

November 19, 2019

Project 171.05028.008

Ms. Jane Gilbert, P.E.  
Air Licensing Unit Manager  
Maine Department of Environmental Protection  
Bureau of Air Quality  
17 State House Station  
August, ME 04333-0017

RE: Response to Review Comments  
Nordic Aquafarms Inc., Land-based Aquaculture Facility  
Belfast, Maine  
L-28319-26-A-N

Dear Ms. Gilbert:

This letter is prepared in response to the November 8, 2019 email request for additional clarification related to the Chapter 115 air emission license for the above-referenced project. For clarity, each comment from that letter has been copied below and italicized and responses are in regular text.

*Following up on yesterday's Board meeting, and pursuant to Chapter 3, sections 5(D) and 16(A)(1) of the Department's rules, Department staff requests that the Applicant provide the following information related to its application for a Chapter 115 air emission license:*

*1. A complete listing of all stationary fuel burning equipment to be installed on-site, including the type of equipment, maximum rated heat input capacity of each unit, and the type and quantity of fuel burned in each unit.*

All stationary heaters will be electric and will not emit air pollutants. Nordic understands that we mention in the SLODA application that there could be propane heaters, but our intention now is to only install electric heaters other than the eight diesel engines. Heat pumps, using excess heat from the fish farm water, will provide the majority of process and space heating.

*2. Unique identification of each stack and which unit or units exhaust through it, and maximum volumetric flow rate and exhaust temperature from each stack.*

There will be eight identical stacks installed to serve the eight engines. Provided below are the stack parameters requested along with updated short term and annual emission rates for the engines. Caterpillar has provided us with refined emission factors. This detail documents significantly lower NOx emissions.

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 Maine Department of Environmental Protection

Proposed Engines #1-8 Specifications and Emissions				
Generator Make & Model:	Caterpillar 3516C Tier 4F (or equivalent)			
Fuel Type:	Diesel			
Max Fuel Consumption (gal/hr):	142.2			
Max Heat Input (MMBtu/hr):	19.91			
Engine Power (kW):	2,050			
BHP	3,004			
Stack Parameters:	Elevation AGL (ft)	67.5		
	Diameter ID (inches)	16		
	Flow (ACFM)	16,586		
	Temperature (F)	375		
Proposed Fuel Limit (gal):	900,000			
Pollutant	Emission Factor (g/kw-hr)	Emission Factor (lb/MMBtu)	Proposed Limit (lb/hr)	PTE (TPY)
NOx	0.92	0.21	<b>4.2</b>	<b>13.4</b>
PM	0.037	<b>0.01</b>	<b>0.2</b>	0.5
*PM <sub>10</sub> & PM <sub>2.5</sub>		0.02	<b>0.3</b>	1.0
CO	3.5	0.81	<b>16.1</b>	51.0
VOC	0.19	0.04	<b>0.9</b>	2.8
*SO <sub>2</sub>		0.00	<b>0.03</b>	0.1
*AP-42 Emission Factors				
Note: Proposed Limits are highlighted.				

3. The height above ground level and inside diameter of each stack.

At the time when Nordic submitted the original air application we calculated and proposed reasonable stack heights based on estimated building dimensions. Based on revised engineering drawings with higher building tier heights we are now proposing to construct stacks each with a height of 67.5' above ground level (AGL), which is 1.5 times the height of the tallest surrounding buildings. Each engine will have its own 16" ID stack but the stacks will be arranged in four sets of two as shown on the site drawing included.

4. A scaled plot plan schematic of the facility that shows the following:

- a. the location of all stacks, buildings, and other structures (e.g., tanks, towers, etc.);
- b. the base elevation and height above ground level for each stack, building, and other structure;
- c. a north arrow;
- d. an accurate scale ruler;
- e. the facility property boundary; and
- f. any areas likely to be fenced surrounding the facility.

A scaled plot plan schematic which shows each of these items is attached as Attachment A.

Ms. Jane Gilbert, P.E.  
Maine Department of Environmental Protection

Please contact me with any questions or comments.

Sincerely,

RANSOM CONSULTING, INC.

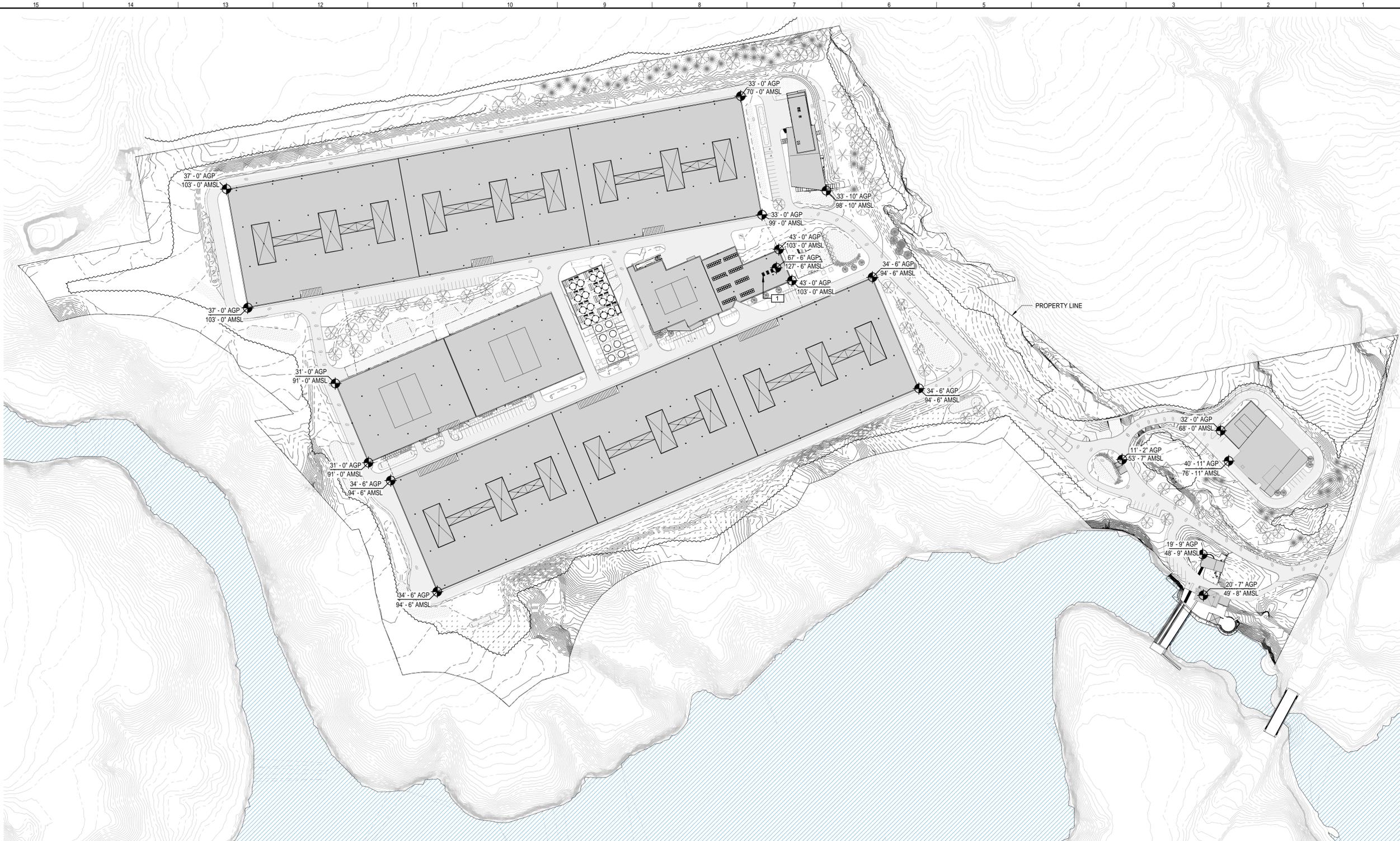
Elizabeth M. Ransom, P.G.  
Senior Project Manager

EMR:jar  
Attachment

**ATTACHMENT A**

Plot Plan Schematic

Response to Review Comments  
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**KEYNOTE LEGEND**

1 LOCATION OF GENERATOR EXHAUST STACKS: 4 GROUP OF 2 STACKS EACH PROVIDES THE 8 PROJECT GENERATORS. STACKS ARE SEPARATED BY APPROXIMATELY 10FT.

REV	DESCRIPTION	DATE

**ISSUED FOR PERMIT**  
05/14/2019

CURRENT ISSUE STATUS:



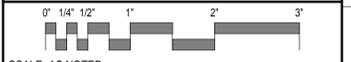
PROJECT NORTH:  
SMRT Architects and Engineers  
144 Fore Street/P.O. Box 618  
Portland, Maine 04104



ARCHITECTURE|ENGINEERING|PLANNING|INTERIORS|ENERGY  
**NORDIC AQUAFARMS**  
285 NORTHPORT AVENUE

BELFAST, MAINE  
**EMISSION STUDY PLAN**

SHEET TITLE:



SCALE: AS NOTED

PROJECT MANAGER: ADB PROJECT NO: 18076-00  
A/E OF RECORD: Checker  
JOB CAPTAIN: FSP  
DRAWN BY: Author  
SMRT FILE: AP005-18076-00 SHEET No. **AP005**

**EMISSION STUDY - SITE ROOF PLAN** ①  
1" = 120'-0"

