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STATE 032 MAINE  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



GERALD D. REID  
COMMISSIONER

**MEMORANDUM**

TO: Board of Environmental Protection  
FROM: Staff, Bureau of Land Resources  
RE: Nordic Aquafarms, Inc. – Proposed Seawater Access System (Pipeline)  
DATE: May 13, 2020

**Overview.** The aquaculture facility proposed by Nordic Aquafarms, Inc. (Nordic) is comprised of several components, one of which is a proposed seawater access system (also known as the “pipeline”). The pipeline would consist of one 36-inch diameter wastewater discharge outfall pipe and two 30-inch diameter seawater intake pipes. The pipeline would run from a common building at the proposed upland project site, across U.S. Route 1, through a 40-foot wide upland construction easement area (known as the Eckrote property) for a length of 230 feet, and then extend into the intertidal and subtidal areas of the coastal wetland. From the highest annual tide (HAT) line, the outfall pipe would extend approximately 3,700 linear feet into the coastal wetland, and the intake pipes would extend approximately 6,400 linear feet into the coastal wetland. For approximately the first 2,700 feet below the HAT line, the pipeline would be buried beneath the seabed substrate. The remaining 3,700 feet would be exposed above the seabed, elevated approximately 12 inches above the substrate, and anchored by concrete footers spaced at 15-foot intervals.

Construction of the proposed pipeline would occur within a 100-foot wide construction area along the length of the proposed route. Within the upper and mid intertidal areas of the coastal wetland, a 30-foot wide trench would be excavated to bury the pipeline. Nordic proposes to work from construction mats in small sections at low tide. Within the lower intertidal area, construction of the trench would continue using a barge-mounted crane with a closed dredge bucket for a distance of approximately 1,250 feet. The remaining in-water work within the subtidal area of the coastal wetland would occur by installing temporary guide piles and tethering pipeline segments to the piles while floating in the water. The pipeline segments would then be sunk and anchored in place onto the seabed. All in-water work would be conducted between November 1 and April 1 of a given calendar year. (Attachment A. Construction Details, August 14, 2019.)

Intervenors expressed concern regarding construction of the pipeline within the coastal wetland and the Board heard oral testimony on this topic at its public hearing. The Board also observed the proposed pipeline location at its site visits on October 24, 2019, and February 10, 2020. This memorandum addresses the pipeline portion of the project and the applicable review standards.

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**Statutory and Regulatory Criteria.** Key standards related to the proposed pipeline are:

- NRPA: 38 M.R.S. § 480-D(3), (5), and (9); Ch. 310
- Site Law: 38 M.R.S. § 484(3), (4-A), and (6); Ch. 375, §§ 5, 6, 15, and 16
- Erosion and Sedimentation Control Law: 38 M.R.S. § 420-C

The intake and discharge pipes proposed by Nordic would be located in a coastal wetland, which is defined as a protected natural resource under NRPA, § 480-B(8). Dredging, removing or displacing soil, and any construction of a permanent structure in a protected natural resource are among the types of activities that require a NRPA permit. The NRPA standards are contained in Section 480-D. While all of these standards must be satisfied for an applicant to be issued a permit, three are most relevant to review of the proposed pipeline. Section 480-D provides that the Department shall grant a permit when it finds that the applicant has demonstrated that the proposed activity meets the following standards, among others:

3. Harm to habitats; fisheries. The activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.
5. Lower water quality. The activity will not violate any state water quality law, including those governing the classification of the State's waters.
9. Dredging. If the proposed activity involves dredging, dredged spoils disposal or transporting dredged spoils by water, the applicant must demonstrate that the transportation route minimizes adverse impacts on the fishing industry and that the disposal site is geologically suitable. The Commissioner of Marine Resources shall provide the department with an assessment of the impacts on the fishing industry of a proposed dredging operation in the coastal wetlands. . . .

Chapter 310, § 5, elaborates on the NRPA standards and guides the Department in its determination of whether a project's impacts would be unreasonable.<sup>1</sup>

Site Law ensures that a development fits harmoniously into the existing natural environment and does not adversely affect water quality or other natural resources. 38 M.R.S. § 484(3). Site Law standards also address erosion and sedimentation control, 38 M.R.S. § 484(4-A) and infrastructure, including the provision made by a developer to dispose of special waste (e.g., dredge spoils), 38 M.R.S. § 484(6). The Department's rules, in Chapter 375, §§ 5, 6, 15, and 16, elaborate on how an applicant should address the Site Law criteria by making adequate provision for controlling erosion and sedimentation, protecting surface water quality, protecting wildlife and fisheries habitat, and disposal of solid waste, respectively.

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<sup>1</sup>Discussion of Chapter 310, § 5 and the selection of the pipeline route is included in a separate memo discussing potential impacts to protected natural resources.

The Erosion and Sedimentation Control Law, 38 M.R.S. § 420-C, requires a person displacing or exposing soil to “take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource.”

**Issues Raised by Intervenors.** Intervenors provided oral testimony, written testimony, and written comment regarding the proposed seawater access system. Among other things, Intervenors expressed concern about:

- Sampling techniques used to conduct and analyze the composition of the marine substrate
- Exposure of mercury within the water column as a result of excavation within the lower intertidal area
- Turbidity within the water column during construction of the pipeline
- Potential adverse effects to fisheries and the fishing industry due to mercury exposure and turbidity
- Potential interruption of fishing activities and loss of fishing gear due to transportation of excess excavated material

### **Discussion**

**Water Quality and Erosion and Sedimentation Control (38 M.R.S. §§ 420-C, 480-D(5), and 484(3) and (4-A); Ch. 375, §§ 5 and 6).**

There are two primary ways in which the pipeline could impact water quality, through the discharge of wastewater and from construction of the proposed project. Nordic has applied for a Maine Waste Discharge License and a Maine Pollutant Discharge Elimination System Permit (DEP #W009200-6F-A-N/MEPDES Permit # ME0002771), and it is through that permitting process that the Department typically evaluates potential water quality impacts of a discharge such as the one proposed by the applicant.

With regard to construction, the excavation of the trench for the pipeline and installation of the pipeline has the potential to cause sedimentation. Suspension and subsequent deposition of sediment can have an impact and the extent of any such impact can be influenced by the composition of the sediment, including any contaminants it may contain.

Nordic collected two depth composite samples (known as Sample B3 and Sample A6/A7) of marine sediment for initial characterization of the substrate’s composition, with mercury being one of several parameters that were analyzed. The sample locations are proximate to, but not exactly along, the proposed pipeline route. Nordic applied the “rule of 20” technique in its testing and analysis and stated that the sample sizes, locations, and parameters used in its sediment analysis are common protocols for representative sampling and are adequate for indicating potential impacts from construction activities. The “rule of 20” is a commonly applied sampling technique in which a sample is mixed or diluted with a volume of extraction fluid that equals 20 times the weight of the sample. If the total concentration of a particular analyte, such as mercury, is less than 20 times the upper toxicity limit, then the waste is considered to be non-hazardous for that analyte.

Results of Nordic's analysis indicates that the sediment in the two samples was non-hazardous and below the 20 times toxicity limit. In specific regard to mercury, the concentration level in Sample B3 was determined to be 267 n/g and the concentration level in Sample A6/A7 was determined to be less than 103 ng/g, which is less than the laboratory reporting limit. (Section 18 of the Site Law application.)

Intervenors expressed concern that any disturbance of marine sediment due to construction of the proposed pipeline would introduce mercury into the water column and adversely affect the water quality of Belfast Bay. Intervenors assert that the sampling locations, sizes, and techniques applied by Nordic to analyze the marine sediment at the project site were not sufficient for determining mercury contamination levels. Intervenors requested that Nordic conduct additional sediment testing and analyses along the proposed pipeline route.

The Penobscot River Mercury Study (PRMS), has been referenced by Nordic and intervenors often during the course of the Board's review. The PRMS is a report of mercury contamination levels and trends within the Penobscot River system and recommends possible targets and procedures for remedial action. The study indicates that background mercury concentrations within marine sediments in the same geographic area as the proposed pipeline ranged between 30 and 150 ng/g, with an average of approximately 55 ng/g. By comparison, the historic discharge of mercury into the Penobscot River at its source of contamination in Orrington, Maine resulted in a mercury level of about 800 ng/g. (Bodaly, R.A., 2013.)

Nordic compared the results of Sample B3 and Sample A6/A7 against the results of other tested sample sites from within the Penobscot River system described in the PRMS. Nordic concluded that the mercury levels in Sample B3 and Sample A6/A7 were equivalent to the concentration levels of mercury in the lower reaches of the Penobscot River system and below the concentration levels of mercury in the upper reaches of the Penobscot River system.

The Department's Bureau of Remediation and Waste Management (BRWM) reviewed Nordic's sampling methodology and the results of Nordic's sediment analysis. BRWM commented that Nordic's use of the "rule of 20" is an acceptable method to gain a baseline depiction of the composition of the substrate within the project area. BRWM's comments also indicated their agreement with Nordic's collected mercury data and Nordic's comparison of the data against existing mercury levels described in the PRMS. BRWM further commented that no remedial sediment removal within the project area was recommended by the PRMS as part of the overall remediation plan for the Penobscot Bay area. BRWM indicated in its comments that the removal and upland disposal of excess excavated material from construction of the proposed pipeline is likely to result in an overall reduction in the amount of mercury contaminated sediment in the coastal wetland. (BRWM review comments, dated November 8, 2019.)

If the Board determines that more sampling would be appropriate as an added precaution in regard to potential exposure of mercury in the water column, this could be undertaken consistent with the provisions that the Department commonly applies towards waste characterization for solid wastes in accordance with Chapter 405 of Department rules. A possible condition offered to aid the Board is described below.

Nordic acknowledges that disturbance of marine sediments would expose and mix sediment at varying depths during construction. For this reason, Nordic proposes to implement a number of erosion and sedimentation control measures to prevent an unreasonable amount of temporary sedimentation within the coastal wetland. These measures include, but are not limited to, working in small sections at low tide, operating equipment from construction mats, installation of a coffer dam and turbidity curtain, use of a closed dredge bucket, limiting the hoist speed of the dredge bucket within the water column, and visual monitoring of the work area.

Intervenors expressed concern that construction of the proposed pipeline would result in an unreasonable amount of turbidity within the water column and that Nordic's proposed erosion and sedimentation control measures are not adequate for preventing sedimentation within the coastal wetland.

Department staff reviewed Nordic's proposal for installation of the pipeline, comments provided by BRWM, and concerns presented by intervenors. The erosion and sedimentation control measures proposed by Nordic are based on best management practices, several of which are outlined in the *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers*, which was developed by the Department. BMPs described in the manual are measures that have been determined to be an effective means of preventing or minimizing non-point source pollution to maintain or achieve water quality goals.

As an added safeguard to assure that adequate erosion and sedimentation control measures would be implemented and that water quality of Belfast Bay is not unreasonably impacted, the Board may wish to consider requiring Nordic retain a third party inspector to specifically monitor all aspects of installation of the proposed pipeline, including disturbance, excavation, and removal of soils from within the coastal wetland during the duration of construction. A possible condition is included below to aid the Board in its thinking.

**Wildlife and Fisheries (38 M.R.S. §§ 480-D(3), 484(3); Ch. 375, § 15).**

Nordic's Natural Resources Report, dated May 8, 2019, characterizes the coastal wetland substrate to be comprised of salt marsh vegetation in the upper intertidal area transitioning to cobbles and mudflats. Mobile finfish and other migrating organisms such as winter flounder, rainbow smelt, and herring species are likely to exist in the project area. Softshell clams and American lobster are also known to be present in the area. Nordic's report notes a low abundance of benthic organisms. The proposed pipeline is not sited within an area designated for commercial shellfish harvesting. (Appendix 12-A of the NRPA application.)

Intervenors expressed concern in their testimony that any disturbance of marine sediment due to construction of the proposed pipeline would introduce mercury into the water column and adversely affect existing fisheries in Belfast Bay and the local fishing industry.

The Maine Department of Marine Resources (DMR) reviewed the proposed project and held a public hearing in accordance with 38 M.R.S. § 480-D(9). The public hearing was held to accept and consider public comments about the proposed excavation activities at the project site and its

potential impacts to fisheries and the fishing industry in the general area. At this hearing, intervenors provided testimony regarding potential adverse effects on local fisheries and the fishing industry from turbidity and exposure of mercury as a result of pipeline. DMR provided initial comments about the proposed pipeline, dated January 30, 2020, and updated those comments following its public hearing in an addendum, dated April 7, 2020. DMR confirmed that the proposed pipeline would not be located within an open shellfish harvesting area as designated by DMR pursuant to 12 M.R.S. § 6172, and that limited shellfish resources are present within the coastal wetland along the pipeline route.

Lobster fishing activity occurs within Belfast Bay. DMR stated that, during the construction window proposed by Nordic and at depth along the pipeline, lobsters would not be present in the area due to the natural migration to deeper offshore locations during this time. Further, DMR anticipates that the pipeline's physical structure and location above the seabed should have minimal impact to the movement of lobsters. DMR further commented that other fisheries, including Atlantic Salmon, Atlantic Sturgeon, and Short-nose Sturgeon, would not be present during the proposed construction window given typical migration behavior patterns for these species.

DMR stated that the proposed pipeline is located within an area open for scallop harvesting. However, scallop landings or harvest activities are not common in the general Belfast Bay area, and the area is not considered a natural spawning area for scallops.

DMR concluded that, based on Nordic's proposed erosion and sedimentation plan and proposed in-water construction window, the proposed pipeline should not result in adverse impacts to marine resources, recreation, navigation, or riparian access.

**Transportation and Disposal of Dredged Material (38 M.R.S. §§ 480-D(9) and 484(3); Ch. 375, § 16).**

As referenced above, Nordic proposes to excavate a trench for a distance of approximately 1,250 linear feet within the coastal wetland. Approximately 36,000 cubic yards of marine sediment would be excavated from this area (Appendix C of the NRPA application). Of this estimated volume, approximately 15,000 cy of excess material may be generated by installation of the proposed pipeline. Excess spoils would be placed in a containment structure and transported to an upland location for disposal at Waste Management Disposal Services of Maine (Crossroads Landfill) or Juniper Ridge Landfill. Based on comments provided to the Department by DMR, Nordic stated at DMR's public hearing that excess spoil material would be hauled by barge to Mack Point, located in the Town of Searsport, prior to transportation of materials to a landfill.

During the course of the Board's review and at DMR's public hearing, intervenors expressed concern in regard to potential disruption to local fishing activities and loss of fishing gear due to transportation of excess excavated material.

BRWM reviewed Nordic's proposal to dispose excess excavated material. BRWM commented that Nordic's proposed method to excavate and dispose of excess marine sediment would not result in an unreasonable adverse effect on the natural environment or public health based on the

results of Nordic's sediment analysis and substrate assessment. (BRWM review comments, dated November 8, 2019.)

As stated above, DMR reviewed the proposed project and held a public hearing. DMR's comments summarize Nordic's construction methods and sequencing, the excess material disposal method, public concerns, and potential impacts to marine resources and industry.

In its April 7, 2020 comments, DMR recommended several measures to minimize adverse effects on the local fishing industry as follows:

- To ensure awareness of the location of the proposed pipeline and to reduce the risk of potential fishing gear entanglement and loss, Nordic should mark the location of the proposed pipeline for navigational safety in accordance with the United States Coast Guard's marking requirements.
- To minimize disruption to fishing activities, approximately 30 days prior to the start of construction of the proposed pipeline, Nordic should conduct public outreach by means of written notice to the local Lobster Zone Council in coordination with DMR, who would assist with email notification to all Lobster Zone D Council members. Notice should include specific nautical bearings of the proposed haul route and width for the safe travel of the barge to avoid entanglement with fishing gear. The notice should include the anchorage point for the barge at either the proposed construction site or at a safe docking location off Mack Point. The barge transporting the excess spoil material to Mack Point should be equipped with a Vessel Monitoring System (VMS) to track its transit activity along the proposed haul route. Nordic should also provide a detailed mechanism by which area fishermen may seek compensation for lost gear should the barge deviate from the specified haul route.

Department staff reviewed Nordic's proposal for installation of the pipeline, comments provided by BRWM and DMR, and concerns presented by intervenors and the public. As a precaution to assure that excavation and disposal activities associated with construction of the proposed pipeline do not disrupt local commercial fishing activities nor result in the loss of fishing gear, the Board may wish to consider requiring Nordic to adopt the recommendations described in DMR's addendum to review comments, dated April 7, 2020. These measures could be required by the Board in the form of permit conditions. Possible conditions are offered below to aid the Board in its review.

### **Potential Conditions**

Should the Board find all the review standards have been met and issue a permit for the project, possible conditions the Board may wish to consider include:

1. Prior to the start of construction, the applicant shall provide a site plan and narrative to the Department for review which describes the upland location and techniques that will be implemented for dewatering of excavated soils associated with installation of the proposed seawater assess system.

2. Prior to the start of construction, the applicant shall retain the services of a third party inspector to monitor installation of the proposed seawater access system, disturbance, excavation, and removal of soils from within the coastal wetland, transportation of excavated soils from the coastal wetland to an upland location, and dewatering of excavated soils in an upland location. Inspections must occur continuously and daily until all in-water work is completed. Inspector selection, reporting responsibilities, and other duties, as assigned by the Department, shall occur in accordance with the Department's Third Party Inspection Program.
3. Prior to the start of construction, the applicant shall conduct further sampling and analyses of the marine sediments along the proposed pipeline route. A sufficient number of samples, as determined using Chapter 9 of *Test Methods for Evaluating Solid Wastes*, USEPA, SW-846, 3<sup>rd</sup> Edition, 2013, shall be taken along the horizontal route and vertical depth of the proposed pipeline to adequately characterize the excavated spoils for disposal at the upland location. Total analyses of the excavated spoils may be undertaken in accordance with the provisions of Appendix D of 06-096 C.M.R. ch. 405 to determine whether the dredge spoils may be hazardous by reason of the Toxicity Characteristic. The sampling results shall be submitted to the Department for review. If the total result divided by the dilution factor is equal to or greater than the Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit for any parameter, then the waste may be determined to be, but is not necessarily, a hazardous waste. In this case, full TCLP testing for the parameter in question must be completed by the applicant to enable a final determination about whether the spoils are a hazardous waste. If hazardous, the applicant shall submit to the Department for review and approval an updated erosion and sedimentation control plan, a revised transportation and disposal plan for excess spoil material, and an updated construction method and sequencing plan that reflects the nature of the full TCLP testing results.
4. The applicant shall mark the location of the proposed pipeline for navigational safety in accordance with the United States Coast Guard's marking requirements.
5. Approximately 30 days prior to the start of construction of the proposed pipeline, the applicant shall conduct public outreach by means of written notice to the local Lobster Zone Council in coordination with the Maine Department of Marine Resources (DMR). Notice must include specific nautical bearings of the proposed haul route and width for the safe travel of any transportation barge towing excess spoil material from the project site to avoid entanglement with fishing gear. The notice shall also include the anchorage point for the barge at either the proposed construction site or at a safe docking location off Mack Point. Any vessel transporting excess spoil material to Mack Point shall be equipped with a Vessel Monitoring System (VMS) to track its transit activity along the proposed haul route.
6. Prior to the start of construction of the proposed pipeline, the applicant shall provide to the Department for review a detailed mechanism by which local fishermen may



seek compensation for lost fishing gear if a vessel transporting excess spoil material from the project site deviates from the applicant's specified haul route.