitted a Site Location of Development Act (SLODA) application, a Natural Resources Protection Act (NRPA) application, a Chapter 115 Air Emission License application, and an addendum to the MEPDES/WDL application. Staff began a review of those applications which precipitated requests for additional information from Nordic, the responses to which consisted of thousands of pages. During that process, Upstream and others petitioned DEP to become interveners in the application process, requested DEP to refer the applications to the BEP and to conduct a hearing.

Upstream was granted intervenor status, as were others, the applications were referred to BEP, and a hearing was scheduled to commence on February 11, 2020. Prior to the commencement of the hearing, certain of the application topics were determined by BEP to be appropriate for the hearing. Those were designated as "hearing topics". Issues raised by the applications but not

qualifying as hearing topics became designated as "non-hearing topics". Prior to the hearing, BEP required all parties to submit written testimony, with exhibits, under oath, by 5 p.m. December 6, 2019. Rebuttal testimony in the same format, under the same conditions, was filed by 5 p.m., January 17, 2020. The hearing was opened on February 11, 2020, by Robert Duschene, presiding officer. The Commissioner was in attendance for all four days of the hearing. Nordic and the interveners called witnesses and testimony was given. Witnesses were examined, cross-examined and questioned by members of the BEP and staff. The hearing was concluded on Friday, February 14, 2020. Additional comments were received until February 18, 2020 when the record was closed with some exceptions for additional comment.

Project History

In November of 2017, the Norwegian company, Nordic Aquafarms, AS, created a wholly-owned U.S. subsidiary, Nordic Aquafarms, Inc. (referred to herein as "Nordic," or "Applicant"), with the intention of expanding operations into the United States. In January 2018, Nordic announced plans to build a land-based Recirculating Aquaculture System facility in Belfast, Maine. Community reaction was initially favorable to Nordic's announcements that promised absolutely clean discharge and renewable energy solutions, including extensive solar arrays.

At this time, Upstream already existed as a small group of citizens advocating for the health of Mid-coast Maine rivers and watersheds through science and education. The group began to question the environmental footprint of this huge development in their small community. Biologists, engineers, and concerned citizens voiced enthusiasm for the concept of land-based aquaculture coupled with a drive to obtain factual, scientifically based, unbiased information to understand potential impacts that the project would have on their communities. But that enthusiasm turned to deep concern as the troubling reality of the project became apparent.

SUMMARY OF ARGUMENT

The environmental effects of this huge, industrial fish processing facility are not benign as suggested by initial press releases. As the project developed, Upstream was alarmed by a consistent pattern of insufficient and misleading information issued by Nordic. Three troubling themes consistently emerged: (1) the selected site is unsuitable for the project; (2) the application is fatally incomplete, and (3) Nordic Aquafarm's information, when provided, fails to meet the statutory and regulatory criteria.

(1) The selected site is unsuitable for the project.

Nordic is trying to fit a large, square peg into a small, round hole by selecting an unsuitable site and trying to change the site's basic character instead of seeking a suitable site. There is no better example of this than the Nordic's soil replacement plan. Nordic selected a site that contains almost exclusively spongy clay soils (a situation that caused subsidence problems for the Nordic Aquafarms AS back in Norway). To address this problem, Nordic proposes to remove the natural soils over a 35-acre portion of the site to a depth of, to depths over 50-feet (SLODA Apl., Sect. 20, Text, p. 1-2) and after removing those soils, replace the clay with gravelly soils which would be more capable of supporting the proposed tanks. Upstream estimates this soil replacement project will require roughly 45,000 dump truck loads, necessitating extensive travel over state and local highways.

Moreover, the proposed site includes nineteen (19) wetlands, swamps, marshes, and nine (9) streams. Nordic proposes to reconstruct artificially one stream and destroy the remainder. In lieu of preservation or replication of the remaining natural resources set to be destroyed, the Nordic proposes to "compensate" for the environmental damage with cash. This "pay to pollute" scheme

is wholly unnecessary when there are other available and more suitable sites which would not require such a serious destruction of natural resources.

Given the extreme measures proposed to overcome unsuitable soils and the total destruction of wetlands, combined with the fact that virtually the entire site is mature forest that would be destroyed, and that the portion of Penobscot Bay that would receive Nordic's wastewater is slow moving and shallow, it is clear the site is unsuitable for the project.

(2) The application is fatally incomplete.

Upstream has tracked the Applicant's submissions against the statutory and regulatory requirements and this review has demonstrated that Nordic's application is woefully incomplete. *See* Feb. 18, 2020 Comment Submitted by Mike Lannan regarding Nordic Aquafarms Technical Ability (tracking each statutory and regulatory requirement for the pending applications and whether Nordic has complied). A true copy of the Lannan matrix showing the incompleteness of Nordic's filings is attached hereto as Exhibit A.

The burden is on Nordic to demonstrate compliance in its applications for permits. Even so, the DEP has patiently attempted to lead Nordic through the process, with letters and memos itemizing application submissions that required clarification and modeling performed with the Department's expertise and expense. Despite this guidance, the Nordic application remains fatally incomplete.

Throughout the hearing, it was evident that Nordic had failed to provide certain required information for its permit applications, including but not limited to, financial capacity, the actual effects of wastewater discharge including far-field dilution, and onsite wildlife surveys.

(3) Nordic fails to meet the statutory and regulatory criteria.

Nordic only partially addressed other regulatory requirements, perhaps in the hope that those requirements would be overlooked during the permitting process or that Nordic would be

allowed to figure out how to comply with those sections of the regulations after the fact, as permit conditions. Nordic should not be allowed to evade meeting all filing requirements for its permit requests at this time.

The proposed project size is huge. Within the project footprint, one could fit Gillette Stadium, Fenway Park and two TD Gardens. A mistake on this application can have catastrophic environmental impacts.

Nordic has failed to address critical material requirements of the statutes and regulations, and as such, its application cannot be granted as a matter of law. All regulations and statutory requirements must be met as a precondition to the award of a permit. After-the-fact attempts at compliance is not only unlawful but constitutes an unreasonable and unacceptable risk.

This application "sets the bar" for all future aquaculture applications in the state of Maine. If the Board of Environmental Protection insists on complete compliance with applicable statutes and regulations and if the Applicant meets all statutory requirements, aquaculture entrepreneurs worldwide will note that Maine welcomes aquaculture but only aquaculture that is compliant with all legal requirements.

ARGUMENT

A. Nordic fails to meet requirements for the Maine Pollutant Discharge Elimination System ("MEPDES")/Waste Discharge License; Alternatively, Additional Conditions are Required

Nordic s has not qualified for an MEPDES permit. If the DEP staff and BEP members do issue a permit, any MEPDES permit issued should: (i) set limits on specific pollutants at levels which ensure that water quality standards are met at the site of the discharge; (ii) require monitoring of the effluent, as well as a comprehensive program to monitor the chemical, physical, and biological water quality of Penobscot Bay; and (iii) require implementation of provisions to

ensure that any bypass or unexpected problems are dealt with quickly and effectively. Prefiled Testimony, Krueger & Gulezian, p. 2.

Specifically, this section addresses U.S. Environmental Protection Agency (EPA) and Maine MEPDES regulations under the Clean Water Act (CWA) establishing Effluent Limitations Guidelines (ELGs) and New Source Performance Standards for the Concentrated Aquatic Animal Production (CAAP) Point Source Category. Throughout this section, references will be made to the specific issues of the Nordic site as reasons for requesting that additional requirements, beyond the minimum technology-based standards, be included in the ELG. Specific references will be made to applicability of the CAAP ELGs to System Type or Annual Production (lb) Subcategory 100,000 Flow-through and Recirculating (Subpart A) (40 C.F.R. §§ 451.3(a)-(d), 451.11(a)-(e), 451.12-14), 06-096 C.M.R. Chapter 582: Regulations Relating to Temperature, 06-096 C.M.R. Chapter 523: Waste Discharge License Conditions, and 38 M.R.S. §414-A[1].

Typically, ELGs are national standards for wastewater discharges to surface waters and publicly owned treatment works (municipal sewage treatment plants) that the EPA develops for new source categories under the Clean Water Act. These standards are technology-based (i.e. they are based on the performance of treatment, control technologies, and practices). These are

[1] 1. Generally. The department shall issue a license for the discharge of any pollutants only if it finds that:
D. The discharge will be subject to effluent limitations that require application of the best practicable treatment. "Effluent limitations" means any restriction or prohibition including, but not limited to, effluent limitations, standards of performance for new sources, toxic effluent standards and other discharge criteria regulating rates, quantities and concentrations of physical, chemical, biological and other constituents that are discharged directly or indirectly into waters of the State. "Best practicable treatment" means the methods of reduction, treatment, control and handling of pollutants, including process methods, and the application of best conventional pollutant control technology or best available technology economically achievable, for a category or class of discharge sources that the department determines are best calculated to protect and improve the quality of the receiving water and that are consistent with the requirements of the Federal Water Pollution Control Act, as amended, and published in 40 Code of Federal Regulations. If no applicable standards exist for a specific activity or discharge, the department must establish limits on a case-by-case basis using best professional judgment, after consultation with the Applicant and other interested parties of record. In determining best practicable treatment for each category or class, the department shall consider the existing state of technology, the effectiveness of the available alternatives for control of the type of discharge and the economic feasibility of such alternatives.]

minimum requirements in the NPDES permit. A permit may contain additional more stringent limits required to ensure compliance with water quality standards. *See* 06-096 C.M.R. ch. 513, Section 5; Prefiled Testimony, Krueger & Gulezian, p. 4.

Minimum discharge requirements are defined in Federal Regulations at 40 C.F.R. §§ 122.21 and 122.28, with effluent limitations, if applicable. Requirements include special conditions, standard conditions, monitoring, record-keeping, and reporting requirements covered under 40 C.F.R. § 122.41. However, the permitting authority has the ability to require special conditions. With PDES permits for CAAPs, special conditions may be included, as determined necessary. *Id.* The technology-based limitations or requirements in a CAAP permit will be based on the ELG, for pollutants covered by the ELGs. The permit writers using best professional judgment ("BPJ") may develop so-called BPJ limits. A water quality-based effluent limitation is designed to protect the quality of the receiving water by ensuring that state or tribal water quality standards are met. In cases where a technology-based requirement does not sufficiently protect water quality, the permit must include appropriate water quality-based limits. Prefiled Testimony, Krueger & Gulezian, p. 4.

Nordic has not provided sufficient environmental inventories to assure that a technology based effluent standard is adequate. It is significant that Maine has NO standards for discharge limits for nutrients from Land Based Concentrated Aquatic Animals Production Facilities and, except for temperature, no other standards. It is the lack of inventories by Nordic and the lack of standards by the state that necessitates water quality-based standards. Tr. 2/14/20 125:18-126:3 (J. Krueger).

I. The Site is Not Suitable for a Technology-Based Effluent Standard.

Nordic has chosen a pristine green field to become the second largest land-based salmon farm in the world. Nordic's proposed sprawling, industrial fish farm and the proposed technology is not suitable for its Belfast site. Tr. 2/14/20 125:10-13 (J. Krueger).

The unique suitability issues include: (1) a lack of a sufficient deep water current at the outfall, (2) a lack of adequate monitoring of the ocean discharge to the bay, (3) the choice of using a "green field" site instead of a "brown field" site with historic records and an existing discharge pipe, (3) availability of ground water, (4) poor construction site soils, (Prefiled Testimony, J. Krueger, p. 5) and (5) abundant natural resources (Prefiled Testimony, T. Parent, pp. 3-6 and more) at risk.

The sensitivity of the area suggests that water quality-based standards also be considered in addition to defining the technology as being sufficient to protect the discharge site. To evaluate a water quality standard, one needs to understand the environment that will accept the discharge including knowing inventories of fauna and flora in the environment that may be sensitive to specific effluent parameters and understanding exactly where currents, tides, and secondary circulation would carry effluent. Tr. 2/14/20 125:14-24 (J. Krueger). Nordic has failed to provide this information.

Data provided by Nordic in its application demonstrates that the background conditions are not truly known. Prefiled Testimony, Krueger & Gulezian, p. 5, top. More specifically, while entering into the record the poor suitability of this site (Prefiled Testimony, Krueger & Gulezian, p. 5, top) and the many unique and natural resources at stake, (Prefiled Testimony, T. Parent, pp. 3-6 and more) we wish to request that the permitting requirements not be limited to the use of technology-based effluent standards in this case. The DEP, as the permitting authority, may also

utilize water quality-based effluent standards. Prefiled Testimony, Krueger & Gulezian, p. 2, bottom. Additionally, Upstream has identified concerns about the lack of knowledge of the fauna and flora in the receiving waters (Rebuttal Testimony, R. Podolsky, p. 6, #6) and the insufficient modeling of flow characteristics such as appropriate inclusion of currents, tidal variations and wind shear. Prefiled Testimony, N. Pettigrew, p. 2.

II. The Nordic RAS System is Not Best Available Technology and Not a Sufficient Basis for Utilizing Technology-Based Effluent Standards to Replace Water Quality-Based Effluent Standards.

When Water Quality-Based Effluent Standards have not been utilized, Technology- Based Effluent Standards are typically applied, usually using so-called "Best Available Technology" or "Best Management Practices". If the underlying goals and objectives of the Clean Water Act are to be met, the permitting authority should require additional standards, limits, and approaches. Tr. 2/14/20 125:1-9 (J. Krueger).

The problem is that Maine has few if any water quality-based standards. Tr. 2/14/20 125:24–126:3 (J. Krueger). During the hearings, BEP member Parker stated (Tr. 2/14/20 171:2): "and I'll agree with Mr. Krueger on that one is we absolutely should be using water quality standards supported by the best technology." The absence of standards is why there is so much interest now in evaluating the Nordic version of RAS and determining if it is really the Best Available Technology.

Recirculating tank aquaculture ("RAS") may be better than growing fish in net pens, but the choice of what type of RAS to use will make a critical difference. CLOSED RAS, meaning no effluent out into a river or bay, yields all the benefits of growing fish on land without the environmental risks. The risks of discharging effluent to the bay will be significant. Partially OPEN RAS (which Nordic is proposing) allows the discharge of millions of gallons of effluent a

day into the bay. Nordic's OPEN RAS presents unacceptable risks involving the release of nutrients, pathogens, viruses, and pharmaceuticals into Penobscot Bay.

Fully CLOSED RAS is now in various stages of development in the U.S., Canada, Europe and the Middle East. These systems are often referred to as Minimum Liquid Discharge (MLD) and Zero Discharge Systems (ZDS). Aquifer-based water supplies and hydroponic outputs to utilize nutrients are examples of ways these companies are assuring sustainability. Examples of companies currently employing MLD and ZDS technologies are: AquaMaof Aquaculture, Superior Fish, and Sustainable Blue. Tr. J2/14/20 126:3–128:6 (J. Krueger). These systems are economically and environmentally sustainable. Tr. 2/14/20 173:17-174:24 (Pelletier/Krueger).

Large scale land-based finfish aquaculture is in its infancy in Maine. If closed RAS systems are where the industry, and investors, are headed, it is critically important to focus on the details to ensure Maine gets it right from the start. Tr. 2/14/20 128:7-13 (J. Krueger). Maine should be requiring the appropriate, closed system technology, particularly where Nordic's Belfast site presents a high risk of environmental degradation.

Nordic has provided no documentation that their version of RAS is viable. All that has been said is that it is better than flow through systems and that their RAS system is not financially viable at a smaller size than the proposed 33,000 metric ton size. Prefiled Testimony, E. Ransom, p. 2, #6. One way to be sure that the Nordic RAS system meets high environmental protection standards is to require a "check point" review of the small sister RAS system in Fredrickstad and look at third party reviews of the facility using industry groups such as Nofitech. Tr. 2/14/20 128:14-18 (J. Krueger).

III. The Nordic RAS is Continually Changing and Untested, Reflecting the Risks Associated with Using a Technology-Based Effluent Standard.

A good example that demonstrates that the Nordic RAS is constantly changing is Nordic's announcement during the application process that its MBR filters for intake and effluent will now be 40 nanometers (0.04 microns) instead of 400 nanometers (0.4 microns). Tr. 2/13/20 370:7-371:7 (E. Cotter/Racine). This is a big change in the treatment process; as filtering at this level presents significant new technological variables in treatment - namely clogging of the filter, pressures and pump changes, and the potential need for by-pass. Tr. 2/13/20 407:17-408:25 (E. Cotter/Racine). The 40 nanometers size is presumably offered due to concerns of virus mitigation. 40 nanometers will not remove viruses that typically are less than 1 nanometer. Tr. 384:.2-6 (E. Cotter/Racine). Even at 40 nanometers, Nordic will be unable to stop the free transmission of viruses from the outside into their system where they will be concentrated and freely discharged back into the Bay. Tr. 161:7-10, 177:19-25 (B. Bryden). This free transmission of viruses is unacceptable.

Many of the characteristics of the expected Nordic effluent will be novel in nature (unique feed, unique RAS, unique treatment, size of operation, uncertain marine water flow parameters and recirculation uncertainties, etc.). There is a need to assess and develop technology-based effluent limitations, develop proper effluent water quality-based effluent limits (WQBEL), and to determine final effluent limitations that meet technology and water quality standards and anti-backsliding requirements. WQBELs involve a site-specific evaluation of the discharge and its effect on the receiving water. A WQBEL is designed to protect the quality of the receiving water by ensuring that State water quality standards are met. Prefiled Testimony Krueger & Gulezian, pp. 7-8.

IV. The Permit Must Establish Limitations, Standards, and Permit Conditions That are Consistent with Protecting Water Quality.

State regulations provide a mechanism to derive water quality-based effluent limits. *See* 06-096 C.M.R., Chapter 523, Section 5(c)(2):

> On or after the statutory deadline set forth in section 301(b)(2) (A), (C), and (E) of the CWA, any permit issued shall include effluent limitations to meet the requirements of section 301(b)(2) (A),(C), (D), (E), (F) of the CWA, whether or not applicable effluent limitations guidelines have been promulgated or approved. These permits need not incorporate the clause required by paragraph (c)(1) of this section.

Further, this rule also states:

> Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contribute to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits . . . .

Id. (d)(1)(vi).

Additionally, EPA provides Best Management Practices for CAAP facilities to address Effluent Limit Guidelines (ELGs). NORDIC has not developed a best management practice (BMP) plan describing how they will achieve the ELG requirements. The CAAP must certify in writing to the permitting authority that a BMP plan has been developed and make the plan available to the permitting authority upon request. The CAAP ELGs contain narrative requirements for management practices for flow through and recirculating facilities. Under these requirements, the Applicant must develop and maintain a BMP plan on site that describes how the company will manage the following: solids control, material storage, structural maintenance, record keeping, and training. Prefiled Testimony, Krueger/Gulezian, pp. 10-11.

Along the lines of the CAAP ELG, a NPDES permit might also contain requirements to address other considerations, such as implementing requirements under the CWA Total

Maximum Daily Load (TMDL) programs. A TMDL should be a calculation of the greatest amount of a pollutant that a waterbody can receive without exceeding water quality standards. It is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the state has designated. The calculation must also account for seasonal variation in water quality. Prefiled Testimony, Krueger/Gulezian, p. 11.

As provided under Section 4. Application for a permit [see 40 C.F.R. 122.21], Upstream has repeatedly requested that water quality-based effluent standards WQBES be developed. Steps necessary to provide WQBES include inventories of natural resources in the area that may be affected and verified modeling of how the effluent will be distributed in the bay. Upstream and others have identified that resources have not been completely inventoried over a span of multiple seasons. Rebuttal Testimony, R. Podolsky, p. 6, #6. Most concerning is the fact that there is a poor understanding of how the effluent will be distributed in the bay. Prefiled Testimony, N. Pettigrew, p. 2.

According to 38 M.R.S.A. §414-A, conditions of licenses:

> 1. Generally. The department shall issue a license for the discharge of any pollutants only if it finds that:
>
> A. The discharge either by itself or in combination with other discharges will not lower the quality of any classified body of water below such classification;

Under Maine Standards for Classification of Estuarine and Marine Waters, Section 465, the receiving waters of the wastewater discharge of the Nordic AquaFarms facility is designated as Class SB. Rebuttal Testimony, T. Parent, p. 2, #6. In relevant part, Class SB specifies the following:

> A. Class SB waters must be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture,

propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation and as habitat for fish and other estuarine and marine life. The habitat must be characterized as unimpaired. PL 2003, c. 227, §7 (AMD).

B. The dissolved oxygen content of Class SB waters may not be less than 85% of saturation. PL 2017, c. 319, §12 (AMD).

C. Discharges to Class SB waters may not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. PL 2007, c. 291, §7 (AMD); PL 2017, c. 319, §12 (AMD).

V. Data Provided in Nordic's MEPDES Application Suggests That Stratification and Unacceptable Levels of Nitrogen and Oxygen Depletion Already Exist in the Bay.

Nordic failed to provide any basis for the Board to find that the discharge from Nordic's plant will not lower the quality of Penobscot Bay. Of critical importance, the record demonstrates that stratification (Prefiled Testimony, Krueger/Gulezian, p. 6) and Unacceptable Levels of Nitrogen and Oxygen Depletion Already Exist in the Bay. Tr. 2/14/20 141:7-143:3 (G. Gulezian).

A review of a table from the Normandeau Associates water quality monitoring report, which is a part (Attachment 14, p. 103) of Nordic's MEPDES permit application, illustrates several contradictions and should raise a red flag of concern to regulators. The cite is above, Att. 14.

Based on this limited set of ambient monitoring data, which is the only site-specific ambient monitoring for nutrients and oxygen levels data included in the MEPDES application, the following can be observed:

- The Normandeau ambient monitoring recorded dissolved oxygen levels below the 85% saturation criterion contained in the SB classification standard. These levels are occurring in the absence of NORDIC's discharge, which would only exacerbate the oxygen deficiency. Tr. 142:20-143:3 (Gulezian).

- Levels of Total Nitrogen monitored by Normandeau for some depth profiles exceed guideline levels for the protection of eelgrass beds, which would constitute an adverse impact to marine life and habitat in the receiving waters. These levels are occurring in the absence of NORDIC's discharge, which would only exacerbate the problem. *See* Krueger-Gulezian Pre-filed Testimony at pages 5 and 6.

- It does not appear that the Nordic water quality modeling factored the Normandeau ambient water quality analyses into their modeled water quality projections, resulting in likely underpredictions of ambient levels.

- Some of the Normandeau ambient monitoring at the discharge location indicates elevated background levels of Total Nitrogen which, if representative of longer-term values, could damage local eelgrass beds and contribute to low oxygen levels, especially when combined with NORDIC's discharge levels. The DEP's recommended background level for Total Nitrogen to be used in Nordic's modeling may be unrealistically low.

Action needs to be taken to more fully characterize background levels of Total Nitrogen in the vicinity of the discharge point, in both time and space, before discharge limits can be safely established. Monitoring be performed at multiple depths at the discharge point and at multiple locations in the bay (with locations supported by flow modeling) over the course of a year, to determine an appropriate background, as a precondition before the permit is issued. The presence and impacts of stratification of the water column in the vicinity of the discharge point needs to be investigated before the permit is issued and taken into account before discharge limits are set. Concerns about the ability of the Nordic modeling to predict accurately conditions in the near and far field are also expressed in the Upstream Watch testimonies filed by both Dr. Neal Pettigrew and Dr. Kyle Aveni-Deforge. Both identified the need for additional baseline monitoring and more accurate predictive modeling, prior to the issuance of any permit. Prefiled Testimony, N. Pettigrew, p. 8, #VI; Prefiled Testimony, K. Aveni-Deforge, p. 3.

Furthermore, Nordic's permit application states:

> The information presented here is based entirely upon numerical modeling with limited knowledge of the in-situ conditions at the proposed outfall. It is important to understand that hydrodynamic modeling is not an exact science. As such any

> predictions presented here should be considered only as estimates of the proposed dilution and plume behavior. Numerous assumptions and simplifications have been made in this analysis, which contribute to significant uncertainty in the modeling results. In general, these simplifications and assumptions are reasonably conservative, such that errors would tend to overpredict negative impacts. However, it is also possible that predictive error could underestimate impacts. Thus, it is recommended that a field data collection program be designed and implemented to provide site specific data for further analysis, and to validate the accuracy of model results.

MEPDES Application p. 95, Ransom Memo p.7.

Given what little monitored data for nutrients, oxygen, and stratification have been provided in the application, and that what little data there is suggests potential current and future problems with meeting water quality objectives, a permit should not be issued until an annual cycle of monitoring and updated modeling can reasonably demonstrate that water quality objectives will be met by Nordic's proposed discharge plans. After the fact modeling is too late. Accurate modeling is crucial to ensure that water quality objectives will be met, otherwise impacts on habitats, fisheries, and recreation have the potential to be significant. Prefiled Testimony, K. Aveni-Deforge, p. 3.

VI. Nordic Has Failed to Provide Correct Predictions of Currents and Effluent Movement in the Bay.

A central component of rationally evaluating potential environmental impacts at the proposed site is the release of nutrients into the water column and their dispersal and dilution thereafter. Three important factors exist for evaluating the discharge into the local environment: local physical oceanographic conditions, local background water quality, and wastewater composition. Correct modeling must include four seasons and be conducted before authorizing a MEPDES Permit.

Nordic's current data for the path of the dilution of the discharge is based on models that for far-field are only 2D and that do not take into account wind shear, secondary circulation, or

currents in the bay. Prefiled Testimony, N. Pettigrew, p. 2. Verification of the models are is based on very limited old data and at anomaly sites near a large methane pock area. Dr. Pettigrew provides data to suggest that NORDIC has even falsely predicted the direction of the effluent (p. 2). Dr. Pettigrew (p. 3) and Dr. Aveni-Deforge (Prefiled Testimony, K. Aveni-Deforge, p. 3) both testify that there is need for a yearlong study ; this statement is also supported by NORDIC's own scientists, see testimonies of Dill (MEPDES Application, P.95, Ransom Memo p. 7) and refer to Ramboll (MEPDES Application, p. 101, Ramboll Memo p. 4) recommendations.

Dr Pettigrew summarizes (Prefiled Testimony at p. 8):

> The 2D ADCIRC model was implemented in a limited manner, forced only by astronomic tides along the open boundary and a constant freshwater discharge from the Penobscot river to the north of the study domain. Point-sourced validation of water levels were performed under idealized summer conditions. No additional validation was performed. The particle tracking model was forced solely by the velocity fields produced by the 2D ADCIRC model under several major assumptions. Currents were vertically averaged and did not agree with known observations, constant values were prescribed for effluent flow rate and horizontal eddy diffusivity, while wind fields and waves were excluded entirely. RANSOM acknowledges the need for significant data collection efforts before substantial model validation is possible. I agree strongly with this position and suggest that a yearlong oceanographic observing effort should be fielded at least at the discharge and intake locations. These observations need to be combined with a full 3-dimensional ocean numerical model that can dynamically simulate the Penobscot Bay circulation and particle tracking.

Dr Aveni-Deforge testified (Prefiled Testimony at p. 3):

> My testimony asserts that existing knowledge of site water quality and physical oceanography is insufficient to have confidence in our understanding of baseline environmental conditions or how the process wastewater will interact with the environment. Consequently, a rational, evidence-based decision on the impacts of the proposed action cannot be made. Similarly, the future monitoring program proposed by NORDIC would not have enough baseline data of the pre-project environment at and near the project site to evaluate environmental impacts. *See* APPENDIX D p. 37**.**

VII. Nordic Has Failed to Assess the Effluent's Ecological Impact to Biological Species.

The long-term impacts of Nordic's industrial fish farm on native Atlantic salmon, cod, halibut, bivalves, elvers, herring, grasses, and seaweeds will be negative. Efforts to restore native marine populations) will suffer, and so will the communities that live off them. Tr. 2/14/20 166:25-167:1 (B. Bryden).

Upstream witness Richard Podolsky, Founder and CEO of Ecology And Technology, an environmental science consulting company based in Camden, Maine testified:

> For a project that is as ambitious and impactful as NORDIC's, with short and long term and permanent impacts to uplands, wetlands, intertidal, subtidal and water column habitats, it is my opinion that direct, field observations and quantitative assessments of the biological resources be performed in every season of the year and in every habitat that will experience any impact from project activities. There are real consequences and implications to failing to properly characterize the ecological communities in the project area.

See Richard Podolsky Rebuttal Testimony (Jan. 17, 2020) at 2. This assessment recommended by Mr. Podolsky is necessary in order to evaluate the effects of thermal, biological and chemical components of the proposed effluent, and thus the need for water quality-based effluent standards.

To fully understand the potential environmental impacts at the proposed site, there would need to be an evaluation of release of nutrients into the water column and monitoring their dispersal and dilution thereafter. Three crucial factors would influence this dispersal and dilution: local physical oceanographic conditions, local background water quality, and wastewater composition. These parameters have not been sufficiently established to make a confident risk assessment for water quality near the project site. Because the proposed project will operate continuously throughout the year and possibly for decades, collecting a thorough data set that describes the background environmental and ecological conditions is required.

More specifically, Nordic failed to provide the following crucial information needed to make a thorough evaluation of environmental impacts:

- Nordic failed to consider the effects of the plume with temperature and salinity that could attract some organisms (Tr. 2/13/20 32:8 (temp). 32:5 and 34:7 (salinity)) to unusual, suboptimal conditions while exposing them to non-native viruses (Tr. 2/13/20 384:2-22 (I. Bicknell)("there is no way to totally eliminate those risks")) and possibly suboptimal feeding conditions.

- Nordic failed to study the response of sessile organisms to the unnatural water quality in the plume.

- Nordic failed to perform adequate surveys of current behavior and existing water quality to assess the scope of altered water conditions that will affect marine wildlife.

Nordic failed to conduct an adequate survey to identify marine species using this area. Evaluation of the marine habitat was based on "a literature review," and a one-time survey "conducted by towing a diver and a camera along the proposed pipeline route." Application, SLODA section 07, Wildlife & Fisheries, Natural Resources Report p. 12, 4.0, Fisheries Methods. Nordic failed to demonstrate that it will meet the DEP 2018 criteria for wastewater discharge. "The water body is Marine Class SB." January 14, 2020 Rebuttal Testimony, of Tyler Parent, at 2 . In these waters "[d]ischarges may not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all indigenous and estuarine marine species without detrimental changes in the resident biological community." *Id.* at 4, Nordic Exhibit 37. Because this is not zero or minimum discharge RAS, effluent pipes are necessary. Nordic failed to address the effects of blasting and dredging on sessile marine organisms to place these pipes.

Nordic states that scallops, blue mussels, and soft-shell clams will be able to modify their behavior to temporarily endure the change in water conditions until their area of residence is no longer part of the active construction zone. Prefiled Testimony, T. Parent, p. 8, #20. Behavior

modification is not a life-saving response to excavation of habitat and backfill with stone. Tr. 123:16 –125: 2 (Walsh describes excavation method). Nordic did no study to determine if, when, or which organisms are likely to inhabit the disturbed area.

VIII. Prior to Permitting, Nordic Must Undertake Additional, Scientifically Rigorous, Penobscot Bay Circulation Modeling.

Circulation modeling that more certainly predicts where the effluent will move through Penobscot Bay is necessary to determine the least environmentally damaging alternative for discharge. The current models provided by Nordic fail to provide data to verify their accuracy of models and fail to take into account secondary circulation, wind shear, stratification, and other anomalies associated with the Bay. *See* Appendix D.

Therefore, prior to permitting, the following modeling is required:

1. The size and location of the discharge "plume" must be defined with a rigorous, year-round study (Tr. 2/12/20 70:1–71:1 (Dill/Pettigrew)), as there is no dispute that effluent will permanently affect water conditions within an unestablished distance of the outfall. Prefiled Testimony, N. Dill, Exhibit 23, Figure 1 (depicts dilution for 2 days); *see* Tr. 2/12/20 60:1–61:10 (Dill/Pettigrew discussion on accuracy of modeling); Tr. 2/12/20 88:17–89:l-12 (Pettigrew)(secondary circulation can delay dilution). "This is a permanent change to the environment so understanding the plume dynamics and existing conditions in the receiving water is critical to evaluate any project-related changes in the water column in near-field communities and to evaluate the environmental consequences of the project." Tr. 2/14/20 154:l-18 (Aveni-Deforge). Elements of concern likely or potentially present in discharge such as: TSS, BOD, Total N, Total P, Ammonia, nutrients, antibiotics, and other chemicals of high concern (including chemicals that may only be used in emergencies) must have strict year round limits that ensure no local or regional environmental harm. Examples include any additives in the feed Nordic has still

refused to disclose the feed source and potential contaminates defined in 40 C.F.R. part 136 defined parameters, and Investigational New Animal Drugs (INADs), and viruses. The facility effluent is likely to contain viruses. The species and concentrations are disputed, especially since water treatment methods are new and largely untested, but there will be some escaping contagions. Tr., 2/13/20 384:2-22 (I. Bicknell)("there is no way to totally eliminate those risks."). Viruses are too small to be removed by filters (Tr.,2/13/20 384:1-6 (Racine/Bicknell)) and may escape UV treatment due to screening by suspended solids ("However, UV irradiation may not work in situations where turbid water (and associated poor UV transmittance) may be encountered." Written Testimony, B. Dixon, Exhibit F1, Ozonation and UV irradiation/an introduction and examples of current applications, Page 60, Concluding Remarks. *See* Appendix A.

2. As a condition of approval Nordic must provide, prior to a permit, a third party, extensive, on-going water quality and habitat monitoring analysis capable of determining impact on migratory fish, including federally endangered Atlantic salmon, and other species that use, may use or move through the discharge and pipeline location. Monitoring should incorporate protocols that initiate rapid production response, should discharge or discharge impacts exceed approved limits.

3. As a condition of approval, prior to granting a permit, protocols for intensive internal system water quality monitoring must be available for third party review, and results of on-going internal systemic monitoring must be made available for third party analysis. A repeated objection to the Nordic application is insufficient and incomplete monitoring of the effluent. Tr. 2/14/20 137:4-17 (Krueger). The application currently only states bi-weekly initially to much less later. What is missing is an inclusive list of potential contaminants, (including virus and bacteria), as well as how and where samples will be collected and analyzed.

4. Enforceable Concentration-Based Standards need to be developed. *See* Appendix B.

5. If approved, the permit should provide for revision or revocation in the event that subsequent aquaculture projects in or near Penobscot Bay, if any, are found in the aggregate with the NORDIC development to have an adverse impact on the migratory fish that use the Bay, such as Atlantic salmon, sturgeon, shad and alewives, or other marine organisms as per baseline information and monitoring.

6. If unpredicted contamination of the effluent occurs it must result in an automatic cessation of operations as a permit condition. As of now, Nordic should provide bypass conditions, its plans regarding how it will respond to an unpredicted contamination of the effluent, as well as any contingency plans. Otherwise, a single, centralized MBR treatment facility, with a factor of 10x reduction in filter size, means that any problem with any production tank or the chlorinated processing facility has no place to go should a problem develop. *See* Appendix C.

7. Agricultural waste disposal needs to be specifically addressed, including how waste stored at the facility can potentially affect surface water runoff. Will these wastes be frozen, dried, stored inside, what are the storage time frames, where will the wastes finally go, what are contingencies for the waste disposal? If collected and treated, can they be included in the effluent stream?

8. Feed source and testing must be provided. Many toxic ingredients have been associated with feed sources and can therefore be associated with the effluent composition. Prefiled Testimony, Krueger/Gulezian, p. 17, V. Since Nordic refuses to disclose its feed sources, it is not possible to identify or predict the toxins or pathogens introduced by the feed source into

the waste or effluent stream or the concentration thereof. This must be revealed and modeled prior to issuance of any permit or there is risk that the effluent discharge will be unlawful ab initio.

IX. There is insufficient data to verify that the state Tidal Water Thermal Discharge Standard[2] will be met; in fact testimony provided during hearings suggests that this standard will NOT be met.

Temperature is a unique kind of pollutant[3]. In testimony offered by N. Dill, P.E., who modeled wastewater discharge behavior for Nordic, in his August 14, 2019 response concerning temperature, the author used lower temperatures for their effluent output (13 degrees Celsius) and higher extremes of bay temperature (70 degrees F). This paints a picture of a small 0.2-degree Celsius increase in the bay. Upstream disputes the 70-degree high temperature, and instead submits the temperature used should be derived from Northeastern Regional Association of Coastal Ocean Observing Systems ("NERACOOS") data. NERACOOS data has been collected 24/7 at buoys in the Penobscot Bay over several years. Using this more extensive data set the highest reading for 2018, for example, was 64.3 degrees F. During testimony, Dr Dill agreed that the effluent temperature is really predicted to be 15-18 degrees C, not the 13 degrees C cited. Tr. 2/14/20 76:14-22 (N. Dill). So, the temperature of the effluent temperature can be 5 degree C more than modeled and the temperature in the bay is not likely to ever be as high has been modeled.

Dr. Dill estimated the size of the mixing zone and the temperature dilution that might be expected, even with the incorrect temperature ranges (lower than accurate effluent temperature and higher than accurate bay temperature). The effluent mixing zone is based on a model that does

[2] 06-096 C.M.R. Chapter 582, § 5: REGULATIONS RELATING TO TEMPERATURE
"No discharge of pollutants shall cause the monthly mean of the daily maximum ambient temperatures in any tidal body of water, as measured outside the mixing zone, to be raised more than 4 degrees Fahrenheit, nor more than 1.5 degrees Fahrenheit from June 1 to September 1. In no event shall any discharge cause the temperature of any tidal waters to exceed 85 degrees Fahrenheit at any point outside a mixing zone established by the Board."

[3] Temperature is considered to be a "non-conservative" pollutant. It is not measured as concentration and is instead a property of water. Thermal energy is not "in" the water in the same sense that copper atoms and ammonium ions are in water. Thermal energy is absorbed by the water molecules, which is manifested as temperature and a proper-ty of the water.

not include factors that could allow for aberrant temperature variations and secondary circulation events. Nordic's own calculations using their CORMIX model and corroborated by the testimonies of Wood and Dill suggest a 3 degree increase in Winter and a 1.2 degree increase in Summer. Tr. 2/14/20 89:2-94:1 (Wood/Dill). CORMIX models are +/- 50%.

To summarize, based upon the +/- 50% accuracy of CORMIX modeling one could support a Delta T of 4.5 degrees in the winter and 1.8 degrees in the summer. A permit should not be provided if there is data that suggests that the permit might violate a regulation.

Further, to verify the models provided, additional data should be collected over several seasons to take into account anomalies in the currents and wind, and sub circulations within the bay. Testimony by Dr. Dill supports testimony provided by Dr. Pettigrew and Dr. Aveni-Deforge, as Dr. Dill agreed that additional data should be collected to predict the effects of the effluent on the bay. Dr. Dill agreed that Dr. Pettigrew was correct that additional data would improve the modelling. Nordic consultant Ramboll recommended more than a year ago that additional data is necessary to validate modeling. Dr. Dill confirmed the need for additional testing at hearing:

> Mr. Wood: When Mr. Pettigrew was here I think you folks talked and that additional information in the bay locally and larger would be a good thing and would you be willing to -- if you were to if people were to collect that data, use that to refine your model when it comes to the far-field because that is a little less defined than in the rule where the far-field is -- I mean the near-field is pretty well defined in how you calculate that, so would you be open to refining your model if additional data is collected?
>
> Dr. Dill: Oh, yeah. Absolutely.

Tr. 2/14/20 93:16-94:1.

Upstream's witness John Krueger provided another way of looking at the amount of heat that the effluent will be putting into the bay on an average day. He used the heat capacity of water, the number of gallons of water disposed of in a day, the average temperature of the effluent and

the average temperature of the bay from a nearby Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS) buoy to calculate the total heat transferred into the bay on an average day. The average amount of heat transferred to the bay every day is the equivalent of the heat produced by burning 10,000 gallons of gasoline a day or the electric energy consumed by 10,000 homes a day. Tr. 2/14/20 131:22-133:1.

The rate of mixing of the discharge plume with the water column will help determine the rate at which heat is dissipated. Nordic needs to better define the so-called mixing zone with real data from all seasons. Heat transfer, just like nutrients, can be exacerbated by stratification where heated effluents can be entrained in distinct layers in the water column, and subject to different forces such as wind and weather. The modeling process also needs to take into consideration secondary circulations that can create isolated pockets of plumes distinct from an average dispersal.

Nordic's unverified modeling data is insufficient for ensuring compliance with all environmental permitting requirements. There is a tremendous amount of heat being transferred daily and must be accounted for. It would be wrong to create a permit that might exceed one of the few regulatory standards. Accurate modeling must be coupled with verified data. Nordic's Ramboll consultants recommended over a year ago that Nordic collect more data to support their modeling. Nordic's failure to collect sufficient data makes it impossible to model the characteristics of Nordic's discharge. Without the required data and modeling, the permits should not issue. Tr. 2/14/20 134:21-135:12 (J. Krueger).

X. The Project Effects of Warmer Temperatures to the Bay Present Unacceptable Risks.

The temperature of the effluent water at the depth of discharge will always be warmer than the bay. Tr. 2/13/20 318:17 (Cotter). The warmer water is preferred by some species, including

lobster. Tr. 2/13/20 32:8 (Torangeau), Tr. 02/14/20 51:22–52:1 (T. Parent). Higher temperatures are harmful to some species ("…temperatures above the physiological range of a fish species triggers a stress response that can negatively impact immune function…", Written Testimony, B. Dixon, Exhibit B-1, Impacts of Low Temperature on the Teleost Immune System, p. 18, Introduction).

Rebuttal Testimony, Podolsky, p. 3, last paragraph – p. 4 NVC/UPSTREAM R1 Page 4 of 19: "Regarding temperature, the discharge waters may average between 15˚F and 20˚F warmer than the ambient temperature of Belfast Bay and west Penobscot Bay. The volume of warm water may be in excess of 7 million gallons per day of wastewater discharge between the Little River and Islesboro Island when the facility becomes fully operational (Phase 2). By Nordic's own admission, this discharge of thermally charged water will create a permanent thermal anomaly in the vicinity surrounding the discharge pipe which, depending upon the plumes movement with time, tide, wind and wave, may impact 1-2 miles north/south and 1 mile east/west and cover an area equivalent to between 1 and 2 square miles, equal to between 700 and 1500 football fields."

It is a critical omission that in item #21, Fiorillo fails to even mention the impact to benthos from this permanent, thermal pollution anomaly. It is vitally important and relevant to this project to fully understand the impact of the thermal anomaly because it will directly impact water column species, such as phyto- and zooplankton, larval fish and invertebrates and thereby the benthos and other species in the food chain that depend upon the water column. Similarly, if the benthos experience impacts in the vicinity of the thermal discharge so too will the fish, waterfowl and human livelihoods that depend upon this benthos."

Nordic's discharge of warm effluent has the potential of attracting fish to the very area of the Bay that will be infused with the highest concentrations of pollutants, in what has been

described as a "bird feeder effect". A discharge of warm effluent containing pathogens and pollutants is not only irresponsible, it is contrary to the recovery efforts of endangered Atlantic salmon and short-nose sturgeon, as well as the overall restoration of the Penobscot Bay.

XI. Nordic fails to demonstrate that dredging will not cause environmental harm.

Nordic has failed to submit adequate and complete information on dredge or fill. Information is lacking or not consistent with application materials and information provided at public hearings. Of particular concern is the amount of dredge and the route that this dredge material will be taken, and the final location of the dredge material.

Aside from the dredging project is the concern that currents and flow will further disrupt existing mercury in the floor bed. Nordic has failed to assess properly mercury and how currents may affect dispersion. Nordic has failed to collect sufficient samples from the actual pipe route. Prefiled Testimony, E. Ransom, p. 44, Fig.18-1. Nordic has not utilized the Penobscot River Mercury Study (PRMS) procedure to sample and test for mercury. Tr. 2/12/20 155:5-21 (Tucker/Ransom). The PRMS is a court-ordered study that examined mercury contamination from the former Holtra-Chem chlor-alkali plant in Orrington, Maine. *Id.* Testimony provided to DMR by Dianne Kopec, PhD as part of the DMR submittal process on March 2, 2020 provided detail on the proper sampling, (PRMS) that was not used, as well as the severity of existing mercury concentrations in the location of the proposed routes.

Nordic samples taken revealed at least one location with a mercury concentration of 239 nanograms/gram (ng/g). Prefiled Testimony, E. Ransom, p. 46, Table 18-3. Concentrations over 200 ng/g justify closing an area to lobster and crab harvest. Dr. Kopec provided data from a 2009 sediment project where cores from three sites were sampled approximately 2 km north of the proposed Nordic pipeline dredging area. The surface sediment mercury concentrations from the

three sites were over six times greater than background sediment mercury concentrations for estuaries along the central Maine coast. Values of mercury exceeded 340 ng/g.

Surface sediment concentrations are most relevant to mercury contamination of biota, unless the sediment is disturbed. Most sediment mercury is in the inorganic form which has limited accumulation in organisms. Mercury in surface sediment is exposed to methylating bacteria in an environment amenable to transforming the inorganic mercury into organic methyl mercury, which is highly bioavailable, and which biomagnifies in aquatic food webs. If the sediments are disturbed and mixed, then the inorganic mercury sitting in the deeper sediment can also be methylated and enter the food web. Tr. 2/12/20 332:4-11 (K. Tucker). Mercury concentrations in surface sediment are directly related to mercury concentrations in benthic foraging marine organisms.

Dr. Kopec, as part of her written testimony to DMR, goes on to state: "it is important to conduct thorough sediment core analyses of the specific area proposed for dredging to install the NORDIC intake and discharge pipelines. This work should follow the coring and analytical methods used in the Penobscot River Mercury Study in order to generate an accurate description of the sediment mercury concentrations at all relevant depths. Cores should be sectioned for mercury analysis in 1 cm slices to a depth of 20 cm, then in 2 cm slices to a depth of 40 cm, then in 5 cm slices to a depth of 90 cm. This method will ensure a full characterization of the distribution of mercury in the sediment underlying the proposed pipeline route and allow the regulatory agencies to make informed decisions on any risks to biota associated with the proposed dredging and how best to dispose of any dredge spoils."

Current studies should also include the effects of secondary circulation patterns or even the pipes' ability to alter current flow and the current's potential to disrupt mercury in the reuse of dredged spoils and the surrounding sea floor.

The application review must be halted while the Applicant conducts and provides comprehensive testing for mercury and additional seafloor and water column baseline assessments along pipeline routes, taking into account currents, the pock marks, mercury contamination, methane gas, sediment turbidity and scouring on the unstable bay floor. The pipes that carry the effluent present an environmental concern as the dredging of the pipe area and the resulting flow of effluent on the bay floor will extend already existing mercury contamination. In addition to an inadequate sampling of the actual pipeline route, Nordic has not utilized the Penobscot River Mercury Study (PRMS) procedure to sample and test for mercury. Other studies associated with the PRMS provide data demonstrating the severity of already existing mercury contamination. Nordic samples taken found at least one with a mercury concentration of 239 nanograms/gram (ng/g). Prefiled Testimony, E. Ransom, p. 46, Table 18-3. Concentrations over 200 ng/g justify closing an area to lobster and crab harvest.

XII. The MEPDES Application is Incomplete and not Compliant with Statutory Requirements.

The Department should not begin the processing of a permit until Nordic has fully complied with the application requirements for that permit. See Chapter 543 (UIC) and this Chapter (NPDES). Nordic's applications are not complete. Please see Exhibit A (February 18, 2020 Comment and matrix by Mike Lannan). Nordic's applications also fail to satisfy Clean Water Act Requirements and provide safe effluent to the Bay

a. Inadequate Testing

Effluent Testing should Include 40 C.F.R. part 136 defined parameters. Nordic lists four industrial detergents, four disinfectants, four therapeutants, and five "emergency" compounds for disease control. MEPDES Application, Questions #10 & 11, Attachment 3, p. 216-219. Documented is the inadequate evaluation of baseline stratification of temperature, oxygen and

nitrogen, and inventories of fauna and flora in the bay. Testing of the effluent for multiple potential contaminants beyond the listed parameters of the permit is insufficient.

Comprehensive screening analyses of waste streams are a documented process to assure a better understanding of the composition of the waste stream. There is no feed analysis and no known source of feed and there is no requirement through the MPDES application to test for feed ingredients. Effluent testing should not be limited to nutrients, but periodically tested for 40 C.F.R. part 136 defined parameters. Refer to Lists of methods by analyte; from 40 C.F.R. 136.3 Table IA: Biological, Table IB: Inorganics, Table IC: Non-pesticide organics, Table ID: Pesticides, Table IE: Radiological (if deep aquifer water with radon is included as input), Table IF: Pharmaceutical, Table IG: Pesticide active ingredients, Table IH: Ambient Biological. Prefiled Testimony, J. Krueger, p.17.

Additionally, the monitoring points and monitoring frequency is insufficient. There has been no evaluation of a more detailed monitoring program. DEP agencies have not evaluated the effect of feed composition on the waste discharge or even the ratio of protein efficiency. The ratio directly impacts the nitrogen discharge. Prefiled Testimony, J. Krueger, p. 24. Regulators have not addressed Investigational New Animal Drugs (INADs). *Id.* at 12. If an INAD is used will there be a complementary analytical method provided and analyses provided? Current regulatory review has not addressed potential audiological effects of RAS outfall pumps and other sound sources on marine life, fish, shellfish and mammalian life, in receiving the waters. In addition to Effluent Analysis there should be testing of any untreated collected storm waters from the facility. The large area of asphalt surfaces on the site will become conduits to carry any spillage of stored materials or processed materials into storm water drainage. Drainage from the asphalt surfaces should be contained, treated, and tested before disposal into the bay. Applicant should be asked to

demonstrate a current baseline and to provide follow up data showing that it has prevented harm from the noise of the effluent (audiological waste) to marine life.

Fish Feed (Prefiled Testimony, J. Krueger, p. 17, V)

A significant reason to seek testing for multiple chemical and biological parameters in the waste discharge (in addition to those mentioned previously) is the major unknowns associated with the fish feed. There are multiple papers that suggest that some fish feeds used for land-based aquaculture have contained toxic chemicals. While the Applicant suggests that there will be no toxins in the feed, there is no statement at this time about what the feed may be, and the Applicant refuses to reveal its fish feed selections. In addition, certification standards for fish feed have not been specifically referenced to provide assurance that the feed will not have toxins present; therefore, only monitoring, after the fact, can provide assurances that toxins are not entering the waste effluent as a byproduct of the fish food.

Prior to the issuance of any permit, Nordic should be required to perform testing, or reveal the test results of others from trusted sources, to show that currently available fish food will not provide toxins to the waste stream, as assurance that the products it chooses for fish food need not provide toxins.

b. Virus and Disease Introduction to the Bay

Bill Bryden provided multiple examples of concern in his testimony and submissions in response to DMR. Nordic has modified their application to include a 0.04-micron filter (40 nanometers) in the final MBR centralized treatment system. No filter is stringent enough to filter out viral particles, which may be less than 1 nanometer in size. The filters suggested by Nordic of this size would clog even more frequently. Tr. 2/14/20 173:9-11(B. Bryden). No design modifications have been provided to address this significant change in the application, as smaller

filter sizes will require significant engineering efforts. Once a pathogen entered a larger recirculating system, it would be extremely difficult to clear it out and would probably involve, at a minimum, euthanizing all the animals and bleaching the system. In the summary that Bryden provided to the DMR as part of the hearing extension, he cited the concern that large mortalities will exist primarily from: 1) local external known contagions entering the facility, 2) contagions entering the tanks via the eggs, 3) unknown concerns because we don't have tools for identifying and quantifying the viruses and pathogens that will enter the bay.

No monitoring plan is provided for virus and bacterial contamination in the discharge. Detailed sampling criteria, enforceable limits, and analytical protocols need to be developed. Examples of concerns include:

- Infectious salmon anemia (ISA) or ISAv (v for virus) is endemic to the Atlantic.
- Infectious Pancreatic Necrosis (IPN) or IPNv is endemic to Atlantic Canada and therefore probably Maine as well.
- Aeromonas salmonicida is also common in the North.

c. Bill Bryden's testimony to DEP and DMR demonstrates Nordic failed to meet effluent virus guidelines:

- No survey of contagions that can be amplified
- No updated screening for all known major pathogens by USA or Maine managers of hatcheries
- No consideration for contagion modeling in effluent, i.e. numbers per gallon based on various scenarios of prevalence in the tanks
- No mass mortality plan
- No consideration of alternative production models that reduce impacts on environment, reduce antimicrobial use, etc. (i.e. aquifer only water source, zero effluent, etc.)
- No discussion of likely mortality rates nor causes

- No discussion of fish attraction to warm effluent, permanent feature issues, as suggested by Dr. Podolosky
- No discussion of gyrs concentrating contagions and effluent entertainment into river mouth as suggested by Dr. Pettigrew
- No cap on antibiotic use to offset design issues such as surface water use
- No local salmon eggs available, Williamsburg Treaty was signed to prevent introduction of foreign eggs carrying known and unknown contagions not native to the region

APPENDIX B: There is a need for Enforceable Concentration Based Standards.

The application provides maximum daily amounts for: TSS, BOD, Total Nitrogen, Total Phosphorus, Ammonia, pH, Temperature (summer/winter), salinity, also average daily values, and finally concentrations. (MEPDES Application at 206) We wish to be assured that the concentration values are enforceable. The proposed Monitoring program provided by NORDIC is not sufficient either in what will be monitored nor the frequency. Providing an enforceable concentration based standard provides assurances that large slugs of contaminants cannot be released, and provides additional assurances any spills or contingency failures can be observed and monitored. As an example, NORDICs's Sashimi Royal shows factors 3 variation in N discharge day to day. See EPA Form VI.B Question VI.B Attachment.

Only ten pollutants are listed in the application. *Id.* at 206-207. For these, a maximum daily value is listed as well as the average daily concentration. Nordic should be asked: What are the maximum concentrations that might exist in the effluent, under what circumstances might that occur, how will these concentrations be prevented and how will these concentrations be measured, reported, and if necessary mitigated?

Nordic should be required to demonstrate what variation in percent removal of treatment can be expected and under what circumstances? As an example, if phosphorous removal is reduced by just one percent, from 99% to 98%, the amount of phosphorous in the effluent would double.

Nordic should be asked how that will be managed to prevent additional pollution. Same for a reduction to 95% or 75%, variability is not uncommon in large scale manufacturing operations.

APPENDIX C: Lack of plans and mitigation to respond in the event of an unpredicted effluent outflow.

Given the size of this facility and lack of data to support how a large facility such as this can operate in a pristine location, there is reason to suggest a scaled back application or to incorporate special conditions into a permit. And to incorporate preventive requirements, such as requirements to install process control alarms, containment structures, good housekeeping practices, and the like.

A chief concern with the treatment process is the need for assurances that mistakes will not cause huge releases to the bay. Nordic should be asked for a detailed explanation of how errors in continuous flows will be contained before contaminant laden effluent is released to the bay. If needed, will containment structures be provided to bypass discharge to the bay? Nordic should be asked where containment structures are located on its plans on file as part of its application, or if such containment is not provided on the plans, where will/can it be located, how large will it be and how will it function with the other plan components? For example, if the storage facility is full and there is additional need, what is the plan? If the storage facility fails, how will it be emptied and what effect will emptying it have on the process and the character of the discharge?

There should be written contingency plans in addition to reporting requirements. While there is a bypass option: (2) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (m)(3) and (m)(4) of this section. How will 7.7 million gallons/day be handled in the

event of a system failure, or if there is a need to clean out a tank? Considerations should be given to the use of multiple MBR treatment systems attached to smaller tanks, so that a disruption will not be associated with huge volumes of discharge. Consideration should be given to provision of a large storage tank to contain unsuitable discharges.

There are virtually no contingency plans offered by Nordic nor opportunities with regulatory authorities to evaluate contingency plans. The need for contingency involves several different needs. One is that the final MBR treatment facility is centralized. SLODA Application, Sect. 1, Descrip, Sect. 1, text., p. 21, AP001. If one of the many tanks develops a problem, then all of the combined treatments could fail. How will the Applicant contain 7.7 million/gallons a day of untreatable wastes? Also, the chlorinated waste from the fish processing unit also enters this same centralized MBR treatment. Chlorine can reduce the MBR treatment, since MBR is biological. There is little monitoring in the plan, so problem wastes could be simply discharged, and no one would know. How would a large fish kill be addressed? Recently in the news (Early March 2020) Atlantic Sapphire subsidiary, Atlantic Sapphire Denmark, experienced a mortality event in one of its grow-out systems, losing around 227,000 fish and pushing the company's next harvest revenue back by about four months. High nitrogen levels appear to be the cause of the event.

APPENDIX D: Modelling Currents.

According to Dr Neal Pettigrew: RANSOM Consulting Inc. used a steady-state mixing model and a 2D (vertically averaged) circulation model based on the shallow water equations to estimate the effects of 7.7 million gallons per day of wastewater discharged between Little River and Islesboro Island. The modeling done at this point does not appear to be sufficient to accurately examine the outcomes of the proposed wastewater discharge on the local and far-field regions of Penobscot Bay. As RANSOM states, the steady-state mixing model has limited applications for

very short periods of less than an hour or so due to changing tidal currents. In addition, an unreasonable assumption of ambient current speed at the depth of 11.5 m (near bottom discharge) was an order of magnitude too large. This choice would significantly overestimate the mixing and dilution calculations. RANSOM has used a 2D (only 2 dimensional) ADCIRC model based on vertically averaged shallow water equations. In other words, the method assumes that the density is constant over the entire water column, and the velocity is vertically averaged. In the vast majority of Penobscot Bay, the density and currents are functions of depth in all seasons. In addition, the modelers considered only forcing by tidal height from the outer boundary of the bay and constant freshwater inflow from the Penobscot River. They ignored wind forces and waves, suggesting that this omission would only reduce calculated turbulence and thus make their calculations more "conservative". RANSOM's 2D model shows the mean flow to be southward (seaward) in the proposed discharge region. However, observed oceanography current data in Penobscot Bay and 3D models including observed wind forcing show that the vertically averaged mean subtidal circulation flows northward in the discharge region and this flow turns clockwise (anticyclonic) around the north point of Islesboro and joins the southward flow on the east side of Islesboro. Data, including drifters, have shown clockwise flows around Vinalhaven Island as well, and with strong winds from the SW or NW. 3D modeling has shown that even the surface mean flow is essentially clockwise around Islesboro. In fact, in the absence of winds one expects estuaries and bays connected to a river at its head, to have "outflow" at the surface and "inflow" in the lower layer. Prefiled Testimony, N. Pettigrew, p. 2.

Without access to current data, RANSOM used only tidal height data to validate their 2D ADCIRC model. Prefiled Testimony, N. Dill, p. 4, #13. Tidal heights are very easy to simulate, and thus do not make a strong case for their model validation.

Since the location of the proposed wastewater discharge is planned at a depth of 11.5 m, and also very near to the bottom, this discharge is likely to occur in very slow mean flow and the flushing time could be much greater than suggested by RANSOM. In addition, the local circulation will be altered by the strong pumping of discharge and intake. I suggest that the best method of understanding the potential effects of Nordic Aquafarms' proposal would be a year-long oceanographic experiment at the discharge and intake locations and a high-quality 3D numerical ocean model with horizontal mesh scales of 25 m or smaller. Prefiled Testimony, N. Pettigrew, p. 3.

Most numerical models of Penobscot Bay (e.g. Humphreys and Pearce, 1981; Burgund,1995; Xue, et al., 1999) have shown landward transport (vertically and horizontally averaged currents) west of Islesboro and seaward east of Islesboro. In the cases of strong wind stress from the west (in years 1 and 2) the Princeton Ocean Model (POM) showed surface currents moving landward west of Islesboro and turning clockwise at the north point of the island and joining the seaward currents on the east side of Islesboro.

Salinity records from buoys and boat surveys (not shown) suggest that the river water flows seaward preferentially on the eastern side of Islesboro and fresh waters from the river generally do not appear in the surface waters of the outflow east of Vinalhaven Island. Thus, the primary exit route of Penobscot Bay River water appears to be east of Islesboro, and west of Vinalhaven, with a lesser amount of river-freshened water confined to a shallow layer on the west side of Islesboro. One would expect that outflow from the Passagassawakeag River would contribute to the freshened waters observed west of Islesboro. Both POM and early testing of our developing FVCOM model show that significant winds from the NE or SE can shift the river outflow to the west side of Islesboro. Prefiled Testimony, N. Pettigrew, p. 7.

Dr. Kyle Aveni-Deforge adds from testimony to the BEP (Prefiled Testimony, pp. 5-6): "The Applicant is relying on the present dispersal model to forecast good dilution of the proposed discharge and evaluate environmental risk. Because the dispersal model is not strongly driven by on-site measurements, the Applicant may be underestimating the risk of discharge to the local environment. In fact the only data I have been able to find for the peri-Islesboro currents indicates that net flow, in the 1970's through 1990s, had a residual clockwise flow. The risks associated with underestimating the dilution and dispersal of the outfall could have consequences to a variety of ecosystem functions and services, affecting the stability of local ecosystems as well as how humans can take advantage of the environment."

B. Nordic fails to Meet Financial Capacity Standards Required by the Site Location of Development Act.

Nordic is required to demonstrate it has the financial capacity to design, construct, operate, and maintain the proposed development in a manner consistent with state environmental standards and the provisions of the Site Location of Development Act (or "Site Law" or "SLODA"). *See* 38 M.R.S. § 484(1) and 06-096 C.M.R. ch. 373. The Applicant must have the financial capacity for all aspects of the development, and not solely the environmental protection aspects. Evidence of financial capacity must be provided prior to a decision on an application.[4], 06-096 C.M.R. ch. 373, § 2 (A). Nordic has failed to demonstrate financial capacity to construct, operate, or maintain this facility. Tr. 2/11/20 81:6–83:10.

Nordic has demonstrated a lack of good faith by indicating on the SLODA application check list that items were attached that were not in fact provided. *See* SLODA Application Form D*; see also* Tr. 2/11/20 81:6–83:10. Nordic has also demonstrated a lack of good faith by

[4] Except, pursuant to 38 M.R.S. §484(1), the Department may defer a final finding on financial capacity by placing a condition on a permit that requires the permittee to provide final evidence of financial capacity before the start of any site alterations.

submitting financial assessments prepared by sources that were not financially independent of the Applicant without suitable disclosure. Rebuttal Testimony, M. Reeve, at 1-2.

Nordic has not requested a deferral of compliance with this aspect of the SLODA. No reason for a deferral has been provided. No credible plan to obtain financing or names of institutions that might provide financing have been provided.

Construction is set to begin with excavation, blasting, and backfilling of sensitive intertidal and subtidal habitats for placement of two 30" diameter, 6,400-foot-long intake pipes and a shorter, 36" diameter discharge pipe. Nordic's SLODA Application, Section 16, at 1, 5. Rerouting of Route 1 will be required, including blasting and "dewatering" of nearby wetlands. Nordic's SLODA Application Section 1, at 6.

"The main facility buildout will begin with. . . initial clearing of the forested areas," and continue with excavation of building footprints to final depths of over 20 feet, including ledge removal, probably by blasting. Nordic's SLODA Application, Section 16 at 11-12. From the outset of construction, Route 1 will have been disrupted and degraded by heavy truck traffic hauling soil and rock from the site. All forest, wetlands, streams, and indeed most of the soil and an unknown amount of bedrock will have been removed from the site. Sensitive marine habitats will have been blasted. This lovely wildlife habitat at the junction of the Little River and Penobscot Bay will be lost forever, regardless of how the project progresses. To award a permit to Nordic, and allowing environmental destruction, without full and proper financial assurance, is a violation of the public trust in the air, water and other natural resources, and cannot be tolerated.

I. Nordic Has Failed to Make the Requisite SLODA Application Submissions with Regards to Financial Capacity.

Nordic was required to provide evidence to demonstrate financial capacity, including cost estimates, time schedule for construction, evidence of funds, and evidence demonstrating that its

proposed financing is clearly linked from the financing institution to the applicant. In addition, the SLODA Application form requires that any applicant for whom funding is required, but a final commitment of all necessary money cannot be made until all approvals are received, provide evidence of a cash equity commitment, a financial plan, and a letter from an appropriate financial institution indicating an intention to provide financing.

a. Cost Estimates

The regulations require that Nordic provide:

> Accurate and complete cost estimates of the development, including all proposed phases. The itemization of major costs may include, but is not limited to, the cost of the following activities: land purchase, erosion control, roads, sewers, structures, water supply, utilities, pollution abatement, landscaping, and restoration of the site, if applicable.

06-096 C.M.R. ch. 373, § 2(B)(1).

Nordic provided a brief chart with insufficient detail to assess the credibility of cost estimates. Prefiled Testimony, B. Chandler at 2; Tr. 2/11/20 81:11-18. The Board cannot determine financial capacity or financial proficiency with this scant information. The cursory chart does not itemize activities as required by Ch. 373(2)(B)(1). Sewers and water supplies may be included in "site piping" (does this also include saltwater intake and wastewater discharge pipes?) or in "infrastructure." The cost of structures ("buildings") is combined with "process equipment." Roads are combined with "site finishes." Utilities, pollution abatement and landscaping are not itemized. Site restoration is not addressed although the facility has a limited useful life by Nordic's admission.

Chapter 373(2)(B)(1) notes that itemization of major costs should not be limited to the list of costs provided. This large, complex project with huge environmental and cultural impacts on the region demands sophisticated budgeting. Cost estimates based on such broad categories are

unreliable and cast doubt on the feasibility of completing the project within the projected budget. Nordic has repeatedly made changes to construction plans, including a new filtration system for wastewater effluent, purchase of additional freshwater from Belfast Water District, considerably higher air emissions stacks, a revised heating system, and other changes. With the lack of cost estimates and budgeting, it is impossible for Nordic or the Department to know whether modifications are cost effective or can be implemented within budget constraints. Therefore, Nordic has not satisfied this requirement.

b. Time schedule.

The regulations require applicants to provide "[t]he time schedule for construction of all phases proposed." 06-096 C.M.R. ch. 373, § 2 (B)(3).

Nordic provided no indication of time needed to complete "tranches" or "phases." Prefiled Testimony, B. Chandler, p. 2. Arrangement of timely financing and comparisons of performance to budget are impossible without time estimates. Nordic has not satisfied this requirement.

c. Evidence of funds.

The regulations also ask that applicants provide evidence of funds, which can be a letter of commitment or intent to fund, self-financing, a government agency, or a evidence that the funding is included as part of a non-profit organization's budget or fundraising.

Nordic, in its application, indicated it was providing a "[l]etter of commitment or intent to fund:

> A letter from a financial institution, governmental agency, or other funding entity indicating a commitment to provide to the Applicant a specified amount of funds and the uses for which the funds may be utilized. In cases where funding is required but there can be no commitment of money until approvals are received, an Applicant may submit a letter of "intent to fund" from an appropriate funding institution indicating the amount of funds intended to be provided to the Applicant and the specified uses for which the funds are intended.

06-096 C.M.R. ch. 373, § 2(B)(3).

Nordic has not provided a letter of "intent to fund". Tr/ 2/11/20 46:16-24; 81:19-24. A "letter of interest," (not a "letter of intent,") is included from EKF, a Danish government institution. It notes interest in "possible participation" in providing a "credit export guarantee." It is the only letter provided, EKF is not a source of funding, and it states clearly that this is "not a binding offer," but depends on future analysis of the project. SLODA Application, Section 3, Finance, Appendix 3-C. Therefore, Nordic has not satisfied this requirement.

d. Corporate structure.

Moreover, in cases where one or more limited liability corporations are part of the Applicant's corporate structure, evidence must be submitted describing the Applicant's corporate structure, and demonstrating that the proposed financing is clearly linked from the financing institution to the Applicant. 06-096 C.M.R. ch. 373. § (2)(B)(3)(a). The Applicant for this permit is Nordic Aquafarms, Inc, a Delaware corporation whose sole shareholder is the Norwegian Company, Nordic Aquafarms, AS. Nordic's SLODA Application Form A at 1; Prefiled Testimony, B. Chandler at 2.

Nordic revealed new information at the BEP hearings that the Maine project would eventually be organized as a separate limited liability company. Tr. 2/11/20 47:20-48:16. The Maine LLC is not included in any chart of corporate structure that has been provided to the Board, and no financing links have been described with financial institutions or with related entities.

Nordic has presented evidence that the shareholders of Nordic Aquafarms, AS, the parent company, are wealthy Norwegian individuals and family investment groups. Prefiled Testimony, B. Chandler, Nordic Exhibit 2, at 6-7. As shareholders, however, their only risk is the value of their stock. The Board and executives of Nordic Aquafarms, AS, will be responsible for Maine

financing decisions; "the board always holds the final decision on timing and source mix prior to each tranche." Prefiled Testimony, B. Chandler, Exhibit 2, at 4.

Nordic, AS, Board members, who are also the primary shareholders (Prefiled Testimony, B. Chandler, Nordic Exhibit 2, at 6) fully control availability of funds for the Belfast project. They are shielded from liabilities of the Maine project by the corporate structure— Nordic LLC, Nordic Inc, and Nordic AS. Prefiled Testimony, B. Chandler at 2.

Nordic and its affiliates can walk away from a failed project at any time risking only calculated amounts that they have purposefully dedicated to Maine (LLC) or U.S. (Inc.) projects. Liabilities of the California project could compromise Maine financing. Citizens of Maine and Belfast cannot dodge the burden of an abandoned environmental accident or miscalculation, or a plant that is outdated by changing markets or technology.

e. SLODA Application Form Requirements

In addition to the above requirements, the SLODA application form requires three additional items to demonstrate financial capacity for Applicants such as Nordic, "[i]f funding is required, but a final commitment of all necessary money cannot be made until all approvals are received." SLODA Application, Section 3, Financial Capacity, B, Financing, 3, Other.

i. <u>Cash Equity Committed to the project, with 20% of total project cost considered normal.</u>

There are no funds committed to this project beyond the permitting process. Nordic has raised only about 12% of the cost of this project in its history to fund the parent company and four existing subsidiaries. Tr. 2/11/20 51:13-17; 81:25; 82:13. Nordic has not satisfied this requirement.

ii. Financial Plan for the remaining financing.

No financial plan has been provided. Rebuttal Testimony, M. Reeve, at 1; Tr. 2/11/20 82:14-25. Nordic proposes to finance construction and early operations with equity (see above), debt, and cash flow from operations. Prefiled Testimony, B. Chandler at 3. Regarding debt, they simply state that "NORDIC is in dialogue with both Norwegian Banks and US banks with regards to financing of the project…." Prefiled Testimony, B. Chandler, at 5, Nordic Exhibit 2. There are no projected Profit and Loss or Cash Flow financial statements to evaluate the feasibility of cash flow at any time during construction or operations. Tr. 2/11/20 82:20-22. Nordic has not satisfied this requirement.

iii. Letter of Intent to provide financing.

No such letter is provided. Rebuttal Testimony, M. Reeve, at 1; Tr. 2/11/20 83:1-6; *see also* above. Nordic has not satisfied this requirement.

Therefore, applying the Department's regulations, a SLODA permit cannot be granted for this project, when:

- Nordic has failed to satisfy any of the requirements of SLODA Chapter 373;
- Nordic has failed to provide any of the documents required by the DEP's SLODA Application;
- Nordic has demonstrated a lack of good faith by indicating compliance on the application checklist without providing the designated documents;
- Nordic has disregarded financial ethics by providing financial documents that lack independence without suitable disclosure; and
- Nordic has failed to request or provide a reasonable case for deferral of a Department finding of financial capacity.

C. Nordic's SLODA Application Should Be Denied Because Its Project Will Have An Unreasonable Effect on Runoff/Infiltration Relationships.

According to 06-096 C.M.R. Chapter 375: "[t]he Department recognizes that some developments cause unreasonable increases in stormwater runoff by decreasing the infiltrative capacity of the soils on a development site. The Department also recognizes that increases in stormwater runoff cause increased danger of flooding, the pollution of surface water bodies, and the depletion of groundwater resources." 06-096 C.M.R. ch. 375, § (4)(A). As Nordic cannot demonstrate its project will have no unreasonable effect on runoff/infiltration relationships, its application should be denied.

I. Nordic's Plan for Capturing Runoff and Precipitation Will Result in Depletion of the Very Groundwater Resources It Intends to Rely Upon.

Nordic plans to convert the site from infiltration-friendly groundwater surface to impervious surfaces. Prefiled Testimony, M. McGlone, at 10. At the chosen site, 51% of natural land will be made impervious and so 95% of the precipitation falling on the landscaped surface will be captured and treated. *Id.* At the site 55% of the precipitation falling on the landscaped surface is captured and treated, thus 84% of the precipitation falling on the natural site is being captured and treated. SLODA Application, Section 1, Project Overview, at 4 ("Including required impervious access drives, parking areas and delivery areas, the total new impervious area at the Site will be 27.4 acres at full build-out").

This will deplete the very groundwater resources that Nordic plans to use to run its facility. Nordic will install a perimeter drain to catch and divert the water running onto the site. McGlone Prefiled Testimony 6. Nordic witness Michael Mobile said the primary source of ground water for the Nordic Wells will be water from the aquifer (which recharges from precipitation) and on-site precipitation, *see* Prefiled Testimony of Michael Mobile, #12, which is exactly what Nordic will eliminate with drainage and stormwater management infrastructure. Perimeter drains will collect and divert upslope, off-site subsurface water. Impervious surfaces will intercept

precipitation, which will be collected in detention basins and discharged into the perimeter drains already collecting water from off-site. This system will discharge all water into the Little River downstream near the ocean. Pre-Filed Direct Testimony of Maureen McGlone, #3 and #4.

By design, these changes to the natural landscape will unreasonably deplete the ground water resource. Ground water extraction/well projections assumed full infiltration as it exists now. Tr. 2/11/20 140:2–143:5. All the well 72-hour pump tests and other tests were run with full infiltration. Nordic has no idea how much water, if any, will be available to pump from the subsurface after the stormwater drains are installed. *See* Commentary, SLODA 8, Groundwater Quantity.

II. Nordic Has Failed to Provide Evidence That the Stormwater Management System Will Be Fully Coordinated with Project Site Plans.

Applications for approval of proposed developments shall include evidence that affirmatively demonstrates "that the stormwater management system will be fully coordinated with project site plans, including consideration of street patterns, pedestrian ways, open space, building siting, parking areas, recreational facilities, and other utilities, especially sanitary wastewater disposal facilities." 06-096 C.M.R. ch. 375, § (4)(C)(7). Stormwater management is not coordinated with project site plans. Off-site water sources and on-site precipitation is intercepted and thus unavailable to meet fresh-water requirements for fish rearing. *See* 06-096 C.M.R. ch. 375, §§ (4)(A), (8).

The BEP should deny this permit because Nordic proposes to intercept all groundwater that could recharge the wells and groundwater supply required to provide fresh water for fish-rearing operations. *See* Commentary, SLODA 8, Groundwater Quantity. This is an unreasonable (and untenable) effect on runoff/infiltration relationships. This also precludes pumping freshwater from the aquifer as proposed in Nordic's process.

D. Nordic's SLODA Application Should Be Denied Because Its Project Will Have An Unreasonable Adverse Effect on Ground Water Quantity.

According to Chapter 375 with regards to ground water quantity:

> The Department recognizes the importance of maintaining an adequate supply of ground water [A] for drinking purposes. The Department also recognizes that the depletion of ground water resources can result in the intrusion of salt water into potable ground water supplies [B] and can affect the hydrologic characteristics of surface water bodies (peak flows, low flows and water levels) resulting in adverse effects on their assimilative capacity and recreational use, as well as on certain wildlife habitats [C]. Additionally, new wells can cause a lowering of the ground water supply to the point where existing wells run dry, particularly during the late summer and early fall [D].

06-96 C.M.R. ch. 375, § 8(A).[5]

I. Adequate supply of ground water for drinking purposes.

According to Nordic's application, [f]reshwater obtained from on-site groundwater and surface water sources will be treated and used as process water for fish rearing, while freshwater for food processing and domestic use will be provided by the BWD public water supply." SLODA Application, Section 15, Groundwater, P. 1, 15.2, Sources & Quantity. Nordic's application states the project is anticipated to use approximately 1,205 gallons per minute (gpm) of freshwater. SLODA Section 01, Description, Sect. 1, Text, top of P. 3. Nordic identifies three sources of freshwater it proposes to depend upon for its project:(1) groundwater withdrawn from the Site at a proposed rate of 455 gpm, (2) surface water withdrawn from the Site at an estimated rate of 250 gpm, and (3) public water supply delivered to the Site by the Belfast Water District at a proposed rate of up to 500 gpm. SLODA Application, Section 15, Groundwater, Appendix 15-A,

[5] *See also* 06-096 C.M.R. ch. 375, §§ (8)(B)(1) "In determining whether the proposed development will have an unreasonable adverse effect on ground water quantity, the Department shall consider all relevant evidence to that effect, such as evidence that: (1) The quantity of water to be taken from ground water sources will not substantially lower the found water table, cause salt water intrusion, cause undesirable changes in ground water flow patterns, or cause unacceptable ground subsidence."

Investigation Report, P. 4. Total yield from these sources is exactly the required 1,205 gallons per minute.

According to Keith Pooler, Superintendent of the Belfast Water District (BWD), the BWD can offer a maximum of 262 million gallons per year (498.5 gallons per minute) with the town's existing pipe system. While the City's aquifer has more capacity, the pipe system would need serious upgrades. Prefiled Testimony, B. Bryden, p. 10. Therefore, Nordic requires 705 gallons per minute (455 gpm from wells + 250 gpm surface water) from on-site sources to meet its fish-rearing needs.

Nordic's stormwater management plan diverts water around the site and removes from the site water falling onto the site. Prefiled Testimony of M. McGlone at 2, 10. 51% of site is newly impervious, 95% of this is treated. 55% of landscaped surface is treated. *See* Tr. 2/11/20 142:5 (Ed Cotter); 06-096 C.M.R. ch. 375, § 4. These actions will diminish the amount of water available in the subsurface. Nordic did not conduct any study to determine the amount of diminution of water in the subsurface, so no one is able to conclude the impact of that diminution on yields from on-site wells or the reservoir. Tr. 2/11/20 142:22–143:5 (M. Mobile).

Equally problematic is that poor water quality in the reservoir will increase the likelihood of disease within the system and thus requires rigorous treatment.[6] Prefiled Testimony, Bill Bryden at 4.

II. Depletion of ground water resources can result in the intrusion of saltwater into potable ground water supplies.

[6] Note that surface water is treated same as well water. *See* SLODA Application, section 16, Water Supply, Text, p. 2, 16.2.1, Well and Surface Water Treatment System Description.

At least one of Nordic's test wells showed saltwater intrusion. Tr. 2/11/20 160:17-19 (Neilson). Nordic claims the saltwater was there before the pump test was conducted. *Id.* 197:7-11. How did it get there? Gravity should push water downhill – down gradient and away from the shore, not toward it. How did the saltwater get into the well unless it was by pumping? Nordic cannot avoid drilling in this location to meet freshwater needs. *Id.* 198:9-10.

III. Depletion of ground water resources will result in adverse effects on their assimilative capacity and recreational use, as well as on certain wildlife habitats.

Upgradient disruptions by drainage infrastructure will eliminate nearly all wetlands and streams on the site, eliminating their assimilative capacity and impacting wildlife habitat. These qualities will be eliminated from the lower reaches of streams that Nordic has designated as unaffected and suitable to serve as wetland compensation.

IV. New wells can cause a lowering of the ground water supply to the point where existing wells run dry.

Nordic water withdrawal will substantially lower the found water table. Nordic presented testimony that existing water supply wells would likely suffer a 10-12-foot drop (*see* Prefiled Testimony, M. Mobileat 15 (Fig. 14A)), but that it would not affect the homeowners' ability to use the wells. If a domestic well went dry, Nordic would investigate and discuss it with the homeowner. SLODA Application Section 15, Groundwater, Appendix 15-B, Water Resource Monitoring Plan, p. 13. Nordic refused to guarantee that they would provide a new well or connection to City water (with Nordic paying water bills for ten years).

V. Nordic fails to demonstrate that there will be no unreasonable adverse effect on ground water quantity.

The Department's regulations require that the applicant affirmatively demonstrates that there will be no unreasonable adverse effect on ground water quantity, and to that end asks the

applicant to provide information including estimates of the quantity of ground water to be used by the proposed development. 06-096 C.M.R. ch. 375, § 8(C)(1). According to Nordic's application, "[c]ollectively, the project is anticipated to use approximately 1,205 gallons per minute (gpm) of freshwater." SLODA Application, Section 01, Description, top of p. 3. "In total, the proposed development will receive fresh water from three distinct supply sources: (1) groundwater withdrawn from the Site at a proposed rate of 455 gpm; (2) surface water withdrawn from the Site at an estimated rate of 250 gpm; and (3) public water supply delivered to the Site by the Belfast Water District at a proposed rate of up to 500 gpm. SLODA Application, Section 15, Groundwater, Appendix 15-A, Investigation Report, p. 4.

"At least some [water sources] will be able to produce what has been predicted and if there is an impact of one of them we have some redundancies to be able to adjust." Tr. 2/11/20 189:23 –190:1. What this statement reflects is an understanding that the estimated yields for each source assume conditions that are unlikely to exist on the proposed site:

1. Groundwater yield is based on models that assume current levels of groundwater flow and precipitation infiltration. 2/11/20 Tr.140:2 143: 5 (Mobile Testimony). Both will be severely reduced by drainage infrastructure. *See* Commentary, SLODA Section 4, Effects on Runoff/Infiltration.

2. Surface water yield is based on existing on-site conditions, including the Lower Dam, which is in such bad condition that it may fail, eliminating the supply altogether. Prefiled GEI at 24, Lower Dam Observation. "Unless repaired and maintained, these dams will not survive to maintain current assumptions." Prefiled Testimony, GEI, at 7.

3. Nordic has contracted with the Belfast Water District to purchase up to a maximum of 500 gallons per minute. SLODA Application Section 16, Water Supply, Appendix 16-A. Additional amounts would require extensive upgrades to City pipe infrastructure.

4. Maximum estimated yield from each water source is required to meet freshwater needs. (455 gpm + 250 gpm + 500 gpm = 1,205 gpm required).

Therefore, Nordic is unable to identify sufficient freshwater sources to meet its freshwater requirements and as such cannot provide a true estimate of the quantity of ground water to be used by the proposed development.

The Department's regulations require the applicant to provide information including "[i]n the areas where salt water intrusion, the lowering of the ground water level, or land subsidence have been or can be reasonably be expected to be a problem, a report by a duly qualified person addressing the potential effects of ground water use by the proposed development." However, no such report exists. Tr. 2/11/20 161:15-19 (M. Mobile). Therefore, Nordic has not satisfied its obligations pursuant to the regulations to provide this information.

VI. If the Board Decides to Issue a Permit, it Should Impose as a Term of Condition of Approval Reasonable Requirements to Ensure there will be no Unreasonable Adverse Effect on Ground Water Quantity.

The Department's regulations contemplate that any approval of a permit application could impose reasonable requirements to ensure no adverse effect on ground water quantity, such as:

(1) A development obtains its water from a surface water source, public community supply, or utility;

(2) Wells in the surrounding area be monitored to determine the effect of the development on ground water levels; and

(3) People in the surrounding area, whose wells are adversely affected by the development, be provided with new wells or another source of potable water for their use and consumption.

06-096, C.M.R. ch. 375, § 8(D)(1)-(3). Therefore, Upstream urges that if the Board were to approve Nordic's application that the Board impose the following reasonable requirements:

- An effective monitoring plan to assure that private wells are not adversely affected. Tr. 2/11/20 192: 2-10 (Dr. Hopeck). This must include third party supervision to protect the homeowners.
- A meaningful reimbursement plan for private wells that are adversely affected.
- Evaluation of yields of on-site wells accounting for proposed drainage and stormwater infrastructure.
- Upper and lower dam ownership, repair, and maintenance plans that are adequate to assure projected groundwater yields.
- Evaluation of the potential effects of saltwater intrusion from pumping activities.

E. Nordic's SLODA Application Should Be Denied Because It Has Not Made Adequate Provision for Buffer Strips.

The proposed "buffers," a scant remainder of existing habitat, are completely inadequate to replace the unique and valuable wildlife corridors of this site. The Department has recognized the importance of natural buffer strips in protecting water quality and wildlife habitat, as well as their ability to can serve as visual screens to lessen the visual impact of incompatible or undesirable land uses. 06-096 C.M.R. ch. 375, § 9(A). The only natural buffer strips that Nordic proposes to preserve are conservation woodland around the existing public trail. SLODA Application, Sect.01, Sect.1, text, p. 21. These are on adjacent property that will not be owned by Nordic. SLODA Application, Sect.01, Sect.1, text, p. 2. Meanwhile, (1) Most of the natural wetlands on the development site will be destroyed and those remaining will not be adequately protected, (2) the conserved "corridor" within the shoreland zone around the Little River Trail will not provide adequate space for movement of wildlife and (3) buffer strips between the Little River trail and the west sides of buildings 1, 2, and 3 have not been assessed and are inadequate.

I. Most natural wetlands on the development site will be destroyed or severely compromised and those remaining will not be adequately protected.

In determining whether the developer has made adequate provision for buffer strips, the Department will evaluate whether "water bodies within or adjacent to the development will be adequately protected from sedimentation and surface runoff by buffer strips." 06-096 C.M.R. ch. 375, § 9(B)(1). According to Nordic's NRPA Application attachment 13, Compensation, Appendix 13-A (especially see Figures 1&2), updated by November 5, 2019, Nordic Response (including Att. A-F), P.15, Att. A, Map):

- W1, 3, 4, 13 &15 will be completely filled. W2 & W5 – Significant portions will be filled. The remainder will lose natural functions due to fragmentation and proximity of buildings and roads.

- W6 - Over 65% of W6 will be permanently destroyed. The remainder will be "impacted" by construction of the temporary Route 1 bypass. Its feeder stream, D7, will be replaced by building 8. It will no longer function as a wetland.

- W7 – Will be disturbed and altered by construction of the Route 1 bypass.

- W9 – Along S9. Excavation and rebuilding of the stream will impact the wetland, and Building 2 will significantly reduce drainage into the wetland.

- W10 & 12 – Inlet and outlet drainage ways will be excavated and replaced, altering wetland function.

- W11 – Shoreland will be excavated. Effects on area wildlife of construction and refill have not been studied. *See* SLODA 15, Wildlife. W16, at the northern end of Stream 9, will be completely excavated during construction. It is between the Matthew's Bros. parking lot to the northeast and building 7 to the southwest.

As is evident, almost all wetlands on the site will be completely destroyed or permanently lose their natural functions. The only undisturbed wetlands are #8, 17 & 18, small wetlands along property boundaries, and for those, Nordic has not proposed adequate provision for buffer strips to adequately protect them from sedimentation and surface runoff.

Similarly, six NRPA-regulated streams were originally identified by Nordic in its application form. NRPA Application attachment 13, Compensation, Appendix 13-A, P. 11, Table 4:

- S3 – Upper reaches will be filled, eliminating Groundwater Recharge/Discharge, Floodflow Alteration, and Wildlife Habitat functions. NRPA Application, Attachment 13, Appendix 13-A, 2.2.1, p. 12. Although natural stream function will be destroyed, landscaping on the remaining banks is considered "on-site compensation." Prefiled Testimony, Fiorillo, p. 8, #34.

- S5 - Upper reaches will be filled, eliminating Groundwater Recharge/Discharge, Floodflow Alteration, and Wildlife Habitat functions. NRPA Application, Attachment 13, Appendix 13-A, 2.2.1, p. 12. Although natural stream function will be destroyed, a new bridge is considered "on-site compensation." Pre-filed Testimony, Fiorillo, p. 8, #34.

- S6 - Upper reaches will be filled, eliminating Groundwater Recharge/Discharge, Floodflow Alteration, and Wildlife Habitat functions. (NRPA Application, Attachment 13, Appendix 13-A, 2.2.1, p. 12. Although natural stream function will be destroyed, a new bridge and revegetation is considered "on-site compensation." Prefiled Testimony, Fiorillo, p. 8, #34.

- S8- This is a culvert on the Eckrote private property.

- S9- The stream will be excavated during construction, altering its natural condition. NRPA Application, Attachment 13, Appendix 13-A, p. 12, 2.2.2. Based on surrounding topography, it must normally receive runoff from the west. All land to the west will be covered with buildings and drained by the stormwater system. *See* section 12, Stormwater Management, Appendix B, Post-Construction Stormwater Management. Water flow in the stream is likely to be severely compromised. This narrow, artificial swale is unlikely to carry as much water as it does now and is very close to 40'-high buildings. It's current value as a waterway, natural filter, and wildlife habitat and corridor will be severely reduced. Although its natural values will be severely compromised, NAF proposes to install landscaping around a 75' to 150'-wide corridor as a "riparian buffer." This "restoration" effort is considered "on-site compensation." Pre-filed Testimony, Fiorillo, p. 8, #34. S10 – This is the upper portion of S9.

Upon request from the DEP, three more streams were added. November 5, 2019, Nordic Response (Incl. Att. A-F), p. 17, Normandeau memo.[7] Given that so many of the wetlands and streams at the site will be destroyed or severely compromised, it makes it all the more a glaring omission in Nordic's application that it has not proposed buffer strips to adequately protect water bodies within or adjacent to the development from sedimentation and surface runoff.

II. Nordic's proposal to conserve a "corridor" within the shoreland zone around the Little River Trail is not adequate to provide space for movement of wildlife.

The regulations also provide that evidence should be presented to demonstrate whether buffer strips will provide adequate space for movement of wildlife between important habitats. 06-096 C.M.R. ch. 375, § 9 (B)(2). This site, taken as a whole, is a special and locally rare ecosystem. It provides essential habitat for migratory and overwintering birds; it is a transition zone from coastal wetlands and shoreland habitat to riverine, wetland, upland and reservoir habitat. Prefiled Testimony, Fiorillo, pp. 3-5, #8-15; SLODA Application, Section 05, App. 5-A, p. 9. This undeveloped connectivity from shoreline and intertidal habitats is extremely important in the area, as most all of the shoreland is developed. As a unique corridor between rural upland, reservoir #1, and the shore and intertidal zone of Penobscot Bay, this important wildlife habitat is used by several mammal species (Prefiled Testimony, Fiorillo, p. 5, #14) and wading birds (Fiorillo, p. 4, #13). The remaining "corridor" of 250' – 500' between the Little River and the reservoir and 40-foot-high building walls is not sufficient to support wildlife homes or movement.

The site contains hayfields (Prefiled Testimony, A. Fiorillo, p. 3, #8) and riverine habitat. Shoreland habitat provides Tidal Water/Wading Bird Habitat (TWWH) (Prefiled Testimony, A.

[7] Nordic significantly updated and upgraded wetland and stream assessments in response to DEP request. November 5, 2019, Nordic Response (Incl. Att. A-F) Compensation fees and the appropriateness of proposed on-site compensation should be carefully reassessed.

Fiorillo, p. 4, #12), and the Lower Reservoir provides Inland Waterfowl/Wading Bird Habitat (IWWH) (Prefiled Testimony, A. Fiorillo, p. 4, #13). Numerous streams and wetlands were identified by Nordic (NRPA Application, Attachment 9) with more added and designations upgraded in response to DEP inquiries. November 5, 2019, Nordic Response (includes Att. A-F), pp. 17-19, Normandeau Memo.

The strip of land that will remain as shoreland zoning setbacks around the Little River and the reservoir, and property setbacks, is not sufficient wildlife habitat by any measure. It is particularly inadequate to maintain valuable habitat connections between shoreland feeding area and upland habitat. The remaining strip represents a fragment of a former, complex habitat, and will degrade over time.

III. Nordic has not provided any buffer strips to shield the Little River Trail from unsightly developments.

Nordic has also failed to present any evidence that it plans to use adequate buffer strips to shield adjacent uses from unsightly developments and lighting. Buffer strips between the Little River trail and the west sides of buildings 1, 2, and 3 have not been assessed for visual buffering (1,200 ft. of trail assessed. SLODA application, Section 6, Visual Assessment Report, page 8, Findings) and are not sufficient to block views from the trail. (See SLODA Section 14, Scenic Character) Buffers on the Route 1 and Perkins Road are young trees that will not provide adequate buffering for years, and then only if they are properly maintained.

New planting intended to shield the development from Rt. 1 and Perkins Road consist of young trees no higher than 12'-14'. SLODA application, Civil Engineering Drawings, LP501, NRPA Application, Attachment 13, Appendix 13-A, pp. 25 – 26, Appendix B. It will be many years before these trees are large enough to provide shielding for 40-foot high buildings. Years of growth and rigorous maintenance, including appropriate pruning, disease and wildlife grazing

control, and replacement of dead and dying specimens will be essential before these planting will reach a functional size. Nordic's provisions for landscape management include only oversight of initial planting, and cursory monitoring of riparian buffers for "five years unless otherwise specified by a condition of approval issued by the MDEP." NRPA Application, Attachment 13, Appendix 13-A, p. 17, 6.0.

Applications for approval of proposed developments shall include evidence that affirmatively demonstrates that adequate provision of buffer strips, when appropriate, will be made, including information such as the following: the location and width of all natural buffer strips to be retained and legal provisions for the maintenance of all buffer strips and architectural screens. 06-096 C.M.R. ch. 375, § 9(D)(1), (3). However, no natural buffer strips will be retained. Stream 9 will be excavated and rebuilt to serve as drainage. Similarly, Nordic does not have a maintenance plan to assure long-term effectiveness of riparian or visual buffer plantings. There is no legal deed, description nor conservation easement as indicated to assure preservation of Stream 9.

While the Department may, as a term or condition of approval, establish any reasonable requirement to ensure that the developer has made adequate provision for the establishment of buffer strips *see* 06-096 C.M.R. ch. 375, § 9(E), imposing terms and conditions would be largely ineffective due to extensive development of the site that entails removal of all natural water quality, wildlife habitat, and visual qualities. Artificial landscaping is inadequate to visually screen a development of this size in a residential and farming area of a small, seacoast town. Therefore, as Nordic has failed to make an adequate provision for buffer strips in accordance with the regulations, a permit cannot be lawfully granted.

F. Nordic's SLODA Application Should Be Denied Because Its Project Will Have an Unreasonable Effect on Scenic Character.

The regulations acknowledge that "[t]he Department considers scenic character to be one of Maine's most important assets . . . visual surroundings strongly influence people's behavior." 06-096 C.M.R. ch. 375, § 14 (A). Therefore, when determining whether the proposed development will have an unreasonable adverse effect on the scenic character of the surrounding area, the Department shall consider whether "(1) [t]he design of the proposed development takes into account the scenic character of the surrounding area; (2) [a] development which is not in keeping with the surrounding scenic character will be located, designed and landscaped to minimize its visual impact to the fullest extent possible.; and (3) [s]tructures will be designed and landscaped to minimize their visual impact on the surrounding area." *Id.* § 14 (B)(1)-(3).

I. Nordic's design of the proposed development fails to take into account the scenic character of the surrounding area.

Nordic's design of the proposed development fails to take into account the scenic character of the surrounding area. and will destroy the exceptionally beautiful entry/exit point to Belfast along Route 1, destroy the aesthetic and recreational value of the Little River Trail and spoil the traditional residential and farming character of the area. At the request of Nordic Aquafarms, Belfast changed the zoning designation of the site specifically for this development. Tr. 2/13/20 205:21-24 (Lannan). The existing character - modest, traditional homes and farmland - is consistent with the previous residential zoning. The only non-retail commercial buildings in the area are the two low, modestly appointed buildings of Mathews Brothers that blend nicely into the surrounding farms. Those two buildings together are less than half the footprint of just one of the Nordic grow-out buildings. SLODA Application, Section 05, App. 5-A, p. 9.

The development site is at the entry point of Rt. 1 into the City of Belfast. SLODA Application, Sect. 01, Sect.1, text, p.18. To the east, the mouth of the Little River expands into Penobscot Bay; to the west, the historic, 1800s brick pumphouse stands above the waterfall of the lower dam. Prefiled Testimony, Bryden, p. 2. This exceptionally lovely scene along Route 1 provides a beautiful and welcoming introduction to Belfast for residents and visitors. The Little River Trail, cherished by the Belfast Community as a picturesque and peaceful retreat within the city, skirts half of the perimeter on the south and west sides of the development site. Tr. 2/11/20 34:9-19 (Public, Cutting), 65:10 (Merkel), 75:21-23 (Piper).

The rural character of the area to the north is exemplified by an aerial-view painting that hangs in the Metropolitan Museum of Art in New York City, "Little River Farm" (now Good Karma Farm, on Perkins Road), by Yvonne Jacquette, 1979[8].

The Bayside Historic District, in the Town of Northport, visited on the Department site visit of October 24, 2019, lies less than 1 ½ miles south of the facility site. Listed in the National Register of Historic Places, this remains an active summer community, a place cherished by multiple generations of families and benefitting from an active rental market. The village beach and pier are crowded in summer with boaters, swimmers, and recreational fishermen of all ages. Nordic's wastewater discharge point is located less than ¾ mile north of the Edna Drinkwater Elementary School waterfront (the only public school in Maine with its own beach), and less than 1 ½ miles from the village pier and beach. SLODA Application, Sect. 01, Sect.1, text, p.18.

Any submission pursuant to this section of SLODA should include, but is not limited to, sketches of the proposed development indicating how the development fits into the scenic character of the area. 06-096 C.M.R. ch. 375, § 14(C)(1). Nordic has not submitted any

[8] https://www.metmuseum.org/art/collection/search/482511 (last visited Apr. 29, 2020)

sketches or photographs to show how the development fits into the scenic character of the area, and no drawings have been submitted to illustrate the architectural style of the buildings.

II. This huge development will have an unreasonable visual impact in this suburban/rural location.

Nordic viewpoint locations used to evaluate visual impact of the project from the public Little River Trail were located only along the first 1,200 feet of the trail. SLODA application, Section 6, Visual Assessment Report, page 8, Findings. This short section, less than one-quarter of the mile-long trail between the Belfast Water District and Perkins Road trailheads, is exceptionally distant from and downhill on uneven topography from the development site and not representative of the trail as a whole. *See* SLODA Application, Engineering Drawing C-102). The remainder of the trail, a section that presents hikers with a sense of remoteness as they pass between mature woods and a pond-like section of the river at the most distant area from roads, would be far more exposed to the proposed building. Exhibit 14-1, NRPA Application, Attachment 5, Plans, App. 5-A, Map, overlay Prefiled Testimony, E. Ransom, Add. A, p. 36, App. 2-C, Site Plan. Two points along trail indicated.

Nordic states that this area will experience "no unreasonable adverse impact to public viewing areas as they are adequately buffered by existing and maturing vegetation and, because they are under public ownership in perpetuity, the vegetation will remain and only increase in buffering effectiveness." SLODA Application, Section 6, Text, p. 2, final paragraph. In fact, public ownership/conservation implies a lack of vegetation management, and as the forest matures there will be less foliage at lower levels and increasing lines of sight to the buildings.

Nordic assessed visibility towards the buildings at one viewpoint. "Overall, the density of the vegetation quickly occludes views to objects more than approximately 100 feet distant. To illustrate this, a photo was taken approximately 200 feet in from the parking area looking upslope.

A safety-green vest was hung from a tree at approximately 100 feet from the shoreline. This was the farthest point beyond which the vest could not be seen." SLODA Application, Section 6, Visual Assessment Report, at 8, Findings (*see* last page of this document). In fact the visibility, especially in a photograph, of a green vest hung in a green forest within reach of the ground is far from representative of the visibility of building walls that are over 1,000 feet long and 40 feet high, with 65-foot high smokestacks.

Any submission pursuant to this section of SLODA should include but is not limited to landscaping plans for minimizing the visual impact of the parking lots, mining operations and other types of developments. 06-096 C.M.R. ch. 375, § 14(C)(2) Landscaping plans that address visual impacts of the development on the Little River Trail do not exist. Long-term maintenance plan for landscaping that provides effective screening year-round must be completed by a landscape architect in the State of Maine.

III. Nordic has failed to demonstrate structures will be designed and landscaped to minimize their visual impact on the surrounding area.

With nine buildings, two of which are each over 336,600 square feet, (SLODA Application Sect. 01, Description, Sect. 1, Text, p. 3) with 40-foot walls (Tr. 290:18-21 (M. Lannan)) and 65-foot air-emissions stacks, the development will not be in keeping with the surrounding area. Buildings, roads, and other artificial structures and surfaces will cover nearly all of the building site (Exhibit 14-1, NRPA Application, Attachment 13, Compensation, p. 10, Belfast Aquaculture Project Wetland Impact Mapping). Landscaping is far from extensive (SLODA Application, Section 01, Sect. 1, Text, P. 21, Overall Site Plan AP001, Trees represented by small circles). The development will visually dominate the area, and there is little space left for plantings that could minimize visual impact.

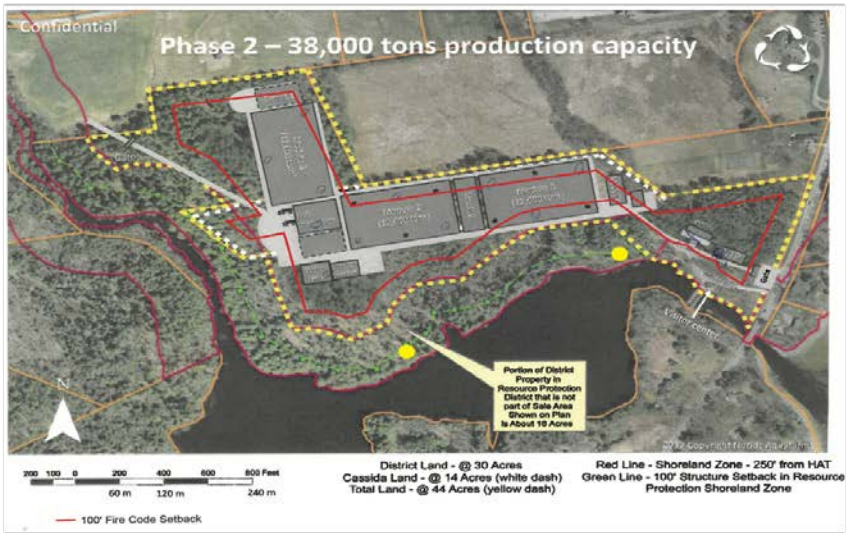
Impact on the village of Bayside could result from the wastewater effluent plume. The wastewater plume, with pollutants expected to concentrate to the south (Prefiled Testimony, N. Dill, p. 31, (p. 8, Oct. 2 Memo)), will be a permanent feature along the Northport shore. Degraded water quality could encourage algal growth and effect marine fauna, seriously compromising the scenic, recreational, and aesthetic appeal of the village. *See* Comments, SLODA 15, Wildlife & Fish. Wastewater effluent from the development will diminish visual and recreational values of the historic community of Bayside and reduce real estate values.

Nordic has presented no architectural drawings to indicate that there is any effort to match facades to existing surroundings. Nordic has not provided adequate buffer strips to shield Route 1 or Perkins Road from unsightly developments. *See* Commentary, SLODA 9, Buffer Strips, B, Scope, 3, Shielding. Landscaping trees are proposed to be 12 ft. or less. Application engineering drawing 065-LP 501. It will take at least 5-10 years before they provide any screening effect for 40-foot-high buildings. Deciduous trees will provide no screening for six months of the year. The aesthetic and recreational value of the Little River Trail will be destroyed. *See* Visibility from Public Areas, above. No plantings are proposed between the buildings and the trail (SLODA Application, Section 01, Sect. 1, Text, p. 21, Overall Site Plan AP001) and the understory of unmanaged woodlands will not provide visual buffers.

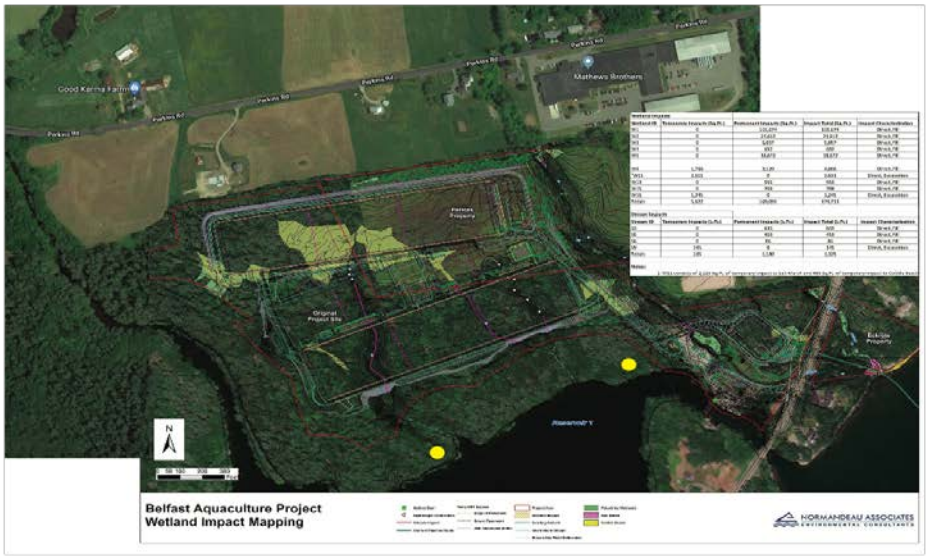
Therefore, Nordic's application should be denied as it has presented not affirmative evidence of any effort to ensure that design of the proposed development takes into account the scenic character of the surrounding area; and to the extent it does not, that it has taken no measures to mitigate and minimize the visual impact of the development and, more specifically, the structures that will be built on the site.

G. Nordic's Project Fails to Protect Wildlife and Fisheries

The Department recognizes the need to protect wildlife and fisheries by maintaining suitable and sufficient habitat and the susceptibility of certain species to disruption and interference of lifecycles by construction activities.



The top map *(p. 36 of pre-filed Direct Testimony of Elizabeth M. Ransom 12/11/2019 Addendum A and Exhibits 6&7)* shows the Little River hiking trail with a green dashed line. The bottom map *(Natural Resources Impact Compensation Plan by Normandeau Associates Inc., App 5-A Impact Map)* is of the same scale. Sally Brophy, a professional graphic designer, used Nordic's maps submitted into the record, and distance measuring software to place yellow circles at 200 feet from the parking lot and 1,200 feet along the hiking trail - clearly showing that the furthest point at the bottom of a sloping landscape was used in the Nordic visibility studies. This is not representative of the trail visibility as a whole.



I. Maintaining a Suitable and Sufficient Habitat:

a. MARINE ENVIRONMENT

Discharge Plume: Nordic Aquafarms fails to address the permanent, ongoing effect on marine wildlife of the discharge plume that differs thermally, chemically, and possibly biologically from natural conditions. Rebuttal Testimony, R. Podolsky, pp. 3-6, points 4-6.

While the size and location of the discharge "plume" is contested, the effluent will permanently affect water conditions within some distance from the outfall. Prefiled Testimony, N. Dill, Exhibit 23, Figure 1 (depicts dilution for 2 days); *see also* Tr. 2/12/20 60:1–61:10 (Dill/Pettigrew discussion)(accuracy of modeling).

"This is a permanent change to the environment so understanding the plume dynamics and existing conditions in the receiving water is critical to evaluate any project-related changes in the water column in near-field communities and to evaluate the environmental consequences of the project." Tr. 2/14/20 154:18 (Aveni-Deforge).

Conditions of the "plume" will differ from natural conditions in several ways:

i. **Temperature***:*

The temperature of the effluent water at the depth of discharge will always be warmer (by 5 to 28 degrees) than existing conditions, and it will differ from existing surface water by up to 32 degrees warmer to possibly cooler for a short time in the summer. Tr. , 2/13/20 318:17 (E. Cotter). Warmer water is preferred by some species, including lobster. Tr. 2/13/20 32:8, Tr. 02/14/20 50:22–51:1 (T. Parent). Higher temperatures are harmful to some species ("…temperatures above the physiological range of a fish species triggers a stress response that can negatively impact immune function…", Written Testimony, B. Dixon, Exhibit B-1, Impacts of Low Temperature on the Teleost Immune System, p. 18, Introduction).

ii. Salinity*:*

Effluent will consist of a mix of bay water and freshwater, thus will be less saline than the receiving bay waters. The effluent salinity level will be more attractive to some species, including lobster, than existing conditions. Tr. 2/13/20 32:5, 34:7.

Nordic's warm, less saline wastewater effluent has the potential of attracting fish to potentially harmful conditions.

iii. Pollutant Concentrations:

Wastewater treatment is projected to remove 99% of most nutrients and 85% of nitrogen. Treatment systems are unproven at these levels (MEPDES Permit Application, p. 78, Question 18, Attachment 10), and, in the case of 99% removal efficiency, a reduction of just 1% (99% reduced to 98%, for example) efficiency would double nutrient discharge levels. Efficiency diminution of 10%, even for a short time, would result in a dramatic and unmodeled impact to the bay and all that is in it. When the plant is operating at full capacity and at full projected efficiency, discharge will include on average:

- Nitrogen, 673 kg (1,484 lbs) per day
- Phosphorus, 5.8 kg (13 lbs) per day
- Formalin/Formaldehyde, periodic use, estimated 3,500 liters (925 gal.) per year (MEPDES Form 2D, P. 3&4, pp. 206-207. 238)
- Various cleaners and medications, periodic use (MEPDES application, Questions #10 & 11, Attachment 3, pp. 216/238)

Some of these chemicals are likely to occur in different forms or compounds in the wastewater than are found naturally in the bay.

iv. Nutritive Value:

The effluent is likely to contain fewer Total Suspended Solids than existing conditions (Tr. 2/13/20 406:11-407:2 (E. Cotter)), indicating fewer feed particles, those particles would be no larger than .04 micron and most would be dead after passing through the effluent treatment system. Natural food sources, including plankton, will be removed from the area by intake filters. NORDIC has not performed adequate studies to quantify this effect. "The screen itself is proposed to be a 1-inch slot size wedge wire mesh, which will be too large to reduce the intake of larval and egg life stages. As mentioned for finfish the significance of this impact cannot be accurately quantified at this time, as no ichthyoplankton data were collected for this project." Prefiled Testimony, T. Parent, p. 8, #21.

v. Diseases:

The facility effluent will contain viruses. The species and concentrations are disputed, especially since water treatment methods are new and largely untested, but there will be some escaping contagions. Tr. 2/13/20 384:2-22 (Bicknell)("there is no way to totally eliminate those risks."). Viruses are too small to be removed by filters (Tr. 2/13/20 384:1-6 (Bicknell)), and may escape UV treatment due to screening by suspended solids: "However, UV irradiation may not work in situations where turbid water (and associated poor UV transmittance) may be encountered." (Written Testimony, B. Dixon, Exhibit F1, Ozonation and UV irradiation/an introduction and examples of current applications, Page 60, Concluding Remarks).

Nordic does not address the effects of the plume anomaly on wildlife:

The effect of the project on wildlife is discussed in the SLODA Application, section 07, Wildlife & Fisheries, Natural Resources Report and Prefiled Testimony of T. Parent.

Nordic notes several species of concern: American eel (Anguilla rostrata), alewife (Alosa pseudoharengus), blueback herring (Alosa aestivalis), winter flounder (Pseudopleuronectes americanus), rainbow smelt (Osmerus mordax), Atlantic salmon (Salmo salar), Atlantic sturgeon (Acipenser oxyrinchus oxyrinchus), and short-nose sturgeon (Acipenser brevirostrum). Scallops, blue mussels, and softshell clams are also addressed. Evaluation of disruption of marine organisms focuses only on the pipeline route (disturbance during construction), intake pipe opening (capture in filters), and discharge location (primarily water movement), ignoring water quality. Prefiled Testimony of T. Parent, p. 3, #10 – p. 9, #24.

- Nordic failed to consider the effects of the plume with temperature and salinity that could attract some organisms to unusual, suboptimal conditions while exposing them to non-native viruses and possibly suboptimal feeding conditions.

- Nordic failed to study the response of sessile and burrowing organisms to the unnatural water quality in the plume.

- Nordic failed to perform adequate surveys of water movement and existing water quality to assess the scope of altered water conditions that will affect marine wildlife.

- Nordic failed to conduct an adequate survey to identify marine species using this area. Evaluation of the marine habitat was based on "a literature review," and a one-time survey "conducted by towing a diver and a camera along the proposed pipeline route." Application, SLODA section 07, Wildlife & Fisheries, Natural Resources Report, p. 12, 4.0, Fisheries Methods. Mobile organisms would have dispersed due to the disturbance, and subsurface organisms would not be visible.

- Nordic fails to demonstrate that it will meet the DEP 2018 criteria for wastewater discharge. "The water body is Marine Class SB." Rebuttal Testimony, T. Parent, p. 2, #6. In these waters "Discharges may not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all indigenous and estuarine marine species without detrimental changes in the resident biological community." Rebuttal Testimony, T. Parent, p. 4, Nordic Exhibit 37.

vi. Blasting & Dredging:

Nordic fails to address the effects of blasting and dredging on sessile marine organisms.

Nordic states that scallops, blue mussels, and softshell clams will be able to modify their behavior to temporarily endure the change in water conditions until their area of residence is no longer part of the active construction zone. Prefiled Testimony, T. Parent, p. 8, #20. Behavior modification is not a life-saving response to excavation of habitat and backfill with stone. Tr. 2/12/20 123:16–125:2 (L. Walsh)(describing excavation method.

Nordic did no study to determine if, when, or which organisms are likely to re-inhabit the disturbed area.

vii. Nordic failed to test for mercury along the dredge route for the intake and discharge pipes, and evaluate effects of released mercury on marine organisms:

Nordic submitted only two core samples for chemical analysis, cores #A6/7 and #B3. Neither of these samples is located on the pipeline route. *See* Fig. 18-1. Analysis was focused on suitability of dredged materials for solid waste disposal. The samples are depth composites. Core #A6/7 combined sediments from 2 cores, one from the surface to a depth of 1 foot, and one to a depth of 3' 9". Core #B3 combined sediments to a depth of 6' 5". Prefiled Testimony, E. Ransom, p. 43/48, Exhibit 7, 18.0, Solid Waste, 18.1.1, Sediment Composition pages 1 &2 (EPA letter of 3/6).

Mercury content of core #A6/7 is less than 103 nanograms/gram. Mercury content of core #B3 is 267 nanograms per gram. Prefiled Testimony, E. Ransom, p. 43/48, Exhibit 7, 18.0, Solid Waste, 18.1.1, Sediment Composition, Table 18-3. Background level of mercury in this area is estimated to be 51 – 55 nanograms/gram. Prefiled Testimony, E. Ransom, p. 43/48, Exhibit 7, 18.0, Solid Waste, 18.1.1, Sediment, P. 4, paragraph 2.

Local citizens are concerned that dredging could release additional mercury into Penobscot Bay, contaminating fish and shellfish that are highly valued by recreational fishermen

and other consumers. Tr. 2/11/20 38:12–20 (Public Testimony, J. Murphy). Commercial fishermen are especially concerned that release of additional mercury just 6 miles south of waters that are closed to lobster and crab fishing due to HoltraChem mercury contamination would devastate their local fishing grounds, their livelihoods, and the prospects of young fishermen. Tr. 2/12/20 358:9-17 and 361:6–14 (D. Black).

The core samples tested by Nordic indicate that: (1) Mercury levels in the sediment to be disturbed are likely to be considerably higher than background levels; and (2) Mercury levels vary considerably from one spot to another within the project area.

In summary, Nordic has failed to analyze the potential effect of releasing buried mercury on (1) marine organisms, including finfish and shellfish, (2) commercial fisheries and (3) recreational fisheries.

b. WOODLAND ENVIRONMENT

This site, taken as a whole, is a special and locally rare ecosystem. It provides essential habitat for overwintering, migratory, and breeding birds and mammals and provides wildlife corridors between diverse habitats. This connectivity from upland to shoreline and intertidal habitats is extremely important in this area, where most of the shoreland is developed.
The site contains over 50 acres of mature, carbon sequestering woodlands, hayfields (Prefiled Testimony, A. Fiorillo, p. 3, #8) and riverine habitat. Shoreland habitat provides Tidal Water/Wading Bird Habitat (TWWH) (Prefiled Testimony, A. Fiorillo, p. 4, #12), and the Lower Reservoir provides Inland Waterfowl/Wading Bird Habitat (IWWH) (Prefiled Testimony, A. Fiorillo, p. 4, #13). There are 19 wetlands, including freshwater Wetlands of Special Significance, and streams of NRPA significance under the Natural Resources Protection Act (NRPA)." NRPA Application, Attachment 9, p.1, bottom; NRPA Application, Attachment 9, p.

6, Table 9-2; Numbers and designations were updated in response to DEP request in November 5, 2019-Nordic Response (includes Att. A-F), Normandeau, p. 17-19.

Virtually all wetlands and streams would be eliminated (*see* Commentary, SLODA 9, Buffer Strips), along with the maturing, carbon-sequestering forest, meadowlands and soils that also provide essential habitat for birds, bats, and numerous other species.

Proposed buildings, roads and walkways would cover the site except for a strip along the Little River and the Lower Reservoir of approximately 250 – 500 feet. There is a severely constricted "corridor" between existing building 10, the proposed fishpond viewing area, and Building 8, the water treatment plant.

This project does not preserve sufficient habitat to sustain existing on-site wildlife. This project eliminates corridors and connectivity essential to wildlife as they move between saltwater, freshwater, forest, wetlands, and open fields. Cumulative impacts to multiple habitat types will be significant.

"I was surprised that the lack of sufficient biological surveys coupled with a failure to analyze all permanent impacts were not discussed in the Pre-Filed Direct Testimonies referenced here. Rarely, have I seen such a client-centric disposition and approach to a Natural Resource Report. These deficiencies are particularly concerning given the fact that the project will have profound and permanent impacts to uplands, wetlands, inter and subtidal and water column habitats and to the biological food chains upon which so many species, including human livelihoods, depend." Rebuttal Testimony, R. Podolsky, p. 6.

II. Disruption of Lifecycles by Construction Activity

a. MARINE ENVIRONMENT

Pipeline construction will entail excavation, including blasting, and refill. Sessile and burrowing organisms will be disrupted at all lifecycles.

b. WOODLAND ENVIRONMENT

Destruction of the woodland, meadowland and wetland habitats has the potential to significantly impact the lifecycles of resident, overwintering and migratory species, especially birds, but also mammals and amphibians. Nordic has failed to provide any information concerning noise and light pollution that are hazardous to wildlife.

Nordic has failed to conduct sufficient on-site surveys to determine what animals would be impacted.

Successful migration to similar habitat is unlikely due to the lack of comparable combinations of riverine, woodland, meadowland and shoreland habitat in the area. Most species are already experiencing general and habitat loss and degradation. Remaining habitat is already occupied; there is no room for immigrants.

III. Scope of Review.

In determining whether Nordic has made adequate provision for the protection of wildlife and fisheries, the Department shall consider all relevant evidence to that effect, such as evidence that a buffer strip of sufficient area will be established to provide wildlife with travel lanes between areas of available habitat. Other areas of concern include:

a. MARINE ENVIRONMENT

Nordic has failed to demonstrate that the discharge plume and discharge current will not disrupt migratory movement of catadromous and anadromous fish into the Little River or to other locations. The Prefiled Testimony of T. Parent discusses the life cycles and some potential threats to several species of migratory finfish. Nordic gave no consideration of potential effects of plume velocity or water quality on fish behavior or "travel lanes" used for migration.

b. WOODLAND/WETLAND ENVIRONMENT

The strip of land that will remain, essentially the shoreland zone and property set-backs, represents a meaningless fragment of the former, complex habitat.

Nordic has failed to provide adequate buffer strips to serve as connectivity, or "travel lanes" for wildlife.

Wetland remediation and stream remediation will not adequately compensate for permanent elimination of habitat, and habitat connectivity. Please refer to Commentary, SLODA Buffers, B, Scope of Review, #2.

c. Proposed alterations and project activities will adversely affect wildlife and fisheries lifecycles.

This huge facility, with 20 acres of buildings, most with 40-foot high walls, discharging 7.7 million gallons of fish-production wastewater into Penobscot Bay every day, will clearly have an adverse effect on upland wildlife and marine wildlife and fisheries lifecycles.

Nordic has failed to consider how pipeline construction will entail excavation, including blasting, and refill. Sessile and burrowing organisms will be disrupted at all lifecycles. See A, 1, Marine Environment, b, Effects of Blasting and Dredging, above.

According to T. Parent, Prefiled Testimony, p. 8-9, #22-23, "Three in-water activities may result in elevated underwater sound pressure during construction; 1) drilling, 2) hydraulic rock breaker (hoe ram) and 3) blasting. Manmade underwater noise has the potential to cause

behavioral disturbances, hearing impairment or threshold shifts, physical injury, or mortality to marine organisms. When a fish with a swim bladder is exposed to a sound wave, gas in their swim bladder expands and contracts more than the surrounding tissue during the periods of under pressure and overpressure, respectively. This can cause the swim bladder to oscillate resulting in tissue damage and possibly rupture. Hearing loss in a fish is likely to result in reduced fitness from decreased ability to detect and avoid predators, locate prey, communicate with peers, or sense physical environment." "Soft-start" of equipment is intended to mitigate this effect. Increased turbidity will result from pipeline construction activities."

Nordic has conducted no research or study of the potential effects of construction activity on behavior and success rates of migrating fish. Nordic has failed to adequately test mercury levels in marine sediments along the pipeline disturbance route.

Nordic has failed to demonstrate that the discharge plume and current will not disrupt migratory movement of anadromous fish. See B 1, above. Nordic has failed to address possible impact of the discharge plume on the mussel farm located approximately 2 miles south-southeast of the outfall, in the direction of plume travel, according to modeling by N. Dill. Prefiled Testimony, N. Dill, p. 31. Nordic has failed to analyze ongoing effects of disturbing marine sediments containing mercury in unknown concentrations.

Nordic will extensively excavate approximately 20 acres of woodland, wetland and meadow for construction of buildings, and intensively develop the 57-acre site. All habitat will be destroyed. Animals will avoid construction noise and activity. The construction schedule has not been determined, but lifecycle stages will be disrupted regardless of the season, contributing to loss of habitat of concern.

The 57-acre site will be reduced to a fragmented habitat that will restrict the presence of specialist species that require conditions which currently occur on the site. *See* Maintaining Habitat, 2, Woods Environment above and Commentary, SLODA Buffers, B, Scope of Review, #2.

Nordic has not conducted a study of deer wintering areas.

d. Nordic does demonstrate Protection of Habitat of any species declared threatened or endangered by the Commissioner, Maine Department of Inland Fisheries and Wildlife or the Director of the U.S. Fish and Wildlife Service.

There are multiple species present at the project site that are protected species, which Nordic fails to demonstrate will be protected.

Finfish:

According to Nordic (Prefiled Testimony of T. Parent, p. 4):

> "14. The Atlantic salmon is an anadromous species which is native to the Gulf of Maine. The Gulf of Maine Distinct Population Segment (DPS) was first listed as Endangered in December of 2000, and subsequently reaffirmed as endangered in 2009. The Gulf of Maine, and more specifically the Penobscot River, provides habitat to one of the only remaining viable runs of wild Atlantic salmon. Despite management efforts, stocks have continued to decline since the species was federally listed.
>
> 15. Short-nosed sturgeon, "Listed as endangered in 1967…
>
> 16. The Atlantic sturgeon is currently federally listed as threatened in the Gulf of Maine distinct population segment. In the rest of their range which extends down to Florida, they are listed as endangered. The threatened listing for the Gulf of Maine indicates that the Atlantic sturgeon is at significant risk of becoming endangered in the next 20 years."

Atlantic Salmon:

According to Nordic,

> "Juveniles are documented to use Belfast Bay, as a western corridor of Penobscot Bay to get from their natal waters within the Penobscot River to the ocean. This would only be true of the smolt portion of the juvenile life stage as the other stages remain exclusively in freshwater. Although smolts are known to venture past the project area during emigration, they are almost entirely surface oriented, which would prevent them from ever being in the vicinity of the intake and discharge of the proposed project, as these

> structures will be fixed to the seafloor. Adults use the entirety of Penobscot Bay, including the project area of Belfast Bay when they travel back to the Penobscot River on their way to spawning habitat. However, adults are not resident in the Belfast Bay. Although adults are not as surface oriented as smolts, a healthy salmon on its way to spawning ground will have more than enough burst speed to make it virtually impossible to be affected by an intake with a through-screen velocity of less than 0.5 ft/sec. Atlantic Salmon will only use the project area as a potential path on a migratory route. They will not use the project area for spawning, nursery, forage, or shelter, so impacts to this species are expected to be insignificant to nonexistent."

Prefiled Testimony, T. Parent, p. 5, #14.

In fact, Salmon returned to the Penobscot River in record numbers in 2019. Active and expensive efforts are under way by Maine and federal entities to revive the Penobscot River populations that migrate through the impacted portion of Penobscot Bay. The discharge plume would affect surface waters. Juvenile and adult fish would be exposed to the discharge plume.

Nordic's wastewater treatment will not eliminate all viruses. There will be some escaping contagions. Tr. 2/13/20 384:2-22 (I. Bicknell)("there is no way to totally eliminate those risks."); *see also* Comments, MEPDES, p. 6.

Viruses with minimal effects on optimally managed, farmed fish could be devastating to struggling wild populations: "[G]laringly absent from #14 [T. Parent Prefiled Testimony] is a discussion of the fact that Atlantic salmon who come into contact with Nordic discharge waters might reasonably be exposed to biological agents, such as fish-borne diseases, not removed by Nordic's Effluent/Wastewater treatment technology. Any Atlantic salmon so exposed might become vectors for diseases at a time when this imperiled population is in a vulnerable, rebuilding phase." Rebuttal Testimony, R. Podolsky, p. 5.

Nordic wastewater will contain viruses that could infect and devastate wild Atlantic salmon populations. Salmon eggs will be purchased from outside sources and can introduce pathogens, especially non-native viruses, to the system. Young fish also carry pathogens. Eggs purchased from distant locations are frequently infected with pathogens that do not occur

naturally in local waters. For example, eggs purchased from a major Icelandic distributor have repeatedly been found to be infected with viruses, and their use in aquaculture operations has introduced foreign viruses to ocean waters where they did not exist before. Tr. 2/14/20 164:14–165:5 (B. Bryden).

The Williamsburg Treaty, signed by the United States, applies to Atlantic salmon and is designed to prevent pathogens from traveling between regions. Tr. 2/14/20 164:7-14 (B. Bryden). Nordic has stated that they will not import non-native fish. Tr. 2/13/20 342:25-343:1 (I. Bricknell). In accordance with The Williamsburg Treaty, Nordic should be prohibited from introducing any fish that are not Maine-raised into their system and Nordic should be prohibited from introducing any eggs that are not Maine-raised into their system.

All listed species:

· Nordic failed to research or study the potential effect of the possibly attractive, unnatural thermal and chemical qualities of the discharge plume on listed juvenile or adult Atlantic salmon, foraging or migrating short-nosed sturgeon, or migrating subadult or adult Atlantic sturgeon, all of which they note are potentially present.

· Nordic failed to research or study potential effects of unnatural virus populations in the plume on vulnerable wild populations of listed finfish species, especially Atlantic salmon.

· Nordic failed to research or study the potential effect of unnatural currents and salinity in the area of saltwater intake and discharge on migration behavior of listed Atlantic salmon, Atlantic sturgeon, or short-nosed sturgeon.

· Nordic failed to demonstrate that this project will not unreasonably disturb the valuable habitat in this area of three species; Atlantic salmon (endangered), short-nosed sturgeon (endangered), and Atlantic sturgeon (threatened, likely to become endangered).

e. UPLAND ENVIRONMENT

Nordic fails to demonstrate that its project will not degrade the upland environment.

Nordic failed to survey the species present in the upland areas of the project,including:

Birds:

"Of the 19 water bird species with a high likelihood of using the TWWH associated with the intake and outfall pipes, based on e-bird records, three are listed as SC (greater scaup, lesser yellowlegs, semipalmated plover), and four additional species are designated as SGCNs (common eider, least sandpiper, long-tailed duck, semipalmated sandpiper)." A. Fiorillo, Prefiled Testimony, p. 4, #11.

"Though I am not an advocate for solely relying upon online data sets such a e-Bird, when such sources point to not fewer than 21 species of birds being either Special Concern or Species of Greatest Conservation Need, responsible parties simply must conclude that multi-season, field surveys are justified, and set about to get this important data." R. Podolsky, Rebuttal Testimony, bottom of p. 2.

"10. Birds – A project-specific avian survey was not conducted…." A. Fiorillo, Prefiled Testimony, p. 4.

Nordic failed to conduct on-site bird surveys in the estuarine shore and intertidal zones affected by the project. It cannot be known if any listed bird species use this area.

Bats:

According to Nordic, "15. All of Maine's eight bat species are listed, and based on known distribution and the habitat available, all have some potential to be present during the summer. The forest cover on-site provides ample summer roosting habitat for the foliage-roosting species (eastern red, hoary, and silver-haired bat, all listed as SC) as well as the northern long-eared bat (State Endangered SE, Federally Threatened FT), which roosts under loose bark and tree trunk crevices and hollows. Structures on-site and nearby provide potential summer roosting habitat for little brown bats (SE) and big brown bats (SC), and forest edges and the nearby reservoir provide suitable feeding areas for all these species as well as the eastern small-

footed bat (State Threatened ST). No other listed mammals are expected to be present. Tree removal in winter will avoid any impact to bat species." Prefiled Testimony, A. Fiorillo, p. 5. In fact:

Tree removal in winter will remove suitable roosting habitat for returning migratory bats. Similar habitat is limited nearby and likely to be fully utilized by previous resident populations.

Nordic did not conduct on-site bat surveys at any time of year despite noting probable presence of listed species. Year-round, including winter, use of the area by bats has not been studied.

Tree removal will displace any existing bat populations, whether resident year-round or part-year.

(c) Seabird nesting islands;

(d) Significant vernal pools;

Nordic failed to survey for vernal pools at an appropriate time of year.

(e) High and moderate value waterfowl and wading bird habitat.

According to Nordic, "12. Tidal Waterfowl and Wading Bird Habitat –Designated TWWH will be temporarily impacted during the construction of the area to be trenched and the installation of the intake and outfall pipes. This impact area is located in larger intertidal area that extends roughly from the mouth of the Little River southwards for about ¾ of a mile to Browns Head, a Point on the Northport, ME shoreline, covering over 4 million square feet. The value of TWWH is associated with feeding habitat that it provides for waterfowl and wading bird species, generally intertidal mudflats, eelgrass and mussel beds where they can forage for aquatic invertebrates. The intertidal area that will be impacted by the project has a cobbly and firm

substrate and does not support any mussels, eelgrass, or shellfish beds." Prefiled Testimony, A. Fiorillo, p. 5.

In fact, Nordic's representative acknowledged that shellfish are present: [Duchesne] "I think it says in the testimony and what you just said there are no known mussel beds there, when we did the site visit there was a flock of 50 common eiders out there right at the entrance of the Little River. Their primary food is mussels. So can you qualify a little bit more how you know there are no mussels in the area at least in that section? …

Tylor Parent: We're not claiming that the site is completely free of mussels, however, it is not going to have a fisheries impact." T. 2/12/20 284:12-23 (Duchesne/Parent).

Nordic failed to conduct year-round on-site bird surveys in the estuarine shore and intertidal zones affected by the project. Nordic failed to conduct meaningful surveys of intertidal and subtidal sessile and subsurface organisms that might serve as food sources for birds. Nordic failed to study the response of sessile and burrowing organisms to the unnatural water quality in the plume. Nordic did no study to determine if, when, or which organisms are likely to re-inhabit the intertidal and subtidal areas disturbed by pipeline construction. Nordic failed to study the potential effect of single-point stormwater discharge to the Little River below the dam. *See* Prefiled Testimony of M. McGlone, 6. Diversion of Upgradient Runoff, and Commentary, Ch. 587, Drainways, A, Scope, 1, Water Courses.

f. Shorebird nesting, feeding, and staging areas.

Nordic failed to conduct adequate bird surveys. Nordic failed to evaluate the effect of altered nutritional value of discharge water on shorebirds. Nordic failed to consider the effect of altered temperature and chemical qualities of discharge water on shorebirds.

Applications for approval of proposed developments shall include evidence that affirmatively demonstrates that the developer has made adequate provision for the protection of wildlife and fisheries, including information such as the following, when appropriate:

(1) The location of natural buffer strips and adequate provision for their maintenance.

Nordic fails to provide meaningful buffer strips to allow for marine or upland wildlife movement. See B, Scope of Review, 1, Buffer strips, above. Nordic fails to provide any plan for landscape maintenance. *See* Commentary, SLODA Section 9, Buffers, B, Scope, 3, Buffer Strips.

(2) Plans to mitigate adverse effects on wildlife and fisheries through means that at a minimum include, but are not limited to, design considerations (#1), pollution-abatement practices (#2), the timing of construction activities (#3), and on-site (#4) or off-site (#5) habitat improvements or preservation (#6).

1. Design considerations are not adequate to mitigate adverse effects on upland wildlife since the entire site will be developed. *See* A, Preamble, Maintaining Suitable Environment, 2, Woods Environment.

2. Wastewater treatment systems do not adequately mitigate effects of thermal, chemical or biological pollution of Penobscot Bay waters. *See* comments on MEPDES application and A, Preamble, Maintaining Suitable Environment, 1, Marine, a. Discharge Plume, above.

Technologies allowing zero-effluent, or Closed RAS systems that would eliminate wastewater discharge to the bay are available. NORDIC has refused to consider this approach. *See* MEPDES comments, P. 2, II, Best Available Technology.

3. Timing of construction activities is not adequate to protect bats. A. Fiorillo states that “Tree removal in winter will avoid any impact to bat species.” This precaution is not

adequate to preserve resident bat populations. *See above*, B, Scope of Review, 3, Disturbance, b. Habitat, 2, Woodlands, a. Bats.

Nordic has failed to conduct surveys of waterfowl, shorebirds, and sessile and burrowing marine organisms that provide them with food. Without this information, impact of pipeline construction on sea- and shore-bird populations is unknown. *See above*, B, Scope of Review, 3, Disturbance, e, Waterfowl & Wading Birds.

4. On-site mitigation consists primarily of rebuilding and replanting Stream 9 following extensive excavation. This is unlikely to preserve or improve wildlife habitat. *See* comments, SLODA 9, Buffer Strips, B, Scope of Review, 1, Water Bodies, S9.

5. Off-site, NORDIC proposes to compensate for wetland destruction with a payment of $654,171.10. NRPA application, Attachment 13, Appendix 13-A, Impact Compensation Plan, P. 13, 4.2, In Lieu Fee.

Nordic's proposed compensation package should include compensation for the total area of streams and wetlands that are identified as partially disrupted. The upper reaches of S(tream)3, S5, and S6 are included as permanently filled. The remaining lower reaches of these streams will no longer function and should be included in the compensation formula. Landscaping around the remains of S3, S5 and S6 should not be considered on-site wetlands compensation since it will no longer function as a wetland. Wetlands W2, W5, and W6 are identified as partially filled, but water inflow to each of these wetlands is severely reduced or eliminated by upslope buildings (W2, Bldg 1 / W5, Bldg 2 / W6, Bldg 8). The entire area of these wetlands should be included in the compensation formula. Wetlands and streams identified by Broadwater Environmental (10/9/19 letter) should be included in the compensation formula. *See* comments, SLODA Section 9, Buffer Strips, B, Scope of Review, 1, Waterbodies.

6. Plans include no habitat improvement and mitigation is inconsequential.

This unique and rare ecosystem provides essential habitat for migratory and overwintering birds, and is a transition zone from coastal wetlands and shoreland habitat to riverine, wetland, upland and reservoir habitat. This connectivity from shoreline and intertidal habitats is extremely rare in the area, as most all of the shoreland is developed. These natural qualities would be completely eliminated by this development. Noise and lights from the facility will render the remaining reservoir habitat far less conducive to wildlife, especially birds. The stripe of land that will remain along the river will be reduced to a fragment of forest that will in turn be highly vulnerable to edge effect and will likely suffer from high level of tick infestation due to the degradation of habitat.

In Summary, Nordic cannot provide sufficient on-site mitigation to preserve wildlife habitat. Nordic has failed to study the effects of wastewater on Penobscot Bay or provide adequate mitigation. Nordic has failed to consider the alternative technology of closed-system RAS. Nordic's construction schedules will not mitigate harm to threatened and endangered bats and other upland wildlife. Nordic has not conducted surveys of marine, terrestrial, or freshwater organisms to allow evaluation of mitigation measures. Nordic's calculations for monetary off-site mitigation ignores impaired wetlands and includes meaningless on-site landscaping.

It is unlawful for a SLODA permit to be granted for this project due to failure to meet the conditions included in Scope of Review. Wildlife, including upland and marine species, notably vulnerable, federally endangered, migrating Atlantic salmon, will not be provided with "travel-lanes" between areas of available habitat. Proposed alterations and activities including wastewater and release of mercury from marine sediments will adversely (and significantly) affect wildlife and fisheries lifecycles. There will be unreasonable disturbance to wildlife:

(a) habitat of species declared threatened and endangered, notably Atlantic salmon, short-nosed sturgeon, and Atlantic sturgeon will be degraded. Surveys have not been conducted to determine if bats are present at the site.

(b) Without further study, potential impacts on valuable waterfowl and wading bird habitat are not known.

Without proper study, effects on shorebird feeding and staging areas, especially at the mouth of the Little River, are not known. Nordic fails to demonstrate that it will meet the DEP 2018 criteria for wastewater discharge prohibiting detrimental changes to the residential biological community.

BEP cannot confirm compliance with SLODA Section 15, Protection of Wildlife and Fisheries, without the following studies:

- Evaluation of discharge using "effluent-based" standards.
- Comprehensive, year-round study of water movement and currents in this sector of Penobscot Bay to determine the scope of discharge plume effects.
- Research and study of the response of resident species to altered temperature, chemical, and feeding conditions within the discharge plume and to construction activities.
- Prediction and monitoring of effects of the effluent on the mussel farm southeast of the discharge pipe.
- Year round, on-site surveys of bird, bat, and benthic organisms.
- Marine sediment testing, including mercury analysis, along the proposed pipeline route according to the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers joint publication, "Evaluation of Dredge Material Proposed for Ocean Disposal," 1991. (Hearing Transcript, K. Tucker, 2/12/20. P. 166, L. 13 – 17)

In order to assure meeting federal obligations under the international Williamsburg Treaty:

- Nordic must be prohibited from acquiring or introducing into their facilities any fish that are not Maine-raised.

- Nordic must be prohibited from acquiring or introducing into their facilities any fish eggs that are not Maine-raised.

It is unlawful for BEP to grant a SLODA permit for this project due to failure to meet the requirements of this section included in Scope of Review:

- Wildlife, including upland and marine species, notably vulnerable, federally endangered, migrating Atlantic salmon, will not be provided with "travel-lanes" between areas of available habitat.

- Proposed alterations and activities including wastewater and release of mercury from marine sediments will adversely (and significantly) affect wildlife and fisheries lifecycles.

There will be unreasonable disturbance to wildlife:

(a) habitat of species declared threatened and endangered, notably Atlantic salmon, short-nosed sturgeon, and Atlantic sturgeon will be degraded. Surveys have not been conducted to determine if bats are present at the site.

(b) Without further study, potential impacts on valuable waterfowl and wading bird habitat are not known.

Without proper study, effects on shorebird feeding and staging areas, especially at the mouth of the Little River, are not known. Nordic fails to demonstrate that it will meet the DEP 2018 criteria for wastewater discharge prohibiting detrimental changes to the residential biological community.

H. Chapter 500, STORMWATER

1. Basic standards.

The basic standards apply to all projects described above. The Applicant must demonstrate that the erosion and sedimentation control, inspection and maintenance, and

housekeeping standards specified in Appendices A, B, and C to this Chapter, respectively, are met, and that the grading or other construction activity will not impede or otherwise alter drainageways so as to have an unreasonable adverse impact on a wetland or waterbody, or an adjacent downslope parcel.

Upstream Watch has reviewed stormwater management with its own consultants, examined the site, and reviewed the application materials supplied by Nordic Aquafarms. We agree that, if carried out correctly, the plan is adequate; however, it is an extremely complex plan. In order to assure effective execution and minimize the many substantial environmental risks, excellent management and oversight is essential. Upstream Watch recommends permit conditions requiring the following:

- A suitable management plan is devised and approved by DEP prior to issuances of any permit, including sequencing and contingencies for unexpected events.
- A manager is designated for the overall installation who has suitable knowledge and experience and is approved by DEP.
- A supervisor with relevant knowledge and experience is required to be onsite every day.

2. No Unreasonable Alteration of Natural Drainage Ways

A. Scope of Review.

In determining whether the proposed development will cause an unreasonable alteration of natural drainage ways, the Department shall consider all relevant evidence to that effect, such as evidence that:

(1) Where a development site is traversed by a natural water course, drainage way, channel, or stream, a drainage right-of-way will be provided that substantially conforms with the lines of such natural water courses. Such rights-of-way shall be at least thirty feet in width.

Nordic's proposal would entirely remove 8 of the 9 drain ways from the site (*see* NRPA Application, section 13, attachment 13, appendix 13A, Impact Compensation Plan, especially p. 6, table 2, Permanent Impacts to Wetland Resources) and substitute therefor a perimeter drain intercepting surface water arriving at the site from upgradient areas, diverting all that water around the site and into the Little River downgradient of the site near the ocean. *See* Prefiled Testimony of M. McGlone, 6. Diversion of Upgradient Runoff.

(2) Any grading or other construction activity on the site will cause no unreasonable alteration of natural drainage ways such that drainage, other than that which occurred prior to development, will adversely affect adjacent parcels of land and that drainage ways flowing from adjacent parcels of land to the development site will be impeded.

Except for stream #9, all drain ways will be removed (reference above) and the land recontoured to eliminate drainage swales and streams to create a near-flat construction platform. All drainage arriving at the site from off site will be diverted into the perimeter drains. *See* Prefiled Testimony of M. McGlone, 4.

B. Submissions.

Applications for approval of proposed developments shall include evidence that affirmatively demonstrates that there will be no unreasonable alteration of natural drainage ways, including information such as the following, when appropriate.

(1) A plan showing all existing water courses, drainage ways, channels, or streams to be affected by the development, and the nature, width and location of proposed easements, rights-of-way, culverts, catch basins or other means of channeling surface water within the development and over adjacent parcels of land.

Nordic fails to address the permanent effects of upslope building activity on the lower reaches of streams 3, 5, and 6. Nordic proposes landscaping the lower portion of S3 as wetland compensation. This will no longer serve as a stream and therefor landscaping is not wetland compensation. Nordic demonstrated lack of diligence regarding watercourses and wetlands. Response to DEP inquiries necessitated a comprehensive study that identified serious oversights in the application. November 5, 2019, NORDIC Response (including Att. A-F), P. 17-19, Normandeau Memo.

(2) Deed covenants which establish the easements or rights-of-way and provide for their continued maintenance.

Nordic's submissions so not show the preservation of drain ways by easement or otherwise but the total destruction and removal of all natural, on-site drain ways. *See* NRPA application, section 13, attachment 13, appendix 13A, Impact Compensation Plan, especially p. 6, table 2, Permanent Impacts to Wetland Resources. Nordic fails to provide for continued maintenance of landscaping buffers and maintenance plans for riparian buffers are short-term. *See* commentary, SLODA Section 9, Buffers, B, Scope, 3, Shielding. Nordic refers to a 75-ft. deeded buffer along Stream 9, but does not provide a legal deed. SLODA Application, Section 10, Buffers, bottom of *P*. 1.

C. Terms and Conditions.

The Department may, as a term or condition of approval, establish any reasonable requirement to ensure that there will by no unreasonable alteration of natural drainage ways.

BEP cannot lawfully issue a permit under Chapter 587. Nordic completely disregards the SLODA requirement that natural drain ways be preserved. Nordic fails to provide a maintenance plan or legal deeds to assure long-term maintenance of landscaping.

Finally, Upstream Watch incorporates herein all arguments and citations to the record submitted on this date by Northport Village Corporation with its post-hearing brief, and Upstream preserves all elements of the Northport Village Corporation brief for any future appeal. Upstream Watch also incorporates all arguments and factual citations submitted by Attorney Kim Tucker regarding Nordic failing to demonstrate right, title, and interest in the intertidal land and other land necessary for the project. [9]

CONCLUSION

The Site selected by Nordic is unsuitable. Evidence of unsuitability abounds.

Nordic has failed to justify the removal of 50 acres of woodland and wildlife habitat, down to bedrock and beyond, that is a scenic and recreational gem for the City of Belfast.

Nordic has failed to justify threatening one of the last migration routes for an increasing population of Atlantic salmon to and from their largest remaining breeding grounds in the United States.

Nordic has failed to justify risking the quality of Northport's shoreline, including a heritage of family reunion and a lucrative rental market.

Nordic has failed to justify risking the quality of shallow, constricted Bay waters with wastewater effluent, despite initially citing a need for deep water currents.

Nordic has failed to justify risking traditional fishing grounds and innovative aquaculture ventures, the livelihood of local families.

[9] Including, without limitation, the Renewed Motion to Dismiss for Applicant's Lake of Administrative Standing (Title, Right or Interest "TRI") Pursuant to 06-096 C.M.R. ch. 2, § 11D filed February 18, 2020 and all exhibits appended thereto pertaining to the ownership history of the contested property.

Nordic has failed to justify industrializing the lower reaches and the estuary of the Little River, displacing shore birds and anadromous fish.

Nordic claims to have looked at over 40 sites on the Maine coast. It chose the worst site. The unsuitable character of this site suggests that Nordic had a business deal in place and performed a "study" to justify a decision they had already made. The evidence that this is so could not be clearer. This site doesn't work.

The application is fatally incomplete. Nordic's applications had to meet the requirements of the Maine Site Location of Development Act, Maine's Natural Resources Protection Act and the Maine Pollutant Discharge Elimination System. Nordic failed to qualify for a permit under any of these three laws.

Nordic claims that they will build this facility for 500 million dollars, despite no documentation of costs, and frequent substantial design changes throughout the past two years. Nordic claims they have this money available, despite never naming a credible funding source. Nordic claims there is plenty of freshwater, despite depleting the source with perimeter drains, saltwater intrusion in their wells, and an old, failing dam. Nordic claims that they will have a negligible effect on wildlife, despite never conducting any serious wildlife surveys. Nordic claims that their effluent will have negligible effects on Penobscot bay waters despite minimal attention to the complex patterns of water movement, chemistry, and life in the bay. Nordic claims that their facility will produce no odor, despite handling truckloads of fish every day. Nordic claims that their technology is state-of-the-art, despite rapidly increasing options for zero-discharge, land-based facilities. Nordic claims to have the technical know-how to run an experimental, second largest in the world, complex operation despite the inability to fill in a

complete permit application that is still not complete after repeated attempts by DEP staff to get clarification.

Upstream Watch submitted to the record in this case a "Matrix" prepared and maintained by Michael Lannan of Tech Environmental. This matrix tracks the progress of the constituent parts of Nordic's applications. As the Matrix reveals, many material aspects of the application requirements remain incomplete.

Nordic failed to demonstrate that its application meets the requirements of the Federal Clean Water Act, codified in Maine as the MPDES permit program.

An egregious violation of the Federal Clean Water Act and of Maine's MEPDES program occurred after the close of the record. The record closed on February 18, 2020 for all but some air pollution modeling and for receipt of a report from the Department of Marine Resources (DMR). DMR was to comment on the effect of the installation of Nordic's pipes and the dredging therefor, on fish. Following DMR's procedural failures a hearing was conducted in Belfast on March 2, 2020. At that hearing Nordic revealed for the first time that it intended to de-water its dredge spoils and discharge the wastewater into the Bay. The location of the de-watering operation was not clear from the presentation.

The new information revealed in the hearing presentation included that Nordic intends to haul dredge spoils 5.5 miles across the Bay, through fishing and lobstering areas and near swimming areas and mooring fields (the "haul route"). It was not clear where the spoils water was to be released or discharged into the bay, at the site of the dredge excavation or along the 5.5 mile haul route across the bay. This is important information as there are residences, businesses, fishing, lobstering and boating and other recreational activities along that haul route. Further, oceangoing ships approach Searsport Harbor via a channel that appears to intersect the barge

haul route. As far as the record reveals, Nordic has not revealed this haul route plan to the Coast Guard.

It is axiomatic that a discharge of wastewater into Penobscot Bay requires an MPDES permit from DEP. To discharge wastewater into the Bay without a permit is both a civil violation and a criminal violation of the Clean Water Act. Nordic has not even filed a permit application for this newly announced discharge.

Nordic's failure to complete properly the application requirements deprives the BEP of the ability to make a reasoned or a defensible decision of the Nordic permit applications. The permit process is not a free form exercise. The burden of proof of compliance with the rules and completion of the application material is Nordic's responsibility. Nordic's numerous failures compel denial of the applications.

The Maine BEP, acting in good faith, in compliance with the law, and in good common sense, has no choice but to deny all Nordic's applications.

DATED at Belfast, Maine on May 4, 2020.

David J. Perkins, ME Bar Number 3232
Kristin Racine, Me Bar Number 6372
Attorney for Upstream Watch
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207-774-9000

CERTIFICATION

I hereby certify that a copy of the foregoing was electronically mailed this 4th day of May, 2020 to those indicated on the attached Service List.

David J. Perkins

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

February 18, 2020

Cynthia S. Bertocci
Executive Analyst
Board of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Ref. 4518

Re: The Burden of Proof with Respect to Demonstrating Technical Ability of parent company Nordic Aquafarms, Inc. (or the newly formed Nordic Aquafarms LLC) has not been met, and the Permitting Approach to Date Suggests that the Technical Ability is Simply Not There

Dear Cindy:

This letter is submitted as written comment with respect to Nordic Aquafarms' Technical Ability. The Applicant, by their own admission, has spent two years developing their concept, but at various times during the Licensing Hearing, the conversation was more analogous to a pre-permitting meeting. For example, at times the Applicant spoke almost exclusively in the future tense about what they "could", "would" or "will" do in the future to demonstrate compliance. While a future commitment is nice, the fact that e Applicant did not identify these compliance demonstration needs prior to the application, hearing, or City Planning Board meetings, suggests a lack of Technical Ability.

The cross-examination of the Intervenors' experts often focused on whether weak or non-existent background data identified by the Intervenors was explicitly required for permitting, because they could not focus on how the Applicant provided the proper background data and application to demonstrated that it can be in compliance each and every day. Any reasonable compliance demonstration must begin with a proper baseline assessment and a valid and concise application of resources needs and potential impacts over the range of operations. The Applicant's Technical Ability must be questioned when they propose background data collected, once, or twice, over a few days, for very seasonal things like migratory birds or background nitrogen levels in the bay near the Little River, or completely disregard a direct question with respect to future fresh water usage expectations.

The attached table was updated prior to the hearing. In the future, we plan to update the table with new items as a result of the many verbal RFIs presented by DEP and BEP at the hearing. This will be done once we have a transcript of the hearing, and as the process moves past the hearing. After reading this letter, and examining the accompanying table, it should be clear that the Nordic Aquafarms permitting team (the Applicant) simply has not provided the required burden of proof that they have the Technical Ability to design, construct, operate, and maintain a fish farm and their city-sized utilities based on the pending application materials.

If the Applicant cannot understand and provide the proper information to establish existing baseline conditions to permit the facility, and is unwilling or unable to update their application, which is essential for a project of this magnitude and complexity, in a timely and orderly manner, or answer a very basic question that were essentially asked multiple ways at the hearing by both DEP and BEP ***"we understand that Nordic Aquafarms can be somewhat flexible with water supply, but exactly how***

EXHIBIT A

much is necessary and going to be used?", then it is impossible to know what is necessary to develop permit conditions. If permit conditions cannot be properly determined then the Technical Ability to construct, operate, and maintain a new facility, simply cannot be proved. The Technical Ability requirements could not be simpler than the way it is worded in the introduction of 06-096 Chapter 373(1):

> 1. **Introduction**. This chapter relates to the financial capacity and technical ability standard of the *Site Location of Development Act* (Site Law). 38 M.R.S. §484(1). To obtain a Site Law permit an applicant must demonstrate the financial capacity and technical ability to design, construct, operate and maintain the development in compliance with state environmental standards and the terms and conditions of the permit.

Please note that although Chapter 373 includes both financial capacity and technical ability topics, and many of the Site Law rules and references talk about them together, any technical ability quote that includes financial capacity in this letter does so only for completeness and context. This letter does not address financial capacity, as that is to be addressed at the hearing, as a hearing topic.

Please also note that the table attached to this letter includes a discussion of all sections of the Site Law Act as they relate to Technical Ability. The table discusses how the information provided in the current application demonstrates or does not demonstrate that this proposed facility can comply with environmental standards and whether it is possible to develop terms and conditions.

While it may be reasonable to discuss any required permitting topic (i.e. hearing topics and non-hearing topics) as it relates to Technical Ability in this letter, but to be overly cautious, detailed examples discussed below in this letter are limited to non-hearing topics. Noise, determined by BEP Order to be a non-hearing topic, is used in this letter as an excellent example of the Applicant's apparent lack of understanding of the permitting process (or lack of inclination), and of what is technically required for a regulatory agency to condition a facility.

The key to this letter, and how it relates to the introduction referenced above is "*demonstrate… technical ability…in compliance with state environmental standards* ***and*** *the terms and conditions…*" One cannot simply offer an unsubstantiated noise study with no process equipment assumptions, no equipment data, no equipment locations, no modeling parameters, no Applicant explanation of the subconsultant's work or how it is applicable for conditions, and then expect some generic terms and conditions for operation for a project of this magnitude and complexity. The Applicant's inclination to disregard their burden to prove that Nordic Aquafarms would not have an adverse environmental impact is also in direct conflict with the Site Law.

In the Site Location of Development Permit Application General Instructions, Section 3, "Processing", it reads:

> *In review of an application, the burden is on the applicant to prove that the development will not have an adverse environmental impact. It is not up to the department to prove that a development will have an adverse environmental impact.*

Repeatedly, DEP has attempted to help the Applicant satisfy their burden of proof by asking for the specific equipment noise data in the RFIs. The requirements are spelled out in plain English in the Site

Law rules, yet the Applicant's responses did not provide actual modeling parameters, equipment specifications, or equipment sound data; all of which fall under "proof". How can DEP possibly condition a project without this information? They cannot, and if the Applicant cannot see that, or is not inclined to comply so that DEP can properly condition the project, then not only has the Applicant not satisfied their burden of proof, but the Applicant's Technical Ability is insufficient as well.

That is not to say that the Applicant did not provide responses to the RFIs for noise, but those responses only created more questions with respect to Technical Ability on a number of levels.

1. The responses were often very longwinded and wordy to avoid the actual data request questions. Some responses were actually longer in text than all of the text provided in the noise section of the original application.

2. The last RFI that requested noise data did so TWICE. The specific references to these RFIs are included in the noise testimony and are not included here since noise compliance is not the topic of concern here. The first noise-related question included the request for the equipment specifications, but also some other questions or comments for context. For the first request, the Applicant chose to provide a generic response about what sound source limit they would meet without any supporting data. Then, possibly because DEP anticipated that the Applicant would provide a roundabout answer to the first question, in a single concise sentence DEP asked for the equipment specifications again. Amazingly, the Applicant provided a response that said essentially "see response above". There was no possible way to pretend to misinterpret the data request this time. It was obvious to DEP and to the public. And if it was not obvious to the Applicant, then they cannot possibly possess the Technical Ability to run a large power plant, treat millions of gallons of water a day, properly balance their water demands and the area's water supply needs, grow millions of pounds of fish, etc. And if it was obvious to the Applicant, and they chose to write-off DEP's request for the equipment specifications, then it is clear that they are putting the burden of proof on DEP (and intervenors).

3. Even the basic, general responses provided by the Applicant also further validated the original requests for information. Everything is so large and so expansive that when the Applicant provides even a little more information, it makes it that much clearer that even more information is absolutely required to demonstrate their burden of proof and to allow for any sort of reasonable conditions. In the last noise RFI response, it mentioned that noise mitigation from 0 to 29 dB would be provided to 180 exterior sound sources. Okay, that was not a direct response to the question, however, it did provide some more information. It also waved a huge red flag for any regulator. With this many sources, and no background sound, no baseline equipment sound, no locations of sound source, no type or degree of mitigation on each source, no location of the source, no octave band distribution of the data before and after mitigation, etc., it is impossible to write an enforceable condition. The only condition that could possibly be written would be that the facility must keep all its sources collectively under a certain level. While this could work for a small facility with a few potential sounds sources, it cannot for this proposed fish factory with city-sized utilities.

4. When these roundabout responses to the RFIs added new or revised noise information, it made it very unclear how, and what, was provided in the responses, affected what they had provided previously. This partial change made their lack of equipment and sound data even more of a

problem for trying to understand whether the facility demonstrated that it can comply with the environmental standards or whether enforceable terms and conditions could be developed.

5. The responses to RFIs, even in their roundabout manner, clearly demonstrated that things had changed so much that the original model assumptions could no longer be considered representative, and since the Applicant provided no explanation of how the study demonstrated compliance in the Application, it must now be assumed that it cannot be used as the basis for any permit conditioning.

The noise example above can be summarized generically for many of the permit items in the attached table as:

(1) The application materials provided "checked the box" for administrative completeness, but they are insufficient to develop reasonable conditions for construction or operations since the information provided was cursory, or the scenario modeled cannot be fully understood for lack of background or operating data or parameters,

(2) When questioned via the Applicant's "open door policy" or in public meetings, the Applicant did not voluntarily provide additional materials to offer any assurances that they examined a reasonable worst-case scenario,

(3) When necessary design changes were identified as part of the Belfast Planning Board permitting process that clearly impacted or changed items in the original DEP applications, these changes did not result in updates to the application,

(4) When necessary design changes were identified by the public as part of the DEP permitting process that clearly impacted or changed items in the original DEP applications, these changes did not result in updates to the application,

(5) DEP provided a number of requests for information. The responses often provided new or additional information. Some topics had multiple rounds of RFIs and multiple responses. None of this information was updated in the application materials.

It is understandable why BEP desires to break up the required permitting topics into hearing topics and non-hearing topics. The thought process is that if there is less concern by either a member of the public or DEP staff about a permitting topic being complete for demonstration purposes and also for developing enforceable terms and conditions, then discussing it through testimony and cross-examination would likely not yield enough new information for conditioning to make it worthwhile.

Unfortunately, the normal hearing versus non-hearing topic thought process cannot be followed for this project, and that is one of the focuses of this letter. As the attached table demonstrates, many more topics than those selected for the hearing are also technically incomplete. Noise is just one of them. And furthermore, when new or revised material has been provided to DEP, it has never been made clear what part of the original application it augments or supersedes. As a result, this Applicant has not met its burden of proof that it can demonstrate compliance or provided sufficient information for enforceable terms and conditions, and therefore the Technical Ability has not been demonstrated, and must be considered inadequate.

Please note that the Applicant often points to the acceptance of the application as administratively complete to suggest that any technical data requests for compliance demonstration concerns or conditioning are superfluous since the permit application was accepted as complete. Administratively complete, and technically complete such that the application demonstrates that the burden of proof has been met and that the project can be conditioned in an enforceable manner are two completely different thresholds. As defined by Title 38, Section 344, it states:

> An application is acceptable as complete for processing if the application is properly filled out and information is provided for each of the items included on the form. Acceptance of an application as complete for review does not constitute a determination by the department on the sufficiency of that information and does not preclude the department from requesting additional information during processing.

To many, it is obvious that the Applicant is acting under the belief that they have provided all that was required of them and that any information that DEP has requested (especially related to stormwater, water, wastewater, impact to the bay, air, odor, noise, solid waste...) is being done at the demand of intervenors or opponents of their project, and that they can choose whether or not to provide that information; when in fact the application was not technically complete for many of the Sections initially, and then became even more incomplete from their responses to RFI. This is the only explanation for the Applicant's willingness to write off the residents and regulators that are involved in this Project.

We had been hopeful that eventually the Applicant would switch from reacting to requests for information as a sign of opposition to their proposal, to an understanding that the requests were clearly just asking for specific equipment data to perform their own third-party assessments, at their own expense, simply as requests. With the Applicant never making a paradigm shift to a cooperative understanding of the desire for others to perform their own due diligence, their Technical Ability must be questioned. If everything was done correctly, what is the concern with providing the back-up?

In a recent open letter to a local paper, the Applicant, claimed that the process has been a long and hard one for our community and it is nearing its end. He is half right. It has been a long and hard one for our community, but he says it as if the Applicant is sitting on the sidelines watching, and being affected by, the process. Their project and their approach to permitting created this community split. They proposed a very large project with city-sized utility demands that are all interrelated, yet they provided less information than a proponent would for only ONE of the following.

1. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain wastewater treatment plants that produce millions of gallons per day, provide much more equipment design data, many more operating and "what-if" scenarios, and significantly more construction sequencing in their application to demonstrate that compliance is possible in all scenarios, and that there is adequate design information provided so that detailed terms and conditions can be applied.

2. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain water treatment plants that produce millions of gallons per day, provide much more equipment design data, many more operating and "what-if" scenarios, and

significantly more construction sequencing in their application to demonstrate that compliance is possible in all scenarios, and that there is adequate design information provided so that detailed terms and conditions can be applied.

3. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain power plants that produce enough electricity for tens of thousands of households, provide much more equipment design data, many more operating and "what-if" scenarios, and significantly more construction sequencing in their application to demonstrate that compliance is possible in all scenarios, and that there is adequate design information provided so that detailed terms and conditions can be applied.

4. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain food manufacturing facilities that produce more than a million pounds of product per week, provide much more equipment design data, many more operating and "what-if" scenarios, and significantly more construction sequencing in their application to demonstrate that compliance is possible in all scenarios, and that there is adequate design information provided so that detailed terms and conditions can be applied.

5. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain food manufacturing facilities that produce more than a million pounds of solid waste per week, provide much more equipment design data, many more operating and "what-if" scenarios, and significantly more construction sequencing in their application to demonstrate that compliance is possible in all scenarios, and that there is adequate design information provided so that detailed terms and conditions can be applied.

6. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain food manufacturing facilities that consume millions upon millions of Watts of power an hour provide an impact analysis on the local electrical supply grid as part of their feasibility plan, with many operating and "what-if" scenarios for construction, operations, and maintenance in their application to demonstrate that electric supply is even possible in all scenarios, and that there is adequate design information provided so that detailed terms and conditions can be applied.

7. It is our experience that Applicants that possess the proper Technical Ability to design, construct, operate, and maintain a power plant, wastewater plant, water plant, stormwater diversion program, a huge excavation project, a temporary cement plant, rerouting of rivers and streams, an education center, a food manufacturing facilities, and a solid waste transfer station provide a very detailed construction sequencing program for Phase 1 construction, and Phase 2 construction with Phase 1 operations with more than just the "good day" construction scenario so that detailed terms and conditions can be applied for both phases of construction.

Detailed terms and conditions benefit everyone. They establish "goal posts" so a proponent can know what is and isn't required. They put the public at ease that all reasonable worst-case scenarios have been examined and that there are specific conditions in place for each one, that allow local and state regulators to spend less time on enforcement if the conditions are succinct and easily enforced. And lastly, and most importantly, they protect the area's economic, energy, and environmental assets.

In reality, the Applicant has done little to bridge the gap between:

- Northport and Belfast area residents that suggest basic information and reasonable voluntary conditions are worth the economic, energy and environmental risk for the economic benefit to the area, and

- Belfast and Northport area residents that want to ask questions about whether the Applicant has examined all of the possible operating scenarios, whether the Applicant has provided the proper burden of proof to show that they can comply with the regulations in all those scenarios, and whether sufficient source data and process information has been provided to develop the proper design, construction, operations, and maintenance terms and conditions that that are reasonable and enforceable.

If this Applicant had the Technical Ability to design, construction, operations, and maintenance, it could have prevented this split in the neighborhood. While the Applicant will tell you that there are those that cannot be appeased no matter what, that is no excuse for not trying. Regardless, it is not an excuse for providing incomplete and inadequate responses to DEP RFIs, and it is definitely not an excuse to avoid updating the original application with changes. And if the Applicant truly cares about the community it is entering, it does not decide to shut the "open door policy" to those with legitimate questions to incomplete information.

Without updated applications, all of the risk falls on the DEP to catch inconsistencies from the application(s) and subsequent responses to RFIs. There are thousands upon thousands of pages of new or revised materials and the inconsistencies these changes have created can be directly and indirectly related, and many of the indirect inconsistencies are often not obvious until they are incorporated back into the application as a whole. Many, many more were outlined at the BEP Licensing Hearing. The attached spreadsheet clearly demonstrates how the formal pending SLODA application does not provide the information necessary to "*demonstrate the financial capacity and technical ability to design, construct, operate and maintain the development in compliance with state environmental standards and the terms and conditions of the permit.*" And the therefore, the proposed project simply cannot be approved and conditioned.

On more than one occasion during the hearing, the Applicant suggested that a response to a BEP question or comment was located in one of their update Technical Memorandums, but the person, or panel, testifying were not sure which updated Technical Memorandum contained the specific design information or data. If the Applicant is unsure of the location of their valid application information, then how would anyone else know which information, or analysis, is current and could be the basis of conditions? If the Applicant cannot understand the need to update the application for a project of this size, complexity, and scope, then the Technical Ability simply must not be there.

Thank you for your time.
Sincerely,

TECH ENVIRONMENTAL, INC.

Michael T. Lannan, P.E.
President

EXHIBIT A

SLODA Checklist Req's				May 24, 2019 SLODA Application				If the RFI Response Altered the Application or the Potential Economic, Environmental or Energy Risks and Benefits, Was the Application Updated as a Result?										Is This Sub-Section in the Application as Posted on the DEP website Technically Complete? (Yes/No)	Rationale of Sub-Section Technical Completeness	Is the Section Application as Posted on the DEP website Technically Complete? (Yes/No)
Section	Subsection	Line Item	Required materials	Marked in NAF Checklist	Administratively Complete? (Yes/No)	Technically Complete? (Yes/No)	Summation of Technical Completeness	June 25, 2019 DEP RFI	July 3, 2019 DEP RFI	July 18, 2019 DEP Meeting RFI	July 31, 2019 DEP RFI	August 2, 2019 DEP RFI	September 17, 2019 DEP Geology RFI	October 3, 2019 DEP RFI	October 9, 2019 DEP RFI	November 8, 2019 DEP RFI			
Section 1 Development Description	A. Narrative	A.1. Objectives and details	development areas, acreage of disturbance, sq. ft. buildings, parking lots, paved areas, revegetated areas, areas to be stripped	X	Yes	Yes	The initial application has a layout of the design, roadways proposed, and general areas to be disturbed.	-	-	No	-	-	-	No	No	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the in-direct changes from a response to a RFI or question.	No
		A.2. Existing facilities	Existing facilities including dates of construction	X	Yes	Yes	The existing facility includes the existing structures on-site, the dams and the existing water utility infrastructure	-	-	-	-	-	No	-	-	-			
	B. Topographic Map	B.1. Location of development boundaries	Displaying development boundaries	X	Yes	Yes	The boundaries of the site were included, and the boundaries of the work across route 1 were discussed.	-	No	No	-	-	-	No	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
		B.2. Quadrangle name	Topographic quadrangle names provided	X	Yes	Yes	Quadrangle names included within Figure notes.	-	-	-	-	-	-	-	-	-			
	C. Construction Plan	C.1. Construction Plan Outline	a plan to construct major aspects of the facility	X	Yes	No	Although some major aspects were discussed, by no means were all major aspects of the project discussed. The wastewater treatment plant, water treatment plant, bypass roadway, power plant, and aeration system have no construction plan.	No	No	No	-	-	No	No	No	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the in-direct changes from a response to a RFI or question.	
		C.2. Construction Dates	dates for all aspects of construction	X	Yes	No	Initially general dates were provided in an excel timeline by months this excel spreadsheet included color coding for broad topics but menial details about what site work items needed to be done.	No	-	No	-	-	No	No	No	No			
	D. Drawings	D.1. Development facilities	Drawings of all proposed construction and facilities	X	Yes	No	Elevation, and a site plan was provided but for a facility of this magnitude 3D rendering modeling and rooftop plans, HVAC drawings, and electrical drawings would be needed to insure proper permit conditions. The proponent had an opportunity to permit in Phases which would make these drawings less critical, but chose not to do it.	No	No	No	-	-	-	No	No	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
		D.1.(a) Location, function and ground area	For each aspect of development	X	Yes	No	General descriptors were provided for areas, but the level of detail is incomplete for a technical review of feasibility. For a smaller project, maybe only site plans and elevation drawing would be sufficient but for a project of this size, it is incomplete.	No	-	No	-	-	No	No	-	No			
		D.1.(b) Length/cross-sections for roads	For each road	X	Yes	No	Incomplete information on road length during each phase and details to overcome silt and clay on dirt roads was not provided. It is not possible to determine whether typical BMPS is sufficient to condition this project without this information.	-	No	-	-	-	-	No	-	-			
		D.2. Site Work	filling, grading, drainage, or dredging design	X	Yes	No	The information that was provide was very cursory, and for a project of this magnitude a more detailed design is necessary to insure proper permit conditions.	No	No	No	-	-	No	No	No	-			
		D.3. Existing facilities	existing facility function, ground area and floor area	X	Yes	No	The function for the existing facility was not explained other than the utilization of the gatehouse. What conditions are needed for the existing water treatment plant, other structures, and dams?	-	-	-	-	-	No	-	-	-			
		D.4. Topography	pre- and post topography of the site using 2 foot intervals or five foot at 20% slope of more	X	Yes	Yes	Topo of the site was provided for existing and future conditions in the application	No	No	-	-	-	-	No	-	-			
		D.4.(a) contour options	larger contours for 250 acres or more	N/A	N/A	N/A	The site is less than 250 acres.	-	-	-	-	-	-	-	-	-			
		D.4.(b) previous construction	previous construction is discussed	X	Yes	No	The site has been developed for years and the Applicant mentioned that there were PAHs found on-site in a coal storage area. The storage area and other stuctures are not discussed	-	-	-	-	-	No	No	-	-			
Section 2		Title, right or Interest	do they clearly present a pathway to the water and across the road and on-site	X	Yes	No	DEP determined that there was sufficient TRI for the project to proceed through permitting, if it is mentioned at a pre-hearing meeting that if the project can receive permits, a legal determination of TRI must be made by DEP and/or the courts before the permits will be issued.	-	-	No	No	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
Section 3 Financial Capacity	A. Estimated Costs		itemized costs of land purchase, roads, sewers, structures, water supply, erosion, control, pollution abatement and landscaping	X	Yes	No	A project of this size would provide sufficient equipment specifications and design criteria, and sufficient itemization of major cost, to insure proper permit conditions could be developed, and most importantly that the project could afford to include them.	No	No	No	No	-	No	No	No	No	No	This sub-section was not technically complete in the original application and was never updated.	No
	B. Financing	B.1. Letter of commitment to fund	letter of commitment from financial institution or other funding agency	X	N/A	N/A	Proponent opted for "3. Other", in which case B.1. is not required.	-	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
		B.2. Self-financing	Annual report and bank statement indicating availability of funds	N/A	N/A	N/A	Proponent not proposing self-financing, as indicated from "N/A" in the application checklist for all aspects of Section B.2.	-	-	-	-	-	-	-	-	-			
		B.3. Other	Mixture of funding sources contingent on permit approvals	X	Yes	No	Proponent discusses a mixture of equity, debt-financing, and cash flow (future) in a very broad sense in Section 3 and Appendix 3-A, while it is understood that often financing can not be finalized until permitting has been completed there is insufficient and direct commitment from specific lenders for a project of this magnitude. The more involved a project maybe requires more specific commitments, so that the risk can be properly bonded.	-	No	-	-	-	-	-	No	-			
		B.3.(a) Cash equity commitment	commitment equal to 20% of the total development cost	X	Yes	No	Appendix 3-B suggests that the proponent is "well positioned to secure the required funding". While it is understood that often financing can not be finalized until permitting has been completed there is insufficient and direct commitment from specific lenders for a project of this magnitude. The applicant has shown no cash equity committed to this project. Submitted materials show cash equity raised in the entire history of the company, including its 4 existing subsidiaries, is 12.7% of the project cost. This is well short of the 20% norm and is NONE is directly committed to this project's LLC.	-	-	-	-	-	-	-	No	-			
		B.3.(b) Financial plan	Plan for financing the remaining cost	X	Yes	No	For a project of this magnitude, where for example a major mortality event could result in the death of millions of fish adequate financial reserves must be available to remove the fish, dispose of the fish and replace the fish. The only way to understand the potential financial implications of this type or other unexpected operational considerations (such as virus/bacteria) is to develop unexpected scenarios and include them in the permitting process for review and conditioning.	-	No	No	-	-	-	-	No	-			
		B.3.(c) Letter	Letter indicating an intention to provide financing	X	Yes	No	There is no letter indicating an intention to provide financing. No potential source of financing has been identified, and it is unclear how the LLC for this company fits in with the assests and obligations of the parent "Inc" company. As of today the LLC has no dedicated money or financing.	-	-	-	-	-	-	-	No	-			
		B.4. Affordable housing information	Data substantiating that a person with median income in the county could obtain a mortgage for a unit given the selling price	N/A	N/A	N/A	No housing proposed.	-	-	-	-	-	-	-	-	-			
Section 4 Technical Ability	A. Prior Experience		Statement of prior experience and appropriate training for development	X	Yes	No	The information provided on other projects is for facilities are much smaller or have not been operated for a sufficient period of time to understand whether they have the proper operations and procedures to deal with both normal and upset conditions. Therefore they may have theoretical experience, but clearly as a corporation, Nordic Aquafarms does not have the learned experience to overcome industry specific challenges for a facility of this size and magnitude.	-	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never updated.	No
	B. Personnel		Resumes or similar documents detailing the experience and qualifications of full-time, permanent or temporary staff contracted with or employed by the applicant who will design, construct, and oversee development including the installation and maintenance of pollution control measures. These parties must be responsible for design and implementation.	X	Yes	Yes	Resumes provided for personnel and project teams/consultants. But unfortunately their approach to permitting which includes providing some information and little actual equipment data or backup analysis have required DEP to issue many Request for Information (RFIs). The responses to these RFIs are either very involved and contain a lot of new and revised information, or sidestepped the request. It is extremely reasonable to question the technical ability of the personnel completing these incomplete applications and their decision to not formally update the applications. Either this proponent feels they are above keeping their proposed facility information up to speed for the public and regulatory authorities, or they do not possess the technical ability to do so. either way, neither the DEP or members of the general public can easily identify and understand the potential economic, environmental, and energy risks and benefits of their project when the materials are spread out.	-	-	No	-	-	-	-	-	-	No	This sub-section was never changed to reflect the direct changes from a response to a RFI or question.	
Section 5 Noise	A. Developments producing a minor noise impact		did the proponent elect to provide a statement or justification as a minor sound source?	N/A	N/A	N/A	Proponent self identified as a major sound source by putting "N/A" in the application checklist for all aspects of Section 5 (A)	-	-	-	-	-	-	-	-	-	N/A	N/A	
	B	B. Developments producing a major noise impact (full noise study)	did the proponent elect to provide a statement or justification as a major sound source?	X	Yes	Yes	Proponent self identified as a major sound source by putting an "X" in the application checklist indication that it has provided all aspects of Section 5 (B)	-	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
		B.1. Baseline	did the proponent measure or identify the existing background conditions	X	Yes	No	Baseline measurements or a discussion of the existing background conditions was not provided. Based on the project location and size, it is crucial in providing information to insure that proper permit conditions could be developed.	-	-	-	-	-	-	-	-	-			
		B.1.(a) - Uses Zones and Maps	spatial discussion of the area specific to noise	X	Yes	No	For a project of this size would provide images discussing location of baseline conditions and provide figures that depict clearly the project boundary and protected locations property line to insure proper permit conditions.	-	-	-	-	-	-	-	-	-			
		B.1.(b) - Protected Locations	Description of protected locations	X	Yes	No	A discussion of the surrounding protected locations would have been provided to insure proper permit conditions, and to verify the applicants understanding of their proximity to the surrounding protected locations.	-	-	-	-	-	-	-	-	-			
		B.1.(c) - Quiet area	Evidence concerning whether or not the area surrounding the development is a quiet area.	X	Yes	No	To insure proper permit condition for a project of this size a discussion on whether a "quiet area" should have been included in the application. The proponent has done the exact opposite and has pushed exemptions for noise in the application.	-	-	-	-	-	-	-	-	-			
		B.2. - Noise Generated by the development	A description of all types of noise to be generated	X	Yes	No	This information was not provided in the application and therefore their noise report cannot be validated and is not worth the paper it was printed on. A project of this size must provide a detailed discussion of all types of noise in regards to construction, operations, and maintenance. This project includes city sized infrastructures such as a power pant, wastewater treatment plant, water supply facility, etc. EACH of which would provide individual sound sources, if requested.	-	No	-	-	-	-	-	No	No			
		B.2.(a) - source information	type, locations, and sources	X	Yes	No	A project of this size would provide information on the different types, locations, and sources of noise, to insure proper permit conditions.	-	-	No	-	-	-	-	No	No			
		B.2.(b) - Sound levels	a description of daytime and nighttime sound levels expected at property lines and locations for ALL types of sound generated.	X	Yes	No	A project of this size would provide octave band data. Not only is the sound information not provided, but the potential equipment creating it has not been included. band sound levels or sound power data for the equipment used during operation and maintenance, to insure proper permit conditions	-	No	No	-	-	No	-	No	No			
		B.2.(c) - control measures	A description of the proposed sound control measures, location, and expected performance	X	Yes	No	A project of this size would provide information on the locations or expected performance of sound control measures, to insure proper permit conditions. A site with hundreds of sources cannot be properly conditioned with a general "thou shall not exceed" type of condition. That condition is completely impractical for a project with 100s of sources. The time, money, and effort it would take DEP or local regulators to determine which sources are problematic with 100s of sources makes this project as submitted in its application completely impossible to condition.	-	-	-	-	-	No	-	No	No			
		B.2.(d) - Comparison with Regulatory Limits	A comparison of expected sound levels with limits in regulations.	X	Yes	No	The comparison did not discuss the projects impacts due to tonal sounds from the sound sources. Again, no equipment information has been provided, and no modeling assumptions are included in their study, even after requests were made during permitting. Without any sound source data, it is impossible to know which sources are problematic. This approach requires that the proponent agree after the fact to determining the sources of concern. If they do not do this n a satisfactory manner to regulatory authorities, the onus of establishing the baseline after the fact falls on the state or local officials and the time, money, and effort it would take DEP or local regulators to determine which sources are problematic with 180s of sources would strain these resources.	No	No	-	-	-	-	-	No	No			
		B.2.(e) - comparison with local limits.	a comparison of sound levels with any quantifiable noise standards of any affected municipality	X	Yes	No	Due to the magnitude of the project, to insure that there would not be adverse effects on the surrounding protected locations, a comparison of the predict project sound levels to the local limits in Belfast and/or Northport should have been provided. Not only was this not provided, but their is no discussion of construction noise, traffic noise, and operational noise during normal and upset conditions. There is no justification that this source will not be a nuisance during construction, operations, or maintenance.	No	No	-	-	-	-	-	No	No			
Section 6		Visual quality and scenic character	Narrative detailing provisions for minimizing visual impact to surrounding area	X	Yes	No	There are some site lines presented, but not sufficient to demonstrate that this project will be sufficient. The stacks were not included in their submittal. A project of this size would provide visual assessments discussing stacks and other potential protruding rooftop equipment, to insure proper permit conditions.	-	No	No	-	-	-	-	No	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No

SLODA Checklist Req's				May 24, 2019 SLODA Application				If the RFI Response Altered the Application or the Potential Economic, Environmental or Energy Risks and Benefits, Was the Application Updated as a Result?									Is This Sub-Section in the Application as Posted on the DEP website Technically Complete? (Yes/No)	Rationale of Sub-Section Technical Completeness	Is the Section Application as Posted on the DEP website Technically Complete? (Yes/No)
Section	Subsection	Line Item	Required materials	Marked in NAF Checklist	Administratively Complete? (Yes/No)	Technically Complete? (Yes/No)	Summation of Technical Completeness	June 25, 2019 DEP RFI	July 3, 2019 DEP RFI	July 18, 2019 DEP Meeting RFI	July 31, 2019 DEP RFI	August 2, 2019 DEP RFI	September 17, 2019 DEP Geology RFI	October 3, 2019 DEP RFI	October 9, 2019 DEP RFI	November 8, 2019 DEP RFI			
Section 7		**Wildlife and fisheries**	Impacts that could result from proposed development including plan to minimize affect on habitats on or adjacent to site	X	Yes	No	Impacts discussed and mitigation or offsets proposed, but the examination was based on a few days of observations in one season. The rest was completely conjecture. This is contrary to industry standards and is completely insufficient to (1) adequately determine wat is present initially, and (2) establish a baseline to see if adverse impacts occur over time, or god-forbid during a major upset condition.	No	No	No	No	-	No	No	No	No	No	This sub-section was not technically complete in the original application and was never updated.	No
Section 8		**Historic sites**	Demonstrate no effects to historic site, structures or archaeological sites.	X	Yes	Yes	Maine Historic Preservation Commission found no historic or archaeological properties affected by project. Archaeological survey performed and provided.	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	Yes
Section 9		**Unusual natural areas**	Description of appropriate buffers or measures to protect areas on site	X	Yes	Yes	MN/AP, MDIFW, and MDMR were consulted by proponent and several field surveys were performed.	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	Yes
Section 10		**Buffers**	Dimensions, clearing limits, planting specs/schedule, and evidence of maintenance and protection.	X	Yes	No	A project of this size would provide evidence that buffer will be protected in perpetuity, a schedule for planting, and information on individual responsible for maintenance, to insure proper permit conditions. Furthermore, there was no discussion of wetland restoration options as part of buffers	No	No	No	-	-	No	No	No	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
Section 11 Soils	A	**A. Soil survey and map report**	Provide report prepared by certified soil scientist.	X	Yes	Yes	Report provided as Appendix 11-A is prepared by certified soil scientist Ian Broadwater with Broadwater Environmental	No	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question. It is unclear whether new information discussed at the Belfast Planning Board meetings that directly contradits the permit quanities was ever formally updated. It is still unclear exactly how much of he soil will be "unstable" and removed, and "unstable" but will remain.	No
		A.1. Soil investigation narrative	Discussion of field investigation techniques, soil conditions, investigated landforms. Describe limitation of the soils with respect to development	X	Yes	No	A project of this magnitude would provide a discussion of limitation of soils with respect to development.	No	-	No	-	-	No	No	-	-			
		A.2. Soil survey map	Delineation of soil mapping units, soil legend identifying symbols, identification of intensity of soil survey, note referencing standards followed, light overlay of development design	X	Yes	No	The soil survey map did not provide a overlay of development design which would be sufficient to insure proper permit conditions.	No	-	-	-	-	-	-	-	-			
	B	**B. Soil survey intensity level by development type**	Details of the minimum standard for soil surveys related to specific proposed developments	X	Yes	Yes	Class B High Intensity soil survey is appropriately used in report	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
	C	**C. Geotechnical investigation**	Report endorsed by PE that identifies all major limitations to the development from existing soils and other surface or subsurface features of the site. Describe techniques to be used to overcome limitations	X	Yes	No	Report stamped by PE describes limitations of soils and describes proponent's preferred techniques to overcome (excavating and filling). Qualitatively this was done, but not quantitatively and it must be done quantitatively to allow for conditioning.	No	-	No	-	-	No	No	No	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question. It is unclear whether new information discussed at the Belfast Planning Board meetings that directly contradits the permit quanities was ever formally updated. It is still unclear exactly how much of he soil will be "unstable" and removed, and "unstable" but will remain.	
	D	**D. Hydric soils mapping**	Limits of all hydric soils clearly identified on survey map.	X	Yes	Yes	Limits of hydric soils identified in soil survey map	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
Section 12 Stormwater	A	**A. Narrative**	Describe pre and post-development site conditions and estimated affects of post - development site runoff on peak discharge rates, flooding and water quality. Identify standards and proposed BMPs to meet standard	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
		A.1. Development location	General location and orientation of development within watershed(s)	X	Yes	Yes	General locations and orientation of development within watershed provided	-	-	-	-	-	-	-	-	-			
		A.2. Surface water on or abutting the site	Identify all lakes, rivers, streams, brooks, wetlands on or abutting site	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-			
		A.3. Downstream ponds and lakes	All downstream ponds, lakes that may be affected by site runoff. Identify whether each affected pond or lake is in a watershed most at risk from development or a sensitive/threatened region or watershed	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	-	-	-	-	No	-	-			
		A.4. General topography	Description of terrain as flat, gently rolling, hilly or steep	X	Yes	Yes	Describes the undeveloped site as "slopes generally from north to south/southwest into Reservoir Number One"	-	-	-	-	-	-	No	-	-			
		A.5. Flooding	List of areas, buildings, facilities that historically flood or could be affected by site runoff, including on-site and off-site areas, buildings, or facilities	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	No	-	-	-	No	-	-			
		A.6. Alterations to natural drainage ways	Descriptions of proposed changes in alignment and/or channel geometry	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-			
		A.7. Alterations to land cover	Description of how development will change existing land covers	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	-	-	-	-	No	-	-			
		A.8. Modeling assumptions	Assumptions used to determine runoff curve numbers, times of concentration and travel times for each pre and post-development subwatershed.	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-			
		A.9. Basic standards	Provide Basic Standards	X	Yes	Yes	Reference to Section 14 - Basic Standards Submissions	-	-	-	-	-	-	-	-	-			
		A.10. Flooding standard	Provide Flooding standards	X	Yes	Yes	Discussion of flooding standard criteria	-	-	-	-	-	-	-	-	-			
		A.11. General standard	Provide general standard	X	Yes	Yes	Discussion of general standard criteria	-	-	-	-	-	-	-	-	-			
		A.12. Parcel size	Provide parcel size	X	Yes	Yes	General description of parcel size (54-acre)	-	-	-	-	-	-	-	-	-			
		A.13. Developed area	Provide Developed area	X	No	No	No description of developed area size	-	-	No	-	-	-	No	-	-			
		A.14. Disturbed area	Provide disturbed area	X	No	No	No description of disturbed area size	-	-	No	-	-	-	No	-	-			
		A.15. Impervious area	Provide impervious area	X	No	No	No description of impervious area size	-	-	No	-	-	-	No	-	-			
	B	**B. Maps**	Provide maps	X	Yes	Yes	Maps with required information were provided	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
		B.1. Topographic map	USGS 7.5 min topographic map	X	Yes	Yes	Same topo map from Section 1.B.	-	-	-	-	-	-	-	-	-			
		B.2. Soils map	Soil Conservation Service Medium Intensity Soil Survey Map	X	N/A	N/A	N/A	-	-	-	-	-	-	-	-	-			
	C	**C. Drainage plans (pre and post development)**	Scaled site plans for pre and post development site	X	Yes	Yes	cursory drainage plans were included, but will need to be updated	No	No	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct and in-direct changes from a response to a RFI or question.	No
		C.1. Contours	Topography contours as in Section 1.D(4)	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	-	-	No	-	-	-	No	-	-			
		C.2. Plan elements	Legend, north arrow, title block, revision block, etc.	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	-	-	-	-	-	-	No	-	-			
		C.3. Land cover types and boundaries	Cover types as defined by stormwater model	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	No	No	-	-	-	No	-	-			
		C.4. Soil group boundaries	Boundaries of hydrologic soil groups on site	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	No	No	-	-	-	No	-	-			
		C.5. Stormwater quantity subwatershed boundaries	Drainage boundary of each stormwater quantity subwatershed on site	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	-	No	-	-	-	No	-	-			
		C.6. Stormwater quality subwatershed boundaries	Drainage boundary of each stormwater quality subwatershed on site	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	-	-	-	-	-	-	-	-	-			
		C.7. Watershed analysis points	Analysis points used in runoff model for determining peak flow rates	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	-	-	-	-	-	No	-	-			
		C.8. Hydrologic flow lines	Flow lines for determining times of concentration and travel times. For each flow line, indicate flow type (sheet, shallow-concentrated or channel flow)	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	-	-	-	-	-	No	-	-			
		C.9. Runoff storage areas	Areas (depressions, wetlands, ponds, etc.) functioning to detain, retain or infiltrate runoff	X	Yes	No	DEP provided detailed RFI(s) that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	-	No	-	-	-	No	-	-			
		C.10. Roads and drives	State routes, town roads, private drives and unimproved roads on or bordering the site	X	Yes	Yes	Provided on plans	No	No	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct and in-direct changes from a response	

SLODA Checklist Req's				May 24, 2019 SLODA Application				If the RFI Response Altered the Application or the Potential Economic, Environmental or Energy Risks and Benefits, Was the Application Updated as a Result?									Is This Sub-Section in the Application as Posted on the DEP website Technically Complete? (Yes/No)	Rationale of Sub-Section Technical Completeness	Is the Section Application as Posted on the DEP website Technically Complete? (Yes/No)
Section	Subsection	Line Item	Required materials	Marked in NAF Checklist	Administratively Complete? (Yes/No)	Technically Complete? (Yes/No)	Summation of Technical Completeness	June 25, 2019 DEP RFI	July 3, 2019 DEP RFI	July 18, 2019 DEP Meeting RFI	July 31, 2019 DEP RFI	August 2, 2019 DEP RFI	September 17, 2019 DEP Geology RFI	October 3, 2019 DEP RFI	October 9, 2019 DEP RFI	November 8, 2019 DEP RFI			
		C.11. Facilities	Buildings, parking lots and facilities	X	Yes	No	DEP provided detailed RFI that a required a 750 and 1133 page response(s) that included revised and/or new drawings, new text, revised text, replacement text and updated text.	No	-	-	-	-	-	No	-	-		and in direct changes from a response to a RFI or question.	
		C.12. Drainage systems	Culverts, catch basins, storm sewers and outfalls	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	No	-	-	-	No	-	-			
		C.13. Natural and man-made drainage ways	Streams, brooks, swales, road ditches or other open drainage channels	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-			
		C.14. Wetlands	All on-site wetlands	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	-	-	-			
		C.15. Flooded areas	All areas currently flooded due to runoff from 2-year, 10-year, and 25-year 24-hour storms	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	-	-	-			
		C.16. Benchmark	Location of at least one permanent elevation benchmark on site	X	Yes	Yes	Provided on plans	-	-	-	-	-	-	-	-	-			
		C.17. Stormwater detention, retention and infiltration facilities	Location of each facility and the drainage boundary for the area draining to each facility	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-			
		C.18. Stormwater treatment facilities	Location of each treatment measure and the drainage boundary for the area draining to each measure	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	No	-	-	-	No	-	-			
		C.19. Drainage easements	Boundaries of any on-site and off-site drainage easements that are designated as part of the stormwater management system	X	Yes	Yes	Provided on plans	-	No	No	-	-	-	-	-	-			
		C.20. Identify reaches, ponds, subwatersheds matching stormwater model	Identify reaches, ponds, subwatersheds as used in model	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	-	-	-	-	No	-	-			
		C.21. Buffers	Identify buffers	X	Yes	Yes	Buffers identified on drainage plans and likely not changed from RFIs	-	No	-	-	-	-	-	-	-			
	D	**D. Runoff analysis (pre and post development)**	Pre and post development stormwater analyses of the site, in accordance with acceptable engineering practice	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	No	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct and in-direct changes from a response to a RFI or question.	
		D.1. Curve number computations	Computations for determining the curve number for each pre and post development subwatershed	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	-	-	-	-	-	-	-			
		D.2. Time of concentration calculations	Calculations for determining the time of concentration for each pre and post subwatershed	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	-	-	-	-	No	-	-			
		D.3. Travel time calculations	Calculations used to determine the travel time through each pre and post development subwatershed or identified reach	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	-	-	-	-	No	-	-			
		D.4. Peak discharge calculations	Calculations used to determine the peak discharge for each pre and post development subwatershed, reach and watershed reservoir for 24-hour storms of 2, 10, and 25 year frequencies	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	-	-	-	-	No	-	-			
		D.5. Reservoir routing calculations	Provide calculations used to route stormwater through any ponds, basins or other areas which store and release runoff	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	-	-	No	-	-	-	No	-	-			
	E	**E. Flooding standard**	Provide a stormwater quantity management plan for the site, including detention, retention or infiltration of stormwater from 24-hour storms of 2, 10, and 25-year frequencies such that the peak flow of the stormwater from the developed site does not exceed the peak flow of stormwater from the site prior to construction of the project. The project also may not increase the peak flow of any receiving waters as a result of runoff from the site for the same storms.	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	-	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
	F	**F. Stormwater quality treatment plan peak discharge calculations**	Provide a stormwater quality treatment plan for the site. The stormwater runoff calculations for measures designed to meet general standards must be in accordance with acceptable engineering practice, including water volume, buffer sizing. Include a summary of the calculations in a spreadsheet	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never updated.	
	G	**G. Maintenance of common facilities of property**	Identify person responsible for implementing plan, specify transfer mechanism, describe facilities to be maintained, establish inspection and maintenance tasks, identify any deed covenants, restrictions, or easements on the site, provide maintenance log, and supply a copy of any contracts with third parties.	X	Yes	No	DEP provided a detailed RFI that resulted that required 1133 page response that included revised and/or new drawings, new text, revised text, replacement text and updated text .	No	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never updated.	
Section 13		**Section 13 - Urban Impaired Stream Submissions**		N/A	N/A	N/A	Agreed that no urban impaired streams affected	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	Yes
	A	**A. Narrative**	Describe site's erosion potential and control measures during construction and after completion. Describe temporary and permanent erosion control methods to be employed	X	Yes	Yes	Provided in Soil Erosion and Sedimentation Control Appendix 14-A	No	-	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
		A.1. Soil types	Provide soil types	X	Yes	No	Since submission of the permit application the applicant has identified significantly more unstable soil and the soil was not included in the original application.	No	-	No	-	-	-	-	-	-			
		A.2. Existing erosion problems	Identify existing erosion problems	X	Yes	Yes	Appendix 14-A states no significant existing erosion problems have been identified at site	-	-	-	-	-	-	No	-	-			
		A.3. Critical areas	Identify critical areas	X	Yes	No	Not provided in narrative.	-	-	-	-	-	-	No	No	-			
		A.4. Protected natural resources	Identify protected natural resources	X	Yes	No	Not provided in narrative.	-	-	-	-	-	-	No	No	-			
		A.5. Erosion control measures	Identify erosion control measure summary	X	No	No	Not provided in narrative.	-	-	No	-	-	-	No	No	-			
		A.6. Site stabilization	Provide site stabilization summary	X	No	No	Not provided in narrative.	-	-	No	-	-	-	No	No	-			
	B	**B. Implementation schedule**	Expected date by which final stabilization of site will be complete	X	Yes	Yes	The implementation schedule was provided but was never updated as a result of response to RFIs.	-	-	No	-	-	-	No	-	-	No	This sub-section was not technically complete in the original application and was never updated.	
	C	**C. Erosion and sediment control plan**	Show locations of all roads, lot boundaries, buildings, parking lots, material stockpiles, existing and proposed culverts, drainage channels, catch basins, subsurface drainage pipe and storm drain outfalls. Locations of all temporary and permanent erosion controls to be installed on site. Limits of areas disturbed by construction.	X	Yes	No	DEP provided a detailed RFI that resulted in response to RFIs dated 6/25/19, 7/18/2019, 10/3/2019, 10/9/2019 which provided multiple changes compared to the information provide in the original equipment.	No	-	No	-	-	-	No	No	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct and in-direct changes from a response to a RFI or question.	
		C.1. Pre-development and post development contours	Include pre-development and post development contours	X	Yes	Yes	Contours provided	-	-	No	-	-	-	No	-	-			
		C.2. Plan scale and elements	Include plan scale and elements	X	Yes	No	For a project of this magnitude the scales that were provide lacked a legend which makes it challenging to interpret the provided plans.	-	-	-	-	-	-	-	-	-			
		C.3. Land cover types and boundaries	Identify land cover types and boundaries	X	Yes	Yes	Provided on a macro-level, but not on a micro-level. And not sufficient for a project of this size, magnitude, and complexity	No	-	-	-	-	-	No	-	-			
		C.4. Existing erosion problems	Identify existing erosion problems	X	Yes	Yes	N/A - No existing erosion problems identified on site	-	-	-	-	-	-	-	-	-			
		C.5. Critical areas	Identify critical areas	X	Yes	Yes	Critical areas identified	-	-	-	-	-	-	-	-	-			
		C.6. Protected natural resources	Identify protected natural resources	X	Yes	Yes	Protected natural resources identified	-	-	-	-	-	-	-	No	-			
		C.7. Locations (general)	Identify locations of erosion	X	Yes	No	For a project of this magnitude the location of the stockpiles would have also been provided to insure proper permit conditions.	-	-	No	-	-	-	No	-	-			

SLODA Checklist Req's				May 24, 2019 SLODA Application				If the RFI Response Altered the Application or the Potential Economic, Environmental or Energy Risks and Benefits, Was the Application Updated as a Result?									Is This Sub-Section in the Application as Posted on the DEP website Technically Complete? (Yes/No)	Rationale of Sub-Section Technical Completeness	Is the Section Application as Posted on the DEP website Technically Complete? (Yes/No)
Section	Subsection	Line Item	Required materials	Marked in NAF Checklist	Administratively Complete? (Yes/No)	Technically Complete? (Yes/No)	Summation of Technical Completeness	June 25, 2019 DEP RFI	July 3, 2019 DEP RFI	July 18, 2019 DEP Meeting RFI	July 31, 2019 DEP RFI	August 2, 2019 DEP RFI	September 17, 2019 DEP Geology RFI	October 3, 2019 DEP RFI	October 9, 2019 DEP RFI	November 8, 2019 DEP RFI			
Section 14 Basic Standards		**C.8. Locations of controls**	Identify locations of controls	X	Yes	Yes	Locations of control identified	No	-	No	-	-	-	No	No	-			No
		C.9. Disturbed areas	Identify areas to be disturbed	X	Yes	Yes	Disturbed areas identified.	-	-	No	-	-	-	No	No	-			
		C.10. Stabilized construction entrance	Identify stabilized areas for construction vehicles/staging	X	Yes	Yes	Discussed and indicated on plans.	-	-	No	-	-	-	-	No	-			
	D	**D. Details and specifications (temporary and permanent)**	Provide design drawings and specifications for erosion and sedimentation control measures. Details and drawings must be sufficiently detailed to allow a contractor unfamiliar with the control to install and maintain them.	X	Yes	Yes	Drawings and specs arguably detailed enough for contractor to interpret and install/maintain.	-	No	No	-	-	-	No	No	-	No	This sub-section was never changed to reflect the direct changes from a response to a RFI or question.	
	E	**E. Design calculations**	Calculations for sizing, spacing or stabilizing each erosion and sedimentation control measure. Must include analyses for determining peak runoff flow to a control, its storage volume and its outlet design.	X	Yes	Yes	A design calculations was provided in Control Plan Attachment B.	No	No	No	-	-	-	No	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
	F	**F. Stabilization plan**	Provide final stabilization plan including dates, measures, and maintenance	X	Yes	Yes	Provided stabilization plan	No	No	No	-	-	-	No	-	-	No	This sub-section was technically complete and never was updated.	
		F.1. Temporary seeding	Identify areas of temporary seeding	X	Yes	Yes	Provided temporary seeding details	-	-	-	-	-	-	-	-	-			
		F.2. Permanent seeding	Identify areas of permanent seeding	X	Yes	Yes	Provided permanent seeding details	-	-	-	-	-	-	-	-	-			
		F.3. Sodding	Identify areas of sodding	X	Yes	Yes	Provided sodding details	-	-	-	-	-	-	-	-	-			
		F.4. Temporary mulching	Identify areas of temporary mulching	X	Yes	Yes	Provided temporary mulching details	-	-	-	-	-	-	-	-	-			
		F.5. Permanent mulching	Identify areas of permanent mulching	X	Yes	Yes	Provided permanent mulching details	-	-	-	-	-	-	-	-	-			
	G	**G. Winter construction plan**	Provide plan for limiting erosion impacts during winter	X	Yes	Yes	Provided plan for limiting erosion impacts during winter	-	-	-	-	-	-	No	No	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
		G.1. Dormant seeding	Identify areas of dormant seeding	X	Yes	Yes	Provided dormant seeding details	-	-	-	-	-	-	-	-	-			
		G.2. Winter mulching	Identify areas winter mulching	X	Yes	Yes	Provided winter mulching details	-	-	-	-	-	-	-	-	-			
	H	**H. Third-party inspections**	Program must comply with "Special Condition for Third Party Inspection Program" that will be incorporated as part of the department order issued for the development	X	No	No	For the project to insure proper permit conditions a discussion of third party inspection program would have been provided in this sub-section.	-	-	No	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never updated.	
		H.1. Inspector's name, address, and telephone number	Provide inspector's name, address, telephone number	X	No	No	An inspector was not identified in this sub-section.	-	-	-	-	-	-	-	-	-			
		H.2. Inspector's qualifications	Provide inspector's resume, experience.	X	No	No	An inspector was not identified in subsection H.1. Because of this, this sub-section was not addressed properly either.	-	-	No	-	-	-	-	-	-			
		H.3. Inspection schedule	Provide proposed inspection schedule	X	Yes	Yes	An example schedule was not provided.	-	-	No	-	-	-	-	-	-			
		H.4. Contractor contact	Provide contractor contact	X	No	No	A contractor contact was not provided.	-	-	-	-	-	-	-	-	-			
		H.5. Reporting protocol	Provide proposed reporting protocol	X	Yes	Yes	Example forms provided in Attachment C	-	-	-	-	-	-	-	-	-			
Section 15 Groundwater	A	**A. Narrative**	Provide narrative including items below	X	Yes	No	No measures to prevent degradation provided, narrative not complete.	No	No	No	-	-	No	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
		A.1. Location and maps	Project boundaries with MGS Sand and Gravel Aquifer Map, Surficial Geology map, and Bedrock Geological Map	X	Yes	Yes	Three figures provided, 15-1,15-2,15-3	-	-	-	-	-	No	-	-	-			
		A.2. Quantity	Estimate quantity of groundwater to be used, discharged, or extracted. Discuss possibility of adverse impacts including salt water intrusion, reduction of groundwater availability to existing or proposed water supplies, or protected natural resources	X	Yes	Yes	The quantity of groundwater to be used, discharge or extracted was provided in the narrative.	No	-	-	-	-	No	-	-	-			
		A.3. Sources	Identify all potential sources of contamination, including wastewater, solid waste, hazardous materials, fuel, solvents, other chemicals handled, stored or disposed of on site.	X	Yes	Yes	Potential sources of contamination briefly identified	-	-	-	-	-	No	-	-	-			
		A.4. Measures to prevent degradation	Summarize design, construction, operation and monitoring specifications and procedures.	X	Yes	No	The applicant did not provide specifications, only a synopsis that an SPCC plan will be developed and submitted for DEP, and that chemicals stored at the site will adhere to safe storage guidelines and applicable spill protocols, but no further information provided.	-	-	No	-	-	No	No	-	-			
	B	**B. Groundwater protection plan**	If using or storing petroleum products, pesticides, herbicides, fertilizer, road salt, solvents, acids or other materials with the potential to contaminate groundwater, provide a groundwater protection plan. Include equipment design, operational procedures, preventative maintenance, construction techniques and materials, personnel training, spill response capabilities, and spill prevention, control and countermeasure plans, alternative materials or processes, implementation of new technology, modification of facilities or equipment, BMP, hazardous waste contingency plans, runoff or infiltration control systems, and siting considerations	X	No	No	15.4 suggests that procedures to ensure protection of groundwater will be included in SPCC Plan, but goes on to state that such information will include training of on-site personnel to prevent, respond to, and report spills, and routine equipment inspection and maintenance. This statement does not mention the other required materials including equipment design, construction techniques and materials, consideration of alternative materials or processes, modification of facilities or equipment, BMP, hazardous waste contingency plans, and most importantly, siting considerations. Especially for a project of this magnitude a groundwater protection plan would have been provided to insure proper permit conditions.	-	-	No	-	-	No	No	No	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
	C	**C. Monitoring plan**	Provide water quality monitoring plan as a separate manual, if required. Plan should be prepared, signed and dated by a professional qualified in water chemistry interpretation and/or certified geologist	X	Yes	Yes	Water monitoring plan prepared and signed by certified geologist provided	-	-	No	-	-	No	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
		C.1. Monitoring points	Identify and summarize all monitoring points of water level or quality with assigned identification symbols and elevation. Include a map.	X	Yes	No	Monitoring points identified, summarized, and included on map, but no elevation data provided for each well	-	-	No	-	-	No	-	-	-			
		C.2. Monitoring frequency	Number of sampling/analysis events per year and per month	X	Yes	Yes	Frequency provided	-	-	-	-	-	No	-	-	-			
		C.3. Background conditions	Provision for obtaining adequate data on background water quality and/or levels for using a statistically valid method for determining a significant increase in parameter concentrations. At minimum, determination of background water quality or levels must consist of quarterly monitoring for one year	X	Yes	Yes	Discussion of baseline/background monitoring included	-	-	-	-	-	No	-	-	-			
		C.4. Monitoring parameters	List of parameters including references to lab analysis methods to be utilized, detection limits. All monitoring must include field parameters (conductivity, temperature, pH, and TDS) in addition to program specific parameters	X	Yes	Yes	Monitoring parameters listed	-	-	-	-	-	No	-	-	-			
		C.5. Personnel qualifications	Identification of qualified personnel responsible for taking water level and quality measurements and analysis samples. If proposing applicant employee do these tasks, provide proof of training as required by C.6 below.	X	No	No	There was no mentioning whether applicant employee or other personnel will be performing sampling and measurements. For a project of this size a discussion of who would be performing the groundwater sampling and measurements would have been provided.	-	-	-	-	-	No	-	-	-			
		C.6. Proof of training	Written certification for qualified expert that the personnel conducting monitoring are or will be adequately trained to properly collect measurements and/or samples by approved methods and protocols	X	No	No	The applicant did not provide information in regards to personnel qualifications as requested in sub-section C.5. Because of this this sub-section was not addressed properly either.	-	-	-	-	-	-	-	-	-			
		C.7. Equipment and methods	Describe equipment and methods to be employed for water level measurements and/or water quality analysis sample taking	X	Yes	Yes	Standard Operating Procedure Guidelines referenced in Appendix A.	-	-	No	-	-	No	-	-	-			
		C.8. Quality assurance/quality control	Describe the QA/QC control and chain-of-custody protocols to be followed for water quality sampling, preservation, storage, transport, and lab analysis	X	Yes	No	Referenced chain-of-custody SOP. QA/QC only discussed in reference to laboratory analysis, not for sampling, preservation, storage or transport.	-	-	No	-	-	No	No	-	-			
		C.9. Reporting requirements	Provision to submit all data and analyses to the department annually or at another schedule required by the department. Annual reports should present data in tabular format including data from previous monitoring. In the event contamination is detected or operational problems that could lead to contamination occur, the department must be notified immediately.	X	Yes	No	The applicant does not mention contacting DEP or a discussion of contamination response, they only discuss adverse impacts and remedial action plan. It is important that the monitoring plan is provide that due to the size of this facility.	-	-	No	-	-	No	-	-	-			
		C.10. Remedial action plan	Provision that if results of water levels or quality monitoring indicate adverse effects are occurring as a result of project activity, an evaluation will be made by a qualified professional and an appropriate remedial action and/or mitigation plan will be developed and submitted to the department for review and approval	X	Yes	Yes	Remedial action plan is discussed	-	-	-	-	-	No	No	-	-			
	D	**D. Monitoring well installation report**	Locations, depths, construction details must be provided in a report endorsed by a certified geologist, containing narrative of date of install, method of install, purpose and objectives of monitoring network and a discussion on the basis for selection of monitoring well locations and depths	X	Yes	Yes	Monitoring well installation report provided	-	-	-	-	-	No	-	-	-			

SLODA Checklist Req's				May 24, 2019 SLODA Application				If the RFI Response Altered the Application or the Potential Economic, Environmental or Energy Risks and Benefits, Was the Application Updated as a Result?									Is This Sub-Section in the Application as Posted on the DEP website Technically Complete? (Yes/No)	Rationale of Sub-Section Technical Completeness	Is the Section Application as Posted on the DEP website Technically Complete? (Yes/No)
Section	Subsection	Line Item	Required materials	Marked in NAF Checklist	Administratively Complete? (Yes/No)	Technically Complete? (Yes/No)	Summation of Technical Completeness	June 25, 2019 DEP RFI	July 3, 2019 DEP RFI	July 18, 2019 DEP Meeting RFI	July 31, 2019 DEP RFI	August 2, 2019 DEP RFI	September 17, 2019 DEP Geology RFI	October 3, 2019 DEP RFI	October 9, 2019 DEP RFI	November 8, 2019 DEP RFI			
Section 16 Water Supply	D	D.1. Well location map	Map showing final groundwater monitoring well locations with ID symbols, locations of benchmark for well and ground surface elevations, notes describing BM, reference elevation, name title and address of party responsible for establishing BM	X	Yes	Yes	Well location map provided	-	-	-	-	-	No	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
		D.2. Elevation data	Nearest tenth of a foot of: ground surface, top-of-casing, top and bottom of well screen interval referenced to BM.	X	Yes	Yes	Elevation data provided	-	-	-	-	-	No	-	-	-			
		D.3. Well installation data	nearest tenth of a foot of: depth to bottom of borehole and well casing from ground surface and height above ground surface of top-of-casing	X	Yes	Yes	Well installation data provided	-	-	-	-	-	-	-	-	-			
		D.4. Well construction details	Type and thickness of seals, texture of packing used around screened interval and diameter/specs of well screen and casing	X	Yes	Yes	Well construction details provided	-	-	-	-	-	No	-	-	-			
		D.5. Borehole logs	Borehole logs annotated by certified geologist	X	Yes	Yes	Borehole logs provided	-	-	-	-	-	-	-	-	-			
		D.6. Summary of depth measurements	Depths and elevations measurements to phreatic or potentiometric groundwater surface	X	Yes	Yes	Summary of depth measurements provided	-	-	-	-	-	-	-	-	-			
		D.7. Characteristics of subsurface strata	Hydraulic conductivity of subsurface strata and associated field data and calculations. Include estimated time-of-travel from potential contamination sources to each monitoring point	X	Yes	Yes	Characteristics of subsurface strata provided	-	-	-	-	-	-	-	-	-			
		D.8. Well installation contract	Copy of well/piezometer drilling and installation contract and specs	N/A	No	No	The applicant does not provide a copy of the well installation contract.	-	-	-	-	-	-	-	-	-			
		D.9. Schematic cross-sections	Items 2-6 above included in a schematic cross section diagram for each monitoring point	X	Yes	Yes	Schematic cross-sections provided	-	-	-	-	-	-	-	-	-			
		D.10. Monitoring point summary table	ID symbol, top-of-casing elevation, ground surface elevation and well/piezometer depth	X	Yes	Yes	Monitoring point summary table provided	-	-	-	-	-	No	-	-	-			
		D.11. Protective casing	Provide protective steel casings with locking caps or other measures to protect the wells	X	Yes	Yes	Protective casing details provided	-	-	-	-	-	-	-	-	-			
		D.12. On-site well identification	Permanent ID markings that include a tag inside the well cap and ID markings on the outside of the protective casing must be provided. Witness stake or flagging at each monitoring point or brightly painted casing should be considered so that monitoring points may be easily found	X	Yes	Yes	On-site well identification provided	-	-	-	-	-	-	-	-	-			
	A	A. Water supply method	Describe methods by which drinking and process water will be supplied to development	X	Yes	No	The applicant provides a discussion of three potential water supply options, but does not consider the implications if one or more are unavailable at any time.	-	-	-	-	-	No	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct and in-direct changes from a response to a RFI or question.	No
		A.1. Individual wells (evidence of sufficient/healthful supply)		N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.1.(a) Support of findings by well drillers		N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.1.(b) Support of findings by geologist		N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.2. Common well(s) (reports)	Facility requiring more than 300 gallons per day	X	Yes	Yes	The applicant does consider that water is common, but does not provide any discussion directly on common well(s).	-	-	-	-	-	No	-	-	-			
		A.2.(a) Hydrogeology report	Certified geologist indicating sufficient healthful water supply is likely available, map showing recommended location of well or wells and determination of risks to off-site wells or protected natural resources from groundwater withdrawal	X	Yes	Yes	.A Hydrogeology report is provided in Appendix 15-A	-	-	-	-	-	No	-	-	-			
		A.2.(b) Engineering report	Report from PE including evidence of adequate provisions made for proper long-term O&M of water supply system, identify personnel responsible for O&M, and design plans and detail sheets for the storage, treatment and distribution system	X	No	No	The applicant does not provide an engineering report that considers long-term impacts from continuous withdrawal under their "normal" operations, and it does not provide short-term or long-term impacts for stressed conditions.	-	-	-	-	-	No	-	-	-			
		A.2.(c) Well installation report	Report stating name of well driller, date of well installation, map showing installed location, well depth, drilling log, construction details, estimate of yield. If not yet installed, indicate schedule for providing this information after well(s) are established	X	No	No	The applicant does not provide a well installation report.	-	-	-	-	-	No	-	-	-			
		A.2.(d) Long-term safe yield and zone of influence determination	Determination of long-term safe yield of each well, including prediction of operating levels and determination of the zone of influence and zone of capture for each well. Include any pump test data and interpretation, monitoring data, monitoring plan.	X	No	No	The applicant does not provide a zone of influence report that considers long-term impacts from continuous withdrawal under their "normal" operations, and it does not provide short-term or long-term impacts for stressed conditions.	-	-	-	-	-	No	-	-	-			
		A.2.(e) Public water supply	At least 15 service connections or will regularly serve an average of 25 individuals daily for at least 60 days per year. If common well(s) meets this definition, provide the following	N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.2.(e)(i) Proposed well or wells	If not yet built, provide copy of application and attachments required for preliminary approval by DHHS-DWP	N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.2.(e)(ii) Existing well or wells	If built, provide copy of application and attachments required for either after-the-fact approval or preliminary and final approval	N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.2.(e)(iii) Water quality analysis		N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.3. Well construction in shallow-to-bedrock areas		N/A	N/A	N/A		-	-	-	-	-	-	-	-	-			
		A.4. Additional information	If department considers that a sufficient and healthful water supply may not be provided by on-site wells, provide potability test of water from wells located in proximity to the site, establish one or more test wells on-site, pump tests of the well, report by a certified geologist indicate the yield and potability of the water from the well(s). Complete hydrogeologic assessment of groundwater quality and quantity may also be required	X	No	No	Although the 'potable nature" for the site will be for the fish and will include pretreatment. The cone of influence from drawing continuously during normal and drought conditions suggests many possible wells may be affected, and reports were not performed on these potential wells.	No	No	No	-	-	No	-	-	-			
		A.5. Off-site utility company or public agency	Letter from supplier demonstrating a sufficient and healthful water supply exists and may be utilized by development	X	Yes	Yes	BWD letter of capacity provided	-	-	-	-	-	No	-	-	-			
		A.6. Other sources	Describe any other sources of water supply and provide evidence of acceptable water quality and quantity	X	Yes	Yes	Other sources described	-	-	-	-	-	No	-	-	-			
	B	B. Subsurface wastewater disposal systems (location of system/well)		N/A	N/A	N/A		-	-	-	-	-	-	-	-	-	N/A	N/A	
	C	C. Total usage (total anticipated water usage)	Indicate total anticipated water usage	X	Yes	Yes	Total anticipated usage provided in Table 16-1.	-	No	-	-	-	No	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
Section 17 Wastewater	A	A. On-site subsurface wastewater disposal systems (investigation)	If sewage disposal will be by subsurface wastewater disposal systems, provide an on-site investigation report by licensed evaluator.	N/A	N/A	N/A		-	-	-	-	-	-	-	-	-	N/A	N/A	No
	B	B. Nitrate-nitrogen impact assessment	For all subsurface wastewater disposal systems proposed at the development, provide an assessment report by a certified geologist of the effect of nitrate-nitrogen on groundwater quality	N/A	N/A	N/A		-	-	-	-	-	-	-	-	-	N/A	N/A	
	C	C. Municipal facility or utility company letter	Provide letter from municipal facility acknowledging that there is sufficient collection and treatment capacity, and stating that the municipality agrees to accept the amount and nature of the wastewater flow from the development.	X	Yes	Yes	There will be minimal discharge to the Belfast Sewer system since there is an on-site wastewater treatment system proposed to dump the effluent directly into the bay approximately 2,800 feet offshore. While the facility must be in compliance for wastewater discharge to the city system, the process wastewater dwarfs the city supply by a ration of millions of gallons per day to hundreds of gallons per day, so whether or not wastewater considerations have been satisfied for SLODA and directly related to satisfying subsection "D." directly below.	-	-	No	-	No	-	-	-	No	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
	D	D. Wastewater discharge information	If the development will discharge any liquid waste into any stream, river, pond, lake or other body of water including tidal waters, describe the type of discharge, volume of discharge and body of water affected.	X	Yes	No	This section simply references the wastewater analysis for the discharge permit. Unfortunately, the wastewater analysis only examines a normal "good day". With an assumption of 99% control in the permitting analysis then a condition of 99% control would need to be applied in the permit conditions. That is simply not realistic for all situations and all times. It does not account for normal equipment failures and upset conditions, and it does not consider that the plant will need to continue to operate during upset conditions to prevent toxic exposure to the fish. The number one component that has not been identified for wastewater is the fish feed. A fraction of the fish feed will pass through to wastewater treatment each and every day. The wastewater impact cannot be assessed for a project of this magnitude without a fish food proposed with an "or equal". Trace compounds will be present in any fish food, and trace compounds matter at this magnitude with 7.7 million gallons discharge each and every day.	-	-	-	No	-	-	-	-	-	No	The analysis provided reflects the wastewater discharge permit application, and it essentially says 99% or more removal will be continuos and constant. This sub-section is extremely incomplete as it does not reflect any scenarios other thean the perfect, normal operations, sunny day.	
Section 18 Solid Waste	Section 18 - Solid waste		List types and estimated quantities of solid waste to be generated, including but not limited to, stumps/grubbings, construction debris, demo debris, household waste, industrial waste, special and hazardous wastes. Method of collection and location of disposal facility should be listed. If taken to transfer station, identify facility(ies) at which waste is ultimately disposed.	X	Yes	No	Inconsistent information on soil and rock waste was provided. Table 18-1 in the application suggests only 34,000 cubic yards of soil yet other sections suggest otherwise, and the responses to the RFIs further cloud these inconsistencies. With respect to actual solid waste created there is insufficient analysis provided. The project does not discuss the methods of keeping the fish waste fresh. Spoiled fish waste has very limited disposal pathways. Furthermore, there is no discussion of PFAS potential for this project, and if the undefined fish food has PFAS compound present, then their is really no room for this waste created as there is limited solid waste capacity in Maine as it is, and currently more municipal wastewater solids are being directed to landfills based upon PFAS screening levels.	-	-	No	-	-	-	-	No	No	No	This sub-section was not technically complete in the original application and was never updated.	No
	A	A. Commercial solid waste facility (final disposal location)	Contracts or commitment letters covering the hauling and disposal of solid waste for at least one year following the date of department order. Include license number of hauler	X	Yes	No	Letter of commitments provided, but the applicant does not discuss what these haulers would require for waste to be "acceptable". Many waste facilities have limits of fish waste because of the air emissions and odor potential. Those are directly related to the on-site storage methods and age. The information provided is insufficient to condition the permit for haulers to meet their needs.	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never updated.	
	B	B. Off-site disposal of construction/demolition debris (final disposal)	Contracts or commitment letters covering hauling and disposal of debris for one year from date of department order. Include license number of hauler.	X	Yes	Yes	The applicant provide a letter of commitments.	No	-	No	-	-	No	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
	C	C. On-site disposal of woodwaste/land clearing debris		N/A	N/A	N/A	The facility is so large and consumes so much of this site, that the proponent claims that it cannot recreate wetlands, so this subtask is impossibe.	-	-	-	-	-	-	-	-	-	N/A	N/A	

SLODA Checklist Req's				May 24, 2019 SLODA Application				If the RFI Response Altered the Application or the Potential Economic, Environmental or Energy Risks and Benefits, Was the Application Updated as a Result?									Is This Sub-Section in the Application as Posted on the DEP website Technically Complete? (Yes/No)	Rationale of Sub-Section Technical Completeness	Is the Section Application as Posted on the DEP website Technically Complete? (Yes/No)
Section	Subsection	Line Item	Required materials	Marked in NAF Checklist	Administratively Complete? (Yes/No)	Technically Complete? (Yes/No)	Summation of Technical Completeness	June 25, 2019 DEP RFI	July 3, 2019 DEP RFI	July 18, 2019 DEP Meeting RFI	July 31, 2019 DEP RFI	August 2, 2019 DEP RFI	September 17, 2019 DEP Geology RFI	October 3, 2019 DEP RFI	October 9, 2019 DEP RFI	November 8, 2019 DEP RFI			
	D	D. Special or hazardous waste	Details for handling of hazardous waste	X	Yes	No	it is unclear what hazardous waste may be created without identifying the fish feed. There is no discussion of how hazardous waste will be stored, handled, shipped or disposed if there is a minor or major upset condition where significant increased waste is created that may include pathogens. For a project of this magnitude, a "detailed" discussion as required should be provided.	No	-	No	No	-	No	-	-	No	No	This sub-section was not technically complete in the original application and was never updated.	
Section 19 Flooding	A	A. Explanation of flooding impact	Explanation as to whether this development will or will not cause or increase flooding or cause an unreasonable flood hazard to any structure. Show 100-year flood elevation on site plan. Provide hydrological analysis showing that development will not adversely affect 100-year flood elevation. Include copy of FEMA flood zone map with site boundaries	X	Yes	Yes	Explanation was provide initially, but the significant stormwater modifications and changes to diverting streams drastically changed the application assumptions.	-	-	-	-	-	-	No	-	-	No	This sub-section was never changed to reflect the in-direct changes from a response to a RFI or question.	Yes
	B	B. Site plan showing 100-year flood elevation	Explanation as to whether this development will or will not cause or increase flooding or cause an unreasonable flood hazard to any structure. Show 100-year flood elevation on site plan. Provide hydrological analysis showing that development will not adversely affect 100-year flood elevation. Include copy of FEMA flood zone map with site boundaries	X	Yes	Yes	100-year flood site plan was provided.	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
	C	C. Hydrology analysis	Explanation as to whether this development will or will not cause or increase flooding or cause an unreasonable flood hazard to any structure. Show 100-year flood elevation on site plan. Provide hydrological analysis showing that development will not adversely affect 100-year flood elevation. Include copy of FEMA flood zone map with site boundaries	X	Yes	Yes	Explanation was provide, but the significant stormwater modifications and changes to diverting rivers drastically changed the application	No	No	No	-	-	-	No	-	-	No	This sub-section was never changed to reflect the direct and in-direct changes from multiple responses to a RFIs	
	D	D. FEMA flood zone map with site boundaries	Explanation as to whether this development will or will not cause or increase flooding or cause an unreasonable flood hazard to any structure. Show 100-year flood elevation on site plan. Provide hydrological analysis showing that development will not adversely affect 100-year flood elevation. Include copy of FEMA flood zone map with site boundaries	X	Yes	Yes	FEMA map was provided	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	
Section 20 Blasting	A	A. Site plan or map	Indicate proposed blast areas on and off-site and wells within 2000 feet of any blast site.	X	Yes	Yes	Blast areas indicated and wells within 2000 feet identified	-	-	No	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	No
	B	B. Report	Report prepared by a qualified professional that includes the following.	X	Yes	No	Note: Section text "negligible at best" is example of understating impacts in exaggerative manner for normal conditions. If negligible means "so unimportant it is not worth considering", then what about how is it in something unusual is discovered?	-	-	-	-	-	No	-	-	-	No	This sub-section was never changed to reflect the direct changes from a response to a RFI or question.	
		B.1. Assessment	Potential for adverse effects of blasting on protected natural resources and structures and wells, at a minimum vibration, peak particle velocities, noise and airblast effects and on and off-site ground and surface water quality and quantity	X	Yes	No	For a smaller project it may not be necessary to identification of protected natural resources or nearby structures that may be affected due to blasting, but for a project of this magnitude it is necessary to insure that the surrounding protected locations do not experience adverse effects.	-	-	No	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never updated.	
		B.2. Blasting plan	Methods to control adverse effects from vibration, airblast and flyrock, details on blast design, monitoring of blasts, blast schedule, provisions for pre-blast surveys, signage, warnings, and access control during blast events.	X	Yes	No	The applicant does not provide methods for controlling noise, or how they will be monitored or how they will respond to exceedances. For a facility of this magnitude which will take years to construct, a blasting plan is necessary to insure proper permit conditions.	-	-	No	-	-	No	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
Section 21 Air Emissions	A	A. Point and non-point sources identified	Identify all point source and non-point air emissions deriving from development, including but not limited to stacks, unpaved roads or areas and vehicular traffic. For point sources, include a summary of emission components showing types and amounts of particulate matter and all gaseous components.	X	Yes	No	In this sub-section the applicant did not identify non-point sources, other point sources which were listed elsewhere and there was no discussion of source locations. Fugitive emissions from vehicular traffic in particular was also not identified. Non-combustion sources were never discussed. That is simply unacceptable for project of this size, magnitude, and complexity. conditions cannot be developed if the processes are not included in the application that create these non-combustion sources.	No	-	No	No	-	No	-	-	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
	B	B. Emission components (point sources)	Identify all point source and non-point air emissions deriving from development, including but not limited to stacks, unpaved roads or areas and vehicular traffic. For point sources, include a summary of emission components showing types and amounts of particulate matter and all gaseous components.	X	Yes	No	In this sub-section the applicant did not identify non-point sources, other point sources which were listed elsewhere and there was no discussion of source locations. Fugitive emissions from vehicular traffic in particular was also not identified. Non-combustion sources were never discussed. That is simply unacceptable for project of this size, magnitude, and complexity,. conditions cannot be developed if the processes are not included in the application that create these non-combustion sources.	-	-	-	-	-	-	-	No	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	
Section 22 Odors	A	A. Identification of nature/source	Identify the nature and potential sources of odors from the development. Provide an estimate of areas affected and methods of control	X	Yes	No	For a facility of this magnitude, and proximity to various protected locations, the applicant should have provided specific locations of which sources will have odor potential needs to be identified. Without this information , this sub-section is insufficient, and it can not be determined if the surrounding protected locations will be affected by the potential odors from the facility.	-	-	No	No	-	No	-	No	No	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	No
	B	B. Estimate of areas affected	Provide an estimate of the areas on-site and off-site that may be affected by odor.	X	No	No	The proponent only discusses that no areas will be affected with all control measures and waste haulers in place and working perfectly. The phrasing of this section suggests it is a tiered evaluation 1) what and where is the odor coming from, 2) who is affected by this odor, 3) how will you minimize the affects of the odor? The proponent should discuss if the protected locations would be affected to insure the proper permit conditions.	-	-	No	-	-	-	-	-	No	No	This sub-section was not technically complete in the original application and was never updated.	
	C	C. Methods of control	Provide details for the proposed methods of control, including technologies, odor reduction, specifications.	X	Yes	No	For a facility of this size, magnitude, and complexity it is simply not sufficient to suggest that they will hire people that will help. They need a proven plan that will work. It is not possible to condition the project with this application information. The vague description of "air filtration that may include carbon, biofilters, wet scrubbers, and media" is insufficient to determine that the facility has the proper protocols. The applicant states that organic material removed from water filtration will be stored in tanks with vents, but they did not provide a discussion on how vent air will be treated or where this source(s) will be located. A more detailed discussion is necessary to insure proper permit conditions.	-	-	No	-	-	-	-	-	No	No	This sub-section was not technically complete in the original application and was never updated.	
Section 23		Section 23 - Water vapor (narrative)	Provide narrative identifying any potentially large scale water vapor emissions from the development, such as that resulting from a processing plant or power generating facility, which may cause a change in local climate. Identify all sources and amounts of such emissions associated with the development and all abutting areas impacted by the water vapor emissions.	X	Yes	No	The applicant provided a statement claiming that the construction and operation of the project will not cause an unreasonable alteration of climate including alterations to existing cloud cover, fog, or rainfall characteristics, but no analysis of water vapor on the area or on the approach to the local airport was provided. For a project of this magnitude a more detailed narrative would have been provided to insure proper permit conditions.	-	-	-	-	-	-	-	-	-	No	This sub-section was not technically complete in the original application and was never updated.	No
Section 24		Section 24 - Sunlight (statement and drawing)	Provide statement concerning whether or not any structures will block access to direct sunlight for structures utilizing solar energy through active or passive systems	X	Yes	Yes	The facility did not consider shadows from the stacks, but it should not impact solar options	-	-	-	-	-	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	Yes
Section 25 Notices	A	A. Evidence that notice sent	Complete/provide Forms B&C in part III of the application	X	Yes	Yes	Postage receipts for NOI sent to abutters, and clipping of local newspaper containing NOI provided. Unfortunately NAF did not notify abutters of their sewer work and they did not update their abutter list accordingly	-	-	No	-	No	-	-	-	-	Yes	This sub-section was technically complete and any minor changes would not significantly impact potential economic, environmental or energy risks and benefits.	Yes
	B	B. List of abutters for purposes of notice	Provide list of names and addresses of the owners of abutting property	X	Yes	Yes	List of abutters was provided in Appendix 25-B.	-	-	-	-	No	-	-	-	-	No	This sub-section was not technically complete in the original application and was never changed to reflect the direct changes from a response to a RFI or question.	

STATE OF MAINE
BOARD OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF

NORDIC AQUAFARMS, INC. Belfast and Northport Waldo County, Maine	)	
A-1146-71-A-N L-28319-26-A-N L-28319-TG-B-N L-28319-4E-C-N L-28319-L6-D-N L-28319-TW-E-N W-009200-6F-A-N	)	**PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW**

I. PROJECT DESCRIPTION:

Nordic Aquafarms, Inc. ("Nordic") wishes to build and operate a land-based salmon rearing and processing facility on U.S. Route One on the southern extreme of the City of Belfast, Maine along the northern boundary of the Town of Northport. The proposed site is separated from Penobscot Bay by U.S. Route One and a residential property. An application for a Maine Pollutant Discharge Elimination System Permit/Waste Discharge License ("MEPDES/WDL") was submitted to the Maine Department of Environmental Protection ("Department" or "DEP") on October 19, 2018 and accepted as complete for processing on November 9, 2018. On May 17, 2019, Nordic submitted a Site Location of Development Act ("SLODA") application, a Natural Resources Protection Act ("NRPA") application, a Chapter 115 Air Emission License application, and an addendum to the MEPDES/WDL application. Those permit applications were processed in the normal course and Commissioner Gerald Reed referred them to the Board of Environmental Protection ("Board" or "BEP") for the purpose of conducting administrative hearings. Following the submission of petitions under the rules, seven parties were granted status of intervenors in this

proceeding. DEP staff reviewed the applications; and, on numerous occasions, requested additional information from Nordic. Nordic provided responses to those requests and on February 11, 2020, BEP commenced a hearing which concluded shortly after noon on Friday, February 14, 2020. The record remained open for comments until the close of business until 5:00 p.m. February 18, 2020, except that BEP was awaiting a report from the Department of Marine Resources ("DMR") which was to conduct a public hearing on March 2, 2020. Following that public hearing, DMR submitted an "addendum" dated April 7, 2020, which BEP invited responses from Nordic to be filed on or before April 16, 2020, with intervenors responses to be filed within one week after receipt of Nordic's response. Nordic and the intervenors were invited to submit briefs, findings of fact, and conclusions of law on or before May 4, 2020.

II. FINDINGS OF FACT:

A. TITLE, RIGHT, OR INTEREST (06-096 C.M.R. ch. 2, § 11(D)):

1. The SLODA Application, Section 2, requires the applicant to demonstrate the right to land use.

2. Ownership of the intertidal zone where Nordic proposes to bury intake and discharge pipes is in dispute and currently under judicial review. (DEP Acceptance Letter dated June 13, 2019, p.1) (K. Tucker, Telephonic BEP Public Hearing, Apr. 16, 2020)

B. FINANCIAL CAPACITY (06-096 C.M.R. Ch. 373, § 2):

1. The SLODA Application, Section 3 requires the applicant to provide evidence of financial capacity.

2. Required documentation of financial capacity includes "Estimated Costs." Nordic provided a chart tracking only ten (10) categories of estimated development costs through six (6) phases. (Prefiled Testimony, B. Chandler, at 2, Table 3.1)

3. Required documentation includes evidence of "Financing." Nordic chose to document financing according to option 3, "Other."

4. This option requires demonstrating (a) cash equity commitment to the development, with 20% considered normal. Nordic has not documented or claimed any cash equity committed to this development beyond the permitting process. 2/11/20 Tr. 81:25-82:13 (M. Reeve).

5. This option requires a "Financial Plan" for the remaining financing. SLODA Application, Sec. 3. Nordic says that financing will be 40% equity, 50% debt, and 10% from working capital. Nordic has presented no plan for form, sources or timing of debt financing, and no plan to generate working capital. Rebuttal Testimony of M. Reeve, at 1-3.

6. Documenting financing also required a letter from an appropriate financial institution indicating an intention to provide financing. SLODA Application, Sec. 3. NAF has not provided any letter indicating an intent to provide financing. (Rebuttal Testimony of M. Reeve, at 1).

C. TECHNICAL ABILITY (06-096 C.M.R. Ch. 373, § 3):

1. The SLODA Application, Section 4, addresses technical ability to undertake the development.

2. Nordic Aquafarms, AS, the applicant's parent corporation, currently operates three fish-raising facilities in Norway and Denmark: Fredrikstad Seafoods, Sashimi Royal, and Maximus AS. (SLODA Application, Sec. 4, Technical Ability, at p. 1)

3. Nordic proposes to produce 33,000 metric tons of salmon per year in Belfast. (SLODA Application Sec. 1, p.1)

D. AIR QUALITY (06-096 C.M.R. Ch. 375, § 1):

1. Chapter 375, Section 1 of the Department regulations requires the applicant demonstrate no unreasonable adverse effect on ambient air quality, through point or non-point sources of chemical pollutants or particulate matter from commercial or industrial developments.

2. The SLODA application, Section 21, requires identification of "all point source and non-point source air emissions deriving from the development, including but not limited to stacks, unpaved roads or areas and vehicular traffic."

3. Nordic identified only one source, eight (8) generators to be used for "peak-shaving" during periods of high public electric demand. 2/13/20 Tr. 213:25-214:.2 (S. Whipple).

4. Nordic states that no more than seven (7) generators will run concurrently, with one reserved as "back-up." (SLODA Application, Sec. 21, Appendix 21-A, at 1-2).

5. DEP air dispersion models are based on seven (7) generators as the sole source of emissions for the entire facility. (Mar. 13, 2020 Air Dispersion Modeling at 3). Modelling does not allow for ancillary equipment such as mufflers (SLODA Application Sec. 05, Appendix 5-A, at 6).

6. The generators can supply power needs for several days during power outages. (2/13/20 Tr. 258:12–259:3 (E. Cotter).

7. DEP air dispersion models predicted that emissions from the power plant alone will quadruple the ambient 1-hour NO^2 concentrations in the area and consume at least 85% of the allowable ambient NO^2 emissions. (Apr. 2, 2020 Upstream/NVC Comment, Michael Lannan/Tech Environmental, at 7)

8. Nordic is subject to Standard Condition 4, which addresses ongoing fugitive dust. (SLODA Application, Sect. 21, Air, Text, p. 1).

9. Site preparation will involve excavating to over 40 ft. deep, including, according to Nordic, blasting 18,000 tons of bedrock. (SLODA Application., Sect. 20, Text, at. 1-2).

10. Stephen Whipple, the Professional Engineer responsible for identifying applicable Clean Air Act requirements for Nordic, (Rebuttal Testimony of S. Whipple at 1) was not aware of plans to operate an on-site cement plant during construction. 2/13/20 Tr. 234:15-18 (S. Whipple).

11. Construction and operations will generate fugitive dust. (SLODA Application, Sec. 21, Air, Appendix 21-B at 1).

12. No sources of dust were identified for or included in air dispersion models.

E. DRAINAGE WAYS (06-096 C.M.R. Ch. 375, § 3):

1. Chapter 375, Section 3 of the Department rules requires demonstration by the applicant that the proposed development will have no unreasonable alteration of natural drainage ways.

2. NAF proposes to fill or disrupt eight of the nine streams on site. (NRPA Application Sec. 13, Appendix 13-A, Impact Compensation Plan at 7-9, Fig. 2; Nov. 5, 2019 NAF Response (incl. Att. A-F), p.17)

3. Stream 9 will be excavated for 145 feet, and artificially restored and planted as a drainageway. (Id. at 9)

4. In place of natural drainage, NAF proposes to intercept surface water from surrounding upland areas and divert it, along with on-site precipitation, to the Little River below the lower dam. (Prefiled Testimony of M. McGlone at 1-2 (#3, #4))

F. INFILTRATION (06-096 C.M.R. Ch. 375, § 4):

1. Chapter 375, Section 4 of the Department rules requires demonstration by the applicant that the proposed development will have no unreasonable effect on runoff/infiltration

relationships, including evidence that the stormwater management system will be fully coordinated with project site plans.

2. Nordic intends to intercept all surface groundwater with perimeter drains before it enters the site. 84% of the precipitation falling on the developed area within the site would be collected and diverted off-site. (SLODA Application, Sec. 1, Project Overview, at 4)

3. Nordic proposes to withdraw 455 gallons per minute of groundwater from on-site wells. (SLODA Application Sec. 15, Groundwater, Appendix 15-A, Investigation Report, at 3)

4. Recharge from precipitation represents the major source of water to Nordic's modeled groundwater system. (Prefiled Testimony of M. Mobile, at 4 (#12))

G. GROUND WATER QUANTITY (06-096 C.M.R. Ch. 375, § 8):

1. Chapter 375, Section 8 of the Department rules requires demonstration by the applicant that the proposed development will have no unreasonable effect on ground water quantity. The depletion of ground water resources can result in the intrusion of saltwater into potable ground water supplies, affect the assimilative capacity of surface water bodies, and compromise neighboring wells.

2. Nordic anticipates using approximately 1,205 gallons per minute (gpm) of freshwater from three sources: 500 gpm purchased from the Belfast Water District (BWD), 250 gpm of surface water from the reservoir, and 455 gpm of groundwater from onsite wells. (SLODA Application, Sec. 16, Text, at 1; Appendix 15-A, at 3)

4. 500 gpm is the maximum amount that the BWD could provide without prohibitively expensive new infrastructure. (Prefiled Testimony of B. Bryden at 10)

5. Surface water from the reservoir is reliant on the lower dam. The lower dam is in poor repair with no plans for maintenance. (Prefiled Testimony, GEI, at. 23, Lower Dam Observation)

6. Surface water is contaminated and requires sophisticated treatment measures. (Prefiled Testimony of B. Bryden at 4).

7. Ground water, as noted above, depends on recharge from precipitation that will be intercepted and rerouted off-site by perimeter drains and an extensive storm-drainage system. Nordic has experienced saltwater intrusion into one of its wells. 2/11/20 Tr.160:17-19 (T. Neilson).

8. Nordic testing indicates that existing, neighboring wells will experience a 10-14 ft. drop in water level. (Prefiled Testimony of M. Mobile, at15, and Fig. 14A (Simulated Maximum Drawdown Scenario within Model Layer 3))

H. BUFFER STRIPS (06-096 C.M.R. Ch. 375, § 9)):

1. Chapter 375, Section 9 of the Department rules recognizes the importance of natural buffer strips to protect water quality and wildlife habitat. Buffer strips can serve as visual screens which can serve to lessen the visual impact of incompatible or undesirable land uses.

2. The site includes diverse wildlife habitats, connecting fields, wetlands, and mature woodland to shoreland and intertidal environments. (Prefiled testimony of A .Fiorillo, at 3-4, (#8),4 (#12))

3. Proposed development of the site would retain no natural buffer strips. A strip of land 250-500 feet wide along the reservoir and the Little River, traversed by the Little River public trail, would be retained by the Belfast Water District (SLODA Application, Sec.1, Text, p.2)

4. This conserved land has no corridor to the shore. (Id. at p. 21)

5. The strip of conserved woodland is proposed to serve to visually screen the 1,200+ ft.-long, 40 ft.-high buildings (SLODA Application Sec. 1, Text, p.21) with eight 65-ft.-high

emissions stacks (Nov. 19, 2019 – Nordic Response to 11/8/19 DEP Request, p.2, #3) from the public recreational trail. (SLODA Application Sec. 6, Text, p.2)

6. Young trees up to 12-feet tall, including many deciduous trees, will be planted to visually shield the to "40-foot-high buildings" from Route 1 and Perkins Road. Bushes and trees will be planted along Stream 9. (SLODA Application, Civil Engineering Drawings, LP501; NRPA Application, Att. 13, Appendix 13-A, at 2526 (Appendix B); SLODA Application, Sec.1, Text, p.21)

I. NOISE (06-096 C.M.R. Ch. 375, § 10 and 38 M.R.S § 484 (3)):

1. During the prehearing conference, Nordic asserted that "pursuant to the Site Law, 38 M.R.S. § 484 (3)(A), construction noise generated between the hours of 7 a.m. and 7 p.m. or during daylight hours, whichever is longer, is exempt from review by the Board."

2. Paragraph A, referenced above, consists of two sentences: (1) In making a determination under this subsection, the department may consider the effect of noise from a commercial or industrial development; (2) Noise from a residential development approved under this article may not be regulated under this subsection, and noise generated between the hours of 7 a.m. and 7 p.m. or during daylight hours, whichever is longer, by construction of a development approved under this article may not be regulated under this subsection.

3. Nordic proposes a commercial, not a residential, development, and is thus regulated by sentence 1. Sentence 2 is not relevant to this development.

4. 38 M.R.S. § 484(3) requires the development to have no adverse effect on the natural environment, including adequate provision for fitting the development harmoniously into the existing natural environment and that the development will not adversely affect existing uses,

scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities.

5. The project is located near undeveloped woodlands (home to wildlife including bird and bat species of special concern (Prefiled Testimony of A. Fiorillo at 5 (#15)), residential areas, and farms. (SLODA Application, Sec. 5, Appendix 5-A, Fig. 1, p. 9)

6. Construction activities will include blasting 18,000 cubic yards of bedrock and excavating to depths of over 40 feet (SLODA Application., Sec. 20, Text, p. 1-2) and construction of 19.6 acres of buildings (SLODA Application, Sec. 1, Text, p.3)

7. The SLODA application, Section 5, Noise, requires a full noise study prepared by a qualified professional to enable the Board to evaluate a major, commercial noise impact. The study must include analysis of: 1) the baseline, including current uses, zoning and comprehensive plans, and nearby protected locations and quiet areas, and 2) noise generated by the development, including type, source and location, sound levels, control measures, and comparisons with regulatory and local limits.

8. Nordic's application submissions do not include such a study. The noise impact report prepared by Acentech concludes "It is <u>expected</u> that regulated equipment during routine operation will produce sound levels that are equal to or lower than the applicable noise level limits contained in Chapter 375.10 of Maine's Site Location of Development Law Regulations." (emphasis added) (SLODA Application, Sec. 5, Appendix 5-A, p.8)

J. SCENIC CHARACTER (06-096 C.M.R. Ch. 375, § 14):

1. Chapter 375, Section 14 of the Department rules recognizes scenic character is one of Maine's most important assets and requires provisions to minimize the visual impact on the surrounding area and preserve existing elements to maintain scenic character.

2. The site is located in a residential/rural area with one commercial building (Mathew's Brothers window manufacturer) that is low and inconspicuous. (SLODA Application, Sec. 1, Text, p. 2)

3. Heading north on Rt. 1, this is the entry to Belfast, with Penobscot Bay visible to the east and the historic brick pumphouse standing above the waterfall of the lower dam to the west. (SLODA Application, Sec.1, Text, p.18)

4. The 57-acre site is currently woods and some fields except for approximately 2.4 acres of buildings and driveways. The public-use Little River Trail skirts the south and west edges of the site, along the lower reservoir and the Little River. (Id. p.2)

5. The ends of the intake and discharge pipes are located less than ¾ mile north of Northport's elementary school and less than 1 ½ miles from the Village of Bayside's swim beach and pier. (Prefiled Testimony E. Ransom, at 42 (Fig. 2-6); Site Visit Oct. 24, 2019)

6. A 14-acre corridor approximately 250-500 feet wide will be retained by the City of Belfast along the reservoir and the river containing the public-access Little River Trail. (SLODA Application, Sec.1, Text, p.2)

7. The development would include ten buildings that would largely fill the 57-acre parcel. The two proposed grow-out modules are each over 1,200 feet long and 40 feet high. (SLODA Application, Sec. 1 Text, p.21)

9. Eight proposed emissions stacks are each over 65 feet high. (Nov. 19, 2019 – Nordic Response to 11/8/19 DEP Request, p.2, #3). Architectural styles are not presented with the application.

K. WILDLIFE AND FISHERIES (06-096 C.M.R. Ch. 375, § 15):

1. Chapter 375, Section 15 of the Department rules seeks to "protect wildlife and fisheries by maintaining suitable and sufficient habitat…"

2. This area of Penobscot Bay is likely to be used by three species that are federally listed, Atlantic salmon (endangered), shortnose sturgeon (endangered), and the Gulf of Maine population of Atlantic sturgeon (threatened, at risk of becoming endangered). (Prefiled Testimony, T. Parent, at 4-7)

3. The Maine Department of Marine Resources also requested consideration of eel, alewife, blueback herring, winter flounder, and rainbow smelt populations, as well as scallops, blue mussels, softshell clams, and lobster. (Prefiled Testimony, T. Parent, at.2)

4. Larval and egg stages of marine organisms would be swept into the intake pipe. (Prefiled Testimony, T. Parent, at 8 (#21))

5. The Penobscot River hosts the largest run of Atlantic salmon left in the United States. Federal and state agencies have been collaborating towards the recovery of endangered Atlantic salmon, and the 2019 salmon run in the Penobscot River was the highest since 2011. 2/12/20 Tr. 114:11-18 (T. Parent says that the Penobscot has populations of endangered salmon and the Penobscot River is "the place for salmon these days."); 2/14/20 Tr. 160:25-161:3 (B. Bryden refers to "our last 1,100" salmon).

6. Turbidity will increase during construction from soft sediments. (Prefiled Testimony, T. Parent at 9, (#24))

7. This area has been found by studies conducted for a federal court to have significant HoltraChem mercury deposits. 2/12/20 Tr. 348:10-13 (Bernacki).

8. Nordic's depth-composite sediment core, sample #B3 contained 267 nanograms per gram of mercury. (Prefiled Testimony, Ransom, at 43,48, Exhibit 7, 18.0, Solid Waste, 18.1.1, Table 18-3). Background mercury level in this area is estimated to be 51-55 nanograms/gram. (Prefiled Testimony, Ransom, at 43,48, Exhibit 7, 18.0, Solid Waste, 18.1.1, Sediment, p. 4, par. 2)

9. Wastewater effluent is projected to release, at full plant capacity, Nitrogen (1,484 lbs. per day), Phosphorus (13 lbs. per day), Formalin/Formaldehyde, (925 gal. per year) (MEPDES Form 2D, P. 3&4, pp. 206-207,238), and various cleaners and medications, periodic use (MEPDES application, Ques. #10 & 11, Att. 3, p. 216,238).

10. Wastewater effluent will contain contagions, especially viruses. 2/13/20 Tr. 384:2-22 (I. Bricknell) ("[T]here is no way to totally eliminate those risks.")

11. Facility effluent would affect the water quality for some distance from the point of discharge, creating a "plume" with different chemistry and temperature from surrounding waters. (Prefiled Testimony N. Dill, Ex. 23, Figure 1 depicts dilution for 2 days)

12. Wastewater effluent is projected to be generally warmer, 2/13/20 Tr. 318:16-319:9 (E. Cotter), and less saline id. 319:10-15, than ambient conditions.

13. Water of this temperature, 2/14/20 Tr. 50:22-51:1 (T. Parent), and salinity, 2/13/20 Tr. 34:7-8 (J. Tourangeau) attracts lobsters to the chemically altered plume.

14. The upland portion of the site includes thirty-four (34) acres of forest, along with open fields and freshwater wetlands. (Prefiled Testimony of A., Fiorillo , at 3, (#8))

15. According to E-Bird, eight (8) bird species of Maine Special Concern and five (5) species of Maine Species of Greatest Conservation Need use this site. (Prefiled Testimony of A. Fiorillo, at 4, (#11))

16. Seven (7) species of bats are likely to use the site, including four (4) species of Special Concern, one (1) State Threatened, and two (2) State Endangered, one of which is federally threatened. (Prefiled Testimony A. Fiorillo at5(#15)). A project-specific avian survey was not conducted (Prefiled Testimony A. Fioriollo at4 (#10)), nor was a bat survey.

17. Seventy percent (70%) of the site would be developed (Prefiled Testimony, M. McGlone, Table 1).

18. Natural features of the upland site would be almost eliminated by the development. (SLODA App, Sect. 1, Text, p.21, map AP001)

L. ODORS (06-096 C.M.R. Ch. 375, § 17):

1. Chapter 375, Section 17 of the Department's regulations require adequate provisions for controlling odors.

2. Nordic proposes that odor will not escape because all processes with the potential for creating odors will take place in completely enclosed buildings. (SLODA Application, Sec. 22, Odors, Text, p. 1)

3. Nordic proposes to control odors with unidentified "proven" air treatment infrastructure in key production buildings, including HVAC systems. Equipment might include multistage scrubbers and/or carbon absorption filters. (Prefiled Testimony of C. Dinneen, at 2 (#5))

4. Nordic lists four potential sources of odor for the land-based aquaculture industry; ensilage of mortalities, fish processing, the wastewater treatment plant, and feed storage. (SLODA Application, Section 22, Text, p. 1, 22.0)

5. Nordic has not identified areas that will be affected by odors, as required 06-096 CMR ch. 375, § 17 (B)(2), except in "enclosed buildings."

6. Section 17, B (3) requires the description of proposed systems for enclosure of odor-producing materials and processes, and proposed uses of technology to control, reduce or eliminate odors. Ventilation of buildings, especially those containing large tanks, is essential. (Prefiled Testimony, M. Lannan, Odor-Upstream 9, p. 4)

7. HVAC systems are not designed to control odor. 2/13/20 Tr. 259:12- 260:2.

8. The carbon in carbon filters has affinity for specific compounds. 2/13/20 Tr. 202:5-7 (M. Lannan).

9. Nordic has not identified specific compounds or specific technology to control any odor source. 2/13/20 Tr. 143:1-18 (C. Dinneen)

M. SOILS (06-096 C.M.R. ch. 376):

1. Chapter 376 of the Department's regulations addresses the suitability of soils for the nature of the development.

2. Existing soils at the proposed site are compressible clay that will not support the load of the buildings, so that material has to come out and be replaced with a more structurally sound material to put the buildings on. 2/13/20 Tr.124:14-18 (A. Johnston).

3. This will entail, according to Nordic, blasting 18,000 cubic yards of bedrock and excavating to depths of over forty (40) feet. (SLODA Application., Sec. 20, Text, p. 1)

4. Special measures will be needed when blasting in the vicinity of the lower dam. 2/13/20 Tr. 163: 18-165:9 (B. Doyon).

N. MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM ("MEPDES") PERMIT:

1. Nordic revealed for the first time at the Maine Department of Marine Resources (DMR) hearing in Belfast on March 2, 2020 that it intends to carry spoils from the site of dredging for pipes five (5) miles across Belfast Bay by barge, dewatering the spoils and discharging the waste water into the Bay.

2. Nordic has not complied with permit application requirements (40 C.F.R. § 122.21(f)(viii) information requirements for dredge or fill permits under section 404 of the federal Clean Water Act).

3. Additionally, a permit is required for the point-source effluent associated with the dewatering of dredge spoils.

4. Higher-temperature facility effluent introduces an energy gain into the bay equivalent to burning 10,000 gallons of gasoline every day. 2/14/20 Tr. 131:13-132:24 (J. Krueger)

5. In 06-096 C.M.R. Chapter 582, the Department's Regulations Relating to Temperature, this provision allows a maximum temperature increase of 4 degrees Fahrenheit, and not more than 1.5 degrees Fahrenheit from June 1 to September 1, outside of the effluent mixing zone.

6. Nordic's calculations using a CORMIX model suggest a 3 degree increase in Winter and a 1.2 degree increase in Summer. 2/14/20 Tr. 89:2--92:19) (N. Dill). CORMIX models are +/- 50%. Temperature data used for the CORMIX models were based on previous surveys, and were changed during the application process in response to questions from the DEP. 2/14/20 Tr. 76:9-78:24 (N. Dill). Nordic did not conduct comprehensive studies of ambient water temperature.

7. Maine Chapter 523, Section 5, permits the application of either technology-based or water-quality-based standards to meet the standard of the Federal Clean Water Act.

8. Water-quality-based standards should be established and applied in this case due to several unique factors: (1) This would be the second largest salmon RAS CAAP facility in the world (2/14/20 Tr. 125:10-13 (J. Krueger)), with target production of 33,000 metric tons (72,7500,000 pounds) (Prefiled Testimony, E. Ransom, at 2, #6) per year well exceeding the 100,000 pound benchmark for CAAP regulation; (2) Maine has no defined standards for effluent limits except for temperature (06-096 C.M.R. ch. 582); and (3) The outfall is not located in deep water currents and potential behavior of the effluent has not been adequately evaluated. Nordic's models of discharge dilution and behavior are unreliable and conflict with prior, published studies. Far-field models do not account for significant factors such as complexity of currents and wind shear, and have not been verified by contemporaneous, year-round data. (Prefiled Testimony, N. Pettigrew, at 2, 8 (#VI))

9. The location for Nordic's project is a greenfield, undisturbed site that hosts commercial fisheries (2/11/20 Public Testimony Tr. 35:7-16, 36:18-24) and wild fish and shellfish including federally endangered salmon and sturgeon. (Prefiled Testimony, T. Parent, at 3-7 (#10-16)).

10. Nordic has not performed year-round surveys of bird or marine life to establish what wildlife could be affected. (Prefiled Testimony, A. Fiorillo, at. 4; SLODA Application, Sec. 7, Text, p. 12)

11. Better technology, including fully closed RAS technology with zero effluent is available. 2/14/20 Tr. 126:3-128:6 (J. Krueger).

12. Nordic has changed filter size during the application process from 0.4 microns to the "ultra-filtration" level of .04 microns. 2/13/20 Tr. 367:8-370:20 (Noyes/Dunn/Cotter). Nordic has not presented updated engineering plans. 2/13/20 Tr. 369:9-15 (Dunn).

13. Wastewater for the entire facility is centralized (SLODA Application, Sec. 1, Text, p.21). There is no bypass route for effluent and no contingency plan.

14. In contrast to SC classification for locations farther up the Penobscot River (Title 38, Ch.3, Sect. 469), the waters at the discharge site are classified as Marine Class SB" (Rebuttal Testimony, T. Parent, at 2 (#6)), requiring higher standards for discharges. (Rebuttal Testimony, T. Parent, at 4, Nordic Exhibit 37)

III. CONCLUSIONS OF LAW

BASED on the above findings of fact, and subject to the conditions listed below, the Board of Environmental Protection ("Board") makes the following conclusions of law pursuant to 38 M.R.S.§481 *et seq.* (the "Site Location of Development Act" or "SLODA"):

A. Right, Title, and Interest: Nordic has failed to demonstrate right, title and interest in the intertidal lands, where Nordic proposes to lay its intake and discharge pipes.

B. Financial Capacity/Technical Ability: The applicant has failed to provide adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards. NAF has committed no cash equity to this project, though the rules call for 20% of the project cost up-front. Nordic has presented no financial plan or funding commitment of any kind for this project. NAF has not satisfied the four requirements under SLODA section 3 to demonstrate financial capacity and has not demonstrated that any funding is available for this project.

C. Harmonious Fit: The applicant has failed to make adequate provision for fitting the development harmoniously into the existing natural environment and the development. The project will adversely affect existing residential and agricultural uses because it would change the scenic character from forest/rural to industrial, will impair the air quality, will diminish the ground water quality and quantity, and will cause saltwater intrusion into the aquifer on which neighbors are dependent.

D. Air: The Applicant has failed to identify project-wide chemical and particulate emissions from all construction, operations, and maintenance sources. Air dispersion modeling based solely on 7 of 8 project generators is insufficient to meet the applicant's burden of proof with respect to compliance with the federal Clean Air Act and state air quality standards. . Nordic's applications for the requisite air licenses and permit must be denied.

E. Infiltration: The proposed development will substantially alter the infiltration of precipitation into the subsurface. Almost all precipitation will fall on impervious surfaces, be channeled into detention basins and drained into the proposed to be installed perimeter drains and thence to the Little River at its junction with the Atlantic Ocean, precluding almost all infiltration into the subsurface as naturally occurs today.F. Ground water quantity: Ground water quality will be adversely impacted by the development because Nordic proposes to extract 455 gallons of fresh water per minute from the subsurface which is the maximum their 24-hour pump test suggested they could obtain. Nordic's goal was 1,200 gallons per minute. Nordic will be pumping the maximum it can extract without any study of the safe yield of the aquifer, so it is impossible to know if 455 gallons per minute will cause permanent harm to the aquifer.G. Soil suitability: The proposed development

will be built on soil types which are so completely unsuitable to the nature of the undertaking that Nordic asserts that the existing soils must be removed to a depth of at least 20' over a 35 acre section of the site.H. Storm water management: The proposed development meets the standards for storm water management in 38 M.R.S. § 420-D and the standard for erosion and sedimentation control in 38 M.R.S. § 420-C provided that a third party inspector is retained, a pre-construction meeting is held, and construction of stormwater management structures is overseen by a third party and documented.

I. Utilities; sewage: The applicant has made adequate provision of sewerage facilities required for the development and the development will not have an unreasonable adverse effect on the existing or proposed sewage facility in the municipality.

J. Utilities, waste: The applicant has not made adequate provision for the disposal of solid waste, specifically, there is no plan for upland disposal of dredge spoils, nor has Nordic obtained the requisite permit, and Nordic has presented no plan for the disposal of sludge from the bottom of the fish tanks, nor the fish parts and other waste from the fish processing facility other than to provide the names of apparently qualified waste haulers. Thus, there is no way to determine that solid waste management aspect of the development will not have an unreasonable adverse effect on the existing or proposed utilities or disposal facilities in the municipality.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions of law pursuant to the Natural Resources Protection Act: 38 M.R.S. §§ 480A-480-Z and Department Regulations 06-096 C.M.R. Chapters 305-342:

A. Scenic, aesthetic: The proposed activity would convert forty (40) acres of forest and rural land into an industrial site with 40' tall buildings that would consume most of the

site along with eight (8) 62’ smokestacks and thus would unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

B. Sediment and erosion control: Properly monitored, the proposed activity will not cause unreasonable erosion of soil or sediment.

C. Habitat: The proposed activity will unreasonably harm all on site significant wildlife habitat, freshwater wetland and animal plant habitat, threatened or endangered plant and animal habitat, aquatic habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life. Except for one small wetland, 18 of the 19 wetlands on site would be entirely removed. A permanently chemically- and temperature-altered plume effluent plume would be introduced to Penobscot Bay.

D. Surface water flow: The proposed activity will unreasonably interfere with the natural flow of any surface or subsurface waters. The proposed activity will capture with a perimeter drain all the natural flow of water coming onto the site, divert it around the site and deposit it into the Little River near the junction of that river and the Atlantic Ocean. Further, the project would permanently remove 8 of 9 existing on-site streams.

E. Fresh Water Quality: The proposed activity will violate state water quality law including those governing the classifications of the State's waters.

F. Ground water quality: The proposed development will present an unreasonable risk that saltwater intrusion into a significant groundwater aquifer will occur.

G. Flooding: The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure. However, immediately upstream and up gradient of the proposed development is a dam evaluated by several authorities as a “high Hazard” meaning that it poses a threat

to human life. The development places additional people directly below that troubled dam without any plan to fix the dam, increasing the "hazard".

H. Sand dunes: The proposed activity is not on or adjacent to a sand dune.

I. Outstanding river segment: The proposed activity is not on an outstanding river segment as noted in 38 M.R.S.§ 480-P.

J. Soil transfer: The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following further conclusions of law pursuant to the Maine Pollutant Discharge Elimination System Permit/Waste Discharge License 06-096 C.M.R. Chapters 521 and 522:

A. Nordic has failed to obtain the required permits for transportation and dewatering of dredge spoils on a five (5)-mile route across Penobscot Bay to Searsport. Nordic has failed to collect adequate data to demonstrate that facility effluent will not cause temperature increases exceeding the terms of Maine law. Nordic has not demonstrated that it meets the criteria of the federal Clean Water Act or of Maine law. Water-Quality-Based Effluent Standards must be established, and adequate modeling performed to assure that those standards will be met to demonstrate compliance with the federal Clean Water Act and with Maine law.

For these reasons, Nordic's SLODA, NRPA, and MPDES permits are denied.

Dated: May ___, 2020 State of Maine Board of Environmental Protection