



STATE OF MAINE
DEPARTMENT OF
ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE

GOVERNOR

Melanie Loyzim

ACTING COMMISSIONER

Mr. Jason Mitchell
President & Chief Operating Officer
Whole Oceans. LLC
c/o Pierce Atwood LLP
255 Commercial Street
Portland, ME. 04101
e-mail: jmitchell@wholeoceans.com

November 22, 2018

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0037478
Maine Waste Discharge License (WDL) #W009190-6F-A-N
Final Permit

Dear Mr. Mitchell:

Enclosed please find a copy of your **final** MEPDES permit and Maine WDL which was approved by the Department of Environmental Protection. Please read this permit/license and its attached conditions carefully. Compliance with this permit/license will protect water quality.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

If you have any questions regarding the matter, please feel free to call me at 287-7693. Your Department compliance inspector copied below is also a resource that can assist you with compliance. Please do not hesitate to contact them with any questions.

Thank you for your efforts to protect and improve the waters of the great state of Maine!

Sincerely,

Gregg Wood
Division of Water Quality Management
Bureau of Water Quality

Enc.

cc: Attached Distribution List

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

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DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: November 2018

Contact: (207) 287-2452

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner: (1) an administrative process before the Board of Environmental Protection (Board); or (2) a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This information sheet, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S. §§ 341-D(4) & 346; the *Maine Administrative Procedure Act*, 5 M.R.S. § 11001; and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 C.M.R. ch. 2.

DEADLINE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed more than 30 calendar days after the date on which the Commissioner's decision was filed with the Board will be dismissed unless notice of the Commissioner's license decision was required to be given to the person filing an appeal (appellant) and the notice was not given as required.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017. An appeal may be submitted by fax or e-mail if it contains a scanned original signature. It is recommended that a faxed or e-mailed appeal be followed by the submittal of mailed original paper documents. The complete appeal, including any attachments, must be received at DEP's offices in Augusta on or before 5:00 PM on the due date; materials received after 5:00 pm are not considered received until the following day. The risk of material not being received in a timely manner is on the sender, regardless of the method used. The appellant must also send a copy of the appeal documents to the Commissioner of the DEP; the applicant (if the appellant is not the applicant in the license proceeding at issue); and if a hearing was held on the application, any intervenor in that hearing process. All of the information listed in the next section of this information sheet must be submitted at the time the appeal is filed.

INFORMATION APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time the appeal is submitted:

1. *Aggrieved Status.* The appeal must explain how the appellant has standing to maintain an appeal. This requires an explanation of how the appellant may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions, or conditions objected to or believed to be in error.* The appeal must identify the specific findings of fact, conclusions regarding compliance with the law, license conditions, or other aspects of the written license decision or of the license review process that the appellant objects to or believes to be in error.
3. *The basis of the objections or challenge.* For the objections identified in Item #2, the appeal must state why the appellant believes that the license decision is incorrect and should be modified or reversed. If possible, the appeal should cite specific evidence in the record or specific licensing requirements that the appellant believes were not properly considered or fully addressed.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those matters specifically raised in the written notice of appeal.
6. *Request for hearing.* If the appellant wishes the Board to hold a public hearing on the appeal, a request for public hearing must be filed as part of the notice of appeal, and must include an offer of proof in accordance with Chapter 2. The Board will hear the arguments in favor of and in opposition to a hearing on the appeal and the presentations on the merits of an appeal at a regularly scheduled meeting. If the Board decides to hold a public hearing on an appeal, that hearing will then be scheduled for a later date.
7. *New or additional evidence to be offered.* If an appellant wants to provide evidence not previously provided to DEP staff during the DEP's review of the application, the request and the proposed evidence must be submitted with the appeal. The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered in an appeal only under very limited circumstances. The proposed evidence must be relevant and material, and (a) the person seeking to add information to the record must show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process; or (b) the evidence itself must be newly discovered and therefore unable to have been presented earlier in the process. Specific requirements for supplemental evidence are found in Chapter 2 § 24.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, and is made easily accessible by the DEP. Upon request, the DEP will make application materials available during normal working hours, provide space to review the file, and provide an opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer general questions regarding the appeal process.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed, the license normally remains in effect pending the processing of the appeal. Unless a stay of the decision is requested and granted, a license holder may proceed with a project pending the outcome of an appeal, but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, and will provide the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, any materials submitted in response to the appeal, and relevant excerpts from the DEP's application review file will be sent to Board members with a recommended decision from DEP staff. The appellant, the license holder if different from the appellant, and any interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. The appellant and the license holder will have an opportunity to address the Board at the Board meeting. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, the license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court (see 38 M.R.S. § 346(1); 06-096 C.M.R. ch. 2; 5 M.R.S. § 11001; and M.R. Civ. P. 80C). A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452, or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

WHOLE OCEANS, LLC) MAINE POLLUTANT DISCHARGE
BUCKSPORT, HANCOCK COUNTY, MAINE) ELIMINATION SYSTEM PERMIT
LAND BASED AQUACULTURE) AND
ME0037478) WASTE DISCHARGE LICENSE
W009190-6F-A-N) NEW
APPROVAL	

In compliance with the applicable provisions of *Pollution Control*, 38 M.R.S. §§ 411 – 424-B, *Water Classification Program*, 38 M.R.S. §§ 464 – 470 and *Federal Water Pollution Control Act*, Title 33 U.S.C. § 1251, and applicable rules of the Department of Environmental Protection (Department hereinafter), the Department has considered the application of WHOLE OCEANS, LLC (Whole Oceans/permittee hereinafter), for a new combination Maine Pollutant Discharge Elimination System (MEPDES) permit/Maine Waste Discharge License (WDL)(permit hereinafter) with its supportive data, agency review comments, public comments and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

On June 4, 2018, and as amended on September 10, 2018, Whole Oceans submitted an application to the Department for a new MEPDES permit/WDL for the monthly average discharge of 18.6 million gallons per day (MGD), subject to the attached conditions of this permit, of treated wastewater associated with a land based recirculating aquaculture system (RAS) to the Penobscot River main stem, Class SC, in Bucksport, Maine. The permittee proposes to rear Atlantic salmon from the egg life stage to market size fish weighing 10-12 pounds. The facility will be built in phases as follows:

Phase I (initial) production up to 5,000 metric tons (MT) = 11 million pounds
Phase II (intermediate) production at 5,001 MT – 10,000 MT = 22 million pounds
Phase III (full build out) production at 10,001 - 20,000 MT = 44 million pounds

The permittee has plans to construct a fish processing facility (head-on, gutted) on-site at a later date. Limitations and monitoring requirements for this facility are not factored into this permit as the permittee is undecided as whether to convey this water to the local municipal waste water treatment facility for treatment or treat the waste water on-site and discharge the treated water to the Penobscot River. A separate review and approval process would be required for both options.

PERMIT SUMMARY

This permitting action is establishing:

1. Three tiers of technology based numeric limitations for flow, biochemical oxygen demand (BOD), total suspended solids (TSS), total nitrogen and pH;
2. A requirement to seasonally (May – October) monitor the effluent for total phosphorus and total ammonia.
3. A requirement for the permittee to conduct a dye study to determine the mixing characteristics of the treated effluent discharge from the facility with the receiving water;
4. A requirement to conduct seasonal (May – October) ambient water quality monitoring of the Penobscot River;
5. A requirement for the facility to develop and maintain an Operations & Maintenance (O&M) Plan for the production facility and the wastewater treatment facility;
6. A requirement to limit the use of antibiotics, fungicides, bactericides, paracitocides and other chemical compounds;
7. A requirement for the facility to develop and maintain a Containment Management System (CMS) to prevent escape of fish from the facility; and
8. A requirement for the permittee to meet with the Department's permitting and compliance inspection staff 90 days prior to commencement of operations, to review applicability of the permit limitations, monitoring requirements and reporting requirements.

CONCLUSIONS

BASED on the findings in the attached and incorporated Fact Sheet dated September 28, 2018, and subject to the Conditions listed below, the Department makes the following CONCLUSIONS:

1. 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.
2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with State law.
3. The provisions of the State's antidegradation policy, *Classification of Maine waters*, 38 M.R.S. § 464(4)(F), will be met, in that:
 - (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;
 - (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;
 - (c) Where the standards of classification of the receiving waterbody are not met, the discharge will not cause or contribute to the failure of the waterbody to meet the standards of classification;
 - (d) Where the actual quality of any classified receiving waterbody exceeds the minimum standards of the next highest classification that higher water quality will be maintained and protected; and
 - (e) Where a discharge will result in lowering the existing water quality of any waterbody, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.
4. The discharge will be subject to effluent limitations that require application of best practicable treatment as defined in 38 M.R.S. § 414-A(1)(D).

ACTION

THEREFORE, the Department APPROVES the application of WHOLE OCEANS, LLC to discharge a monthly average flow of 18.6 MGD, subject to the attached conditions of this permit, of treated wastewater associated with a land based RAS to the Penobscot River main stem, Class SC, in Bucksport, Maine, subject to the attached conditions and all applicable standards and regulations:

1. "Maine Pollutant Discharge Elimination System Permit Standard Conditions Applicable to All Permits," revised July 1, 2002, copy attached.
2. The attached Special Conditions, including any effluent limitations and monitoring requirements.
3. This permit becomes effective upon the date of signature below and expires at midnight five (5) years after that date. If a renewal application is timely submitted and accepted as complete for processing prior to the expiration of this permit, the terms and conditions of this permit and all subsequent modifications and minor revisions thereto remain in effect until a final Department decision on the renewal application becomes effective. [Maine Administrative Procedure Act, 5 M.R.S. § 10002 and Rules Concerning the Processing of Applications and Other Administrative Matters, 06-096 CMR 2(21)(A) (last amended June 9, 2018)].

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

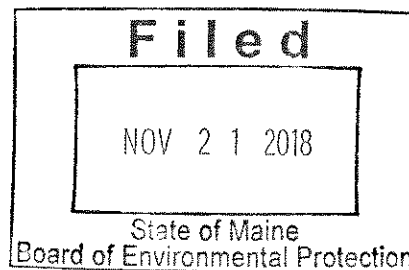
DONE AND DATED AT AUGUSTA, MAINE, THIS 21 DAY OF November 2018.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: [Signature]
for Melanie Loyzim, Acting Commissioner

Date of initial receipt of application June 4, 2018

Date of application acceptance June 5, 2018



Date filed with Board of Environmental Protection _____

This Order prepared by Gregg Wood, Bureau of Water Quality

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. The permittee is authorized to discharge treated waste water associated with a land based RAS from Outfall #001B or Outfall #003 to the Penobscot River. Such discharges are limited and must be monitored by the permittee as specified below⁽¹⁾:

Phase I - <5,000 Metric Tons (MT)

Effluent Characteristic					Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow [50050]	4.65 MGD [03]	---	---	---	Continuous [99/99]	Meter [MR]
Biochemical Oxygen Demand ⁽⁶⁾ (BOD ₅) [00310]	1,163 lbs./day [26]	1,939 lbs./day [26]	30 mg/L [19]	50 mg/L [19]	3/Week [03/07]	Composite ⁽²⁾ [24]
Total Suspended Solids(TSS) ⁽⁶⁾ [00530]	1,163 lbs./day [26]	1,939 lbs./day [26]	30 mg/L [19]	50 mg/L [19]	3/Week [03/07]	Composite ⁽²⁾ [24]
Total Kjeldahl Nitrogen (as N) [00625] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Nitrate + Nitrite Nitrogen (as N) [00630] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Total Nitrogen (as N) ^(3,6) [00600] (<i>May – Oct</i>)	1,865 lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Fish on Hand [45604]	---	Report Metric Tons [41]	---	---	1/Month [01/30]	Calculated [CA]
Total Phosphorus ⁽⁵⁾ [00665] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Total Ammonia [00610] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Grab [GR]
pH (Std. Units) [00400]	---	---	---	6.0-9.0 [12]	3/Week [03/07]	Grab [GR]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. The permittee is authorized to discharge treated waste water associated with a land based RAS from Outfall #001B or Outfall #003 to the Penobscot River. Such discharges are limited and must be monitored by the permittee as specified below⁽¹⁾:

Phase II - 5,001 MT – 10,000 MT (The permittee must file an application with the Department and receive a formal modification of this permit prior to discharging under the Phase II discharge limitations).

Effluent Characteristic					Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow [50050]	9.3 MGD [03]	---	---	---	Continuous [99/99]	Meter [MR]
Biochemical Oxygen Demand (6) (BOD ₅) [00310]	2,327 lbs./day [26]	3,878 lbs./day [26]	30 mg/L [19]	50 mg/L [19]	3/Week [03/07]	Composite ⁽²⁾ [24]
Total Suspended Solids(TSS) (6) [00530]	2,327 lbs./day [26]	3,878 lbs./day [26]	30 mg/L [19]	50 mg/L [19]	3/Week [03/07]	Composite ⁽²⁾ [24]
Total Kjeldahl Nitrogen (as N) [00625] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Nitrate + Nitrite Nitrogen (as N) [00630] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Total Nitrogen (as N) (3,6) [00600] (<i>May – Oct</i>)	Reserved lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Fish on Hand [45604]	---	Report Metric Tons [41]	---	---	1/Month [01/30]	Calculated [CA]
Total Phosphorus ⁽⁵⁾ [00665] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Total Ammonia [00610] (<i>May – Oct</i>)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Grab [GR]
pH (Std. Units) [00400]	---	---	---	6.0-9.0 [12]	3/Week [03/07]	Grab [GR]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

3. The permittee is authorized to discharge treated waste water associated with a land based RAS from Outfall #001B or Outfall #003 to the Penobscot River. Such discharges are limited and must be monitored by the permittee as specified below⁽¹⁾:

Phase III - 10,001 MT – 20,000 MT (The permittee must file an application with the Department and receive a formal modification of this permit prior to discharging under the Phase III discharge limitations).

Effluent Characteristic					Minimum Monitoring Requirements	
	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type
Flow [50050]	18.6 MGD [03]	---	---	---	Continuous [99/99]	Meter [MR]
Biochemical Oxygen Demand ⁽⁶⁾ (BOD ₅) [00310]	4,654 lbs./day [26]	7,756 lbs./day [26]	30 mg/L [19]	50 mg/L [19]	3/Week [03/07]	Composite ⁽²⁾ [24]
Total Suspended Solids(TSS) ⁽⁶⁾ [00530]	4,654 lbs./day [26]	7,756 lbs./day [26]	30 mg/L [19]	50 mg/L [19]	3/Week [03/07]	Composite ⁽²⁾ [24]
Total Kjeldahl Nitrogen (as N) [00625] (May – Oct)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Nitrate + Nitrite Nitrogen (as N) [00630] (May – Oct)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Total Nitrogen (as N) ^(3,6) [00600] (May – Oct)	Reserved lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Fish on Hand [45604]	---	Report Metric Tons [41]	---	---	1/Month [01/30]	Calculated [CA]
Total Phosphorus ⁽⁵⁾ [00665] (May – Oct)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Composite ⁽²⁾ [24]
Total Ammonia [00610] (May – Oct)	Report lbs/day [26]	Report lbs/day [26]	Report mg/L [19]	Report mg/L [19]	1/Week [01/07]	Grab [GR]
pH (Std. Units) [00400]	---	---	---	6.0-9.0 [12]	3/Week [03/07]	Grab [GR]

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

4. The permittee is authorized to discharge untreated **backwash wash waters via Outfall #001A to the Penobscot River. Waters discharged are associated with the cleaning of the facility intake screens.** No limitations or monitoring requirements are being established for this outfall given the nature of the discharge.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes

1. **Sampling** – All effluent monitoring must be conducted following the last treatment unit prior to discharging to the receiving water. All monitoring must be conducted so as to be representative of end-of-pipe effluent characteristics. Any change in sampling location must be approved by the Department in writing. The permittee must conduct sampling and analysis in accordance with; a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department. Samples that are sent out for analysis must be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services for wastewater. Samples that are sent to a laboratory operated by a waste discharge facility licensed pursuant to *Waste discharge licenses*, 38 M.R.S. § 413 are subject to the provisions and restrictions of *Maine Comprehensive and Limited Environmental Laboratory Certification Rules*, 10-144 CMR 263 (effective date April 1, 2010). If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR Part 136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR).
2. **Composite sample** means a sample consisting of a minimum of eight grab samples collected at equal intervals during a 24 hour period (or a lesser period as specified in the section on monitoring and reporting) and combined proportional to the flow over that same time period.
3. **Total nitrogen (as N) – Monthly** – The permittee is required to report the monthly average, and daily maximum mass and concentrations for each month (May – October) of each year by adding the total kjeldahl nitrogen values to the nitrate + nitrite nitrogen values for each sampling event. See **Attachment A** of this permit for *Protocol for Nitrogen Sample Collection and Analysis for Waste Water Effluent*.
4. **Total Nitrogen** – Numeric mass limitations for Phase II and Phase III are not being established upon issuance of this permit. The Department will utilize effluent data from Phase I, the dye study required by Special Condition F of this permit and ambient water quality monitoring data required by Special Condition G of this permit as the basis for future limits.
5. **Total phosphorus** – See **Attachment B** of this permit for *Protocol for Total Phosphorus Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits*.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

Footnotes:

6. **BOD, TSS and Total nitrogen** - The monthly average and daily maximum limitations for biochemical oxygen demand, total suspended solids and total nitrogen will be subject to a statistical evaluation at the end of the term of this permit to assist the Department in establishing best practicable treatment standards for the RAS industry.

B. NARRATIVE EFFLUENT LIMITATIONS

1. The permittee must not discharge effluent that contains a visible oil sheen, foam or floating solids at any time which would impair the uses designated for the classification of the receiving waters.
2. The permittee must not discharge effluent that contains materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the uses designated for the classification of the receiving waters.
3. The discharge must not impart visible discoloration, taste, turbidity, toxicity, radioactivity or other properties in the receiving waters which would impair the usages designated for the classification of the receiving waters.
4. The permittee must not discharge effluent that lowers the quality of any classified body of water below such classification, or lowers the existing quality of any body of water if the existing quality is higher than the classification.

C. AUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on June 5, 2018, and amended on September 10, 2018; 2) the terms and conditions of this permit; and 3) only from Outfalls #001A, Outfall #001B and Outfall #003. Discharges of wastewater from any other point source are not authorized under this permit, and must be reported in accordance with Standard Condition D(1)(f), *Twenty-four-hour reporting*, of this permit.

The permittee must receive a formal modification of this permit from the Department prior to discharging under the Phase II or Phase III discharge limitations.

SPECIAL CONDITIONS

D. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the permittee must notify the Department of the following:

1. Any substantial change in the volume or character of pollutants being introduced into the wastewater collection and treatment system.
2. For the purposes of this section, adequate notice must include information on:
 - a. The quality and quantity of wastewater introduced to the wastewater collection and treatment system; and
 - b. Any anticipated change in the quality and quantity of the wastewater to be discharged from the treatment system.

E. MONITORING AND REPORTING

Electronic Reporting

NPDES Electronic Reporting, 40 C.F.R. 127, requires MEPDES permit holders to submit monitoring results obtained during the previous month on an electronic discharge monitoring report to the regulatory agency utilizing the USEPA electronic system.

Electronic Discharge Monitoring Reports (DMRs) submitted using the USEPA NetDMR system, must be:

1. Submitted by a facility authorized signatory; and
2. Submitted no later than **midnight on the 15th day of the month** following the completed reporting period.

Documentation submitted in support of the electronic DMR may be attached to the electronic DMR. Toxics reporting must be done using the DEP toxsheet reporting form. An electronic copy of the Toxsheet reporting document must be submitted to your Department compliance inspector as an attachment to an email. In addition, a hardcopy form of this sheet must be signed and submitted to your compliance inspector, or a copy attached to your NetDMR submittal will suffice. Documentation submitted electronically to the Department in support of the electronic DMR must be submitted no later than midnight on the 15th day of the month following the completed reporting period.

SPECIAL CONDITIONS

F. DYE STUDY

Within 6 months of the effective date of this permit, the permittee must submit a plan to the Department for review and approval, that includes a scope of work and schedule to conduct a dye study to more accurately determine the mixing characteristics of the effluent being discharged with the receiving water.

Within 6 months of commencing operations and achieving $\geq 85\%$ (4,250 metric tons) of Phase I full production of 5,000 MT (eggs, smolts, fry, and market size fish), the permittee must conduct a dye study to determine the mixing characteristics of the treated effluent and the receiving water. The dye study must be conducted in July or August and at multiple tidal stages during low flow conditions.

Within 6 months of completion of the dye study, the permittee must submit a report to the Department that characterizes the mixing conditions in the receiving water (both the east and west channels around Verona Island) and provide information on the dilution factors associated with the discharge at 2,500-foot increments beginning at the outfall and continuing downstream to a point 0.5 mile below the southern tip of Verona Island or until the dye concentration is below the instrument detection level.

G. AMBIENT WATER QUALITY MONITORING

On or before February 1, 2019, the permittee must submit an ambient water quality monitoring plan to the Department for review and approval, to monitor five (5) existing sampling stations established by the Department. The stations to be monitored are P1, P4, P6, P7 and O3. See **Attachment D** of the Fact Sheet of this permit for a map depicting the locations of the monitoring sites. The proposed monitoring plan must conform with a Department approved Quality Assurance Project Plan (QAPP). All sampling and analysis must be conducted by a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or c) as otherwise specified by the Department.

Beginning May 1, 2019, the permittee must commence ambient monitoring at five designated sites established by the Department at a frequency of 2/Month between May 1st and October 31st of each year. Each monitoring event must be conducted during a three-hour sampling window on the second half of an ebb tide. Minimum parameters to be monitored via a sonde are temperature, salinity, pH, dissolved oxygen, chlorophyll *a*, and turbidity while total phosphorus, total kjeldahl nitrogen, nitrate + nitrite nitrogen are to be monitored via grab samples.

On or before December 31st of each year, the permittee must submit a report to the Department summarizing the data collected and report any trends or anomalies with the data.

SPECIAL CONDITIONS

H. OPERATION & MAINTENANCE PLAN

Within 6 months after commencement of operations, the permittee must submit a written Operation & Maintenance (O&M) Plan for the facility to the Department for review. The plan must provide a systematic approach by which the permittee must at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit.

An acceptable O&M plan must ensure the following items are adequately addressed:

1. Solids Control

- a. Methods and practices to ensure efficient feed management and feeding strategies that limit feed input to the minimum amount reasonably necessary to achieve production goals and sustain targeted rates of aquatic animal growth in order to minimize potential discharges to waters of the State.
- b. In order to minimize the discharge of accumulated solids from the solids processing system and production systems, identify and implement procedures for routine cleaning of rearing units and any settling tanks, and procedures to minimize any discharge of accumulated solids during the inventorying, grading, and harvesting of aquatic animals in the production system.
- c. Procedure for removal and disposal of mortalities.

2. Materials Storage

- a. Ensure proper storage of drugs¹, pesticides², feed, chemicals and any petroleum and/or hazardous waste products in a manner designed to prevent spills that may result in the discharge of drugs, pesticides, or feed to waters of the State.
- b. Implement procedures for properly containing, cleaning, and disposing of any spilled material that has the potential to enter waters of the State.

¹ **Drug.** "Drug" means any substance defined as a drug in section 201(g)(1) of the *Federal Food, Drug and Cosmetic Act* [21 U.S.C. § 321].

² **Pesticide.** "Pesticide" means any substance defined as a "pesticide" in section 2(u) of the *Federal Insecticide, Fungicide, and Rodenticide Act* [7 U.S.C. § 136 (u)].

SPECIAL CONDITIONS

H. OPERATION & MAINTENANCE PLAN (cont'd)

3. Structural Maintenance

- a. Inspect the production system and the wastewater treatment system on a routine basis in order to identify and promptly repair any damage.
- b. Conduct regular maintenance of the production system and the wastewater treatment system in order to ensure that they are properly functioning.

4. Recordkeeping

- a. Maintain records for fish rearing units documenting the feed amounts and estimates of the numbers and weight of fish.
- b. Maintain records that document the frequency of cleaning, inspections, repairs and maintenance.

5. Training

- a. In order to ensure the proper clean-up and disposal of spilled material adequately, train all relevant personnel in spill prevention and how to respond in the event of a spill.
- b. Train staff on the proper operation and cleaning of production and wastewater treatment systems including training in feeding procedures and proper use of equipment to prevent unauthorized discharges.

By December 31 of each year, or within 90 days of any process changes or minor equipment upgrades, the permittee must evaluate and modify the O&M Plan including site plan(s) and schematic(s) for the wastewater treatment facility to ensure that it is up-to-date. The O&M Plan must be kept on-site at all times and made available to Department and United States Environmental Protection Agency (USEPA) personnel upon request.

Within 90 days of completion of new and or substantial upgrades of the wastewater treatment facility, the permittee must submit the updated O&M Plan to their Department inspector for review and comment.

SPECIAL CONDITIONS

I. DISEASE CONTROL

The permittee must comply with Maine Department of Inland Fisheries and Wildlife (MDIFW) (freshwater facilities) and Maine Department of Marine Resources (MEDMR) (salmon & marine facilities) fish health laws (12 MRS, §6071; 12 MRS, §100051, 10105, 12507 and 12509, or revised laws). The cited laws include requirements for notification to the appropriate agency within 24-hours of pathogen detection. In addition to the requirements of the MDIFW and MEDMR rules, **the permittee shall notify the Department in writing within 24 hours following pathogen detection**, with information on the disease/pathogen, necessary control measures, and the veterinarian involved.

1. **General requirements.** All chemicals used at the facility must be applied in compliance with federal labeling restrictions and in compliance with applicable statute, Board of Pesticides Control rules and best management practices (BMPs). In accordance with Special Condition D of this permit, the permittee must notify the Department of any substantial change in the volume or character of pollutants being introduced into the wastewater collection and treatment system.
2. **FDA-approved drugs.** All drugs used for disease prevention or control must be approved or authorized by the U.S. Food and Drug Administration (FDA), and all applications must comply with applicable FDA requirements and shall only be administered in accordance with label instructions.
 - a. Drugs identified in the permittee's application: A list of drugs, chemicals and other compounds proposed for use at the permittee's facility during the term of the permit, were provided by the permittee in its June 4, 2018, General Application for Waste Discharge Permit. See **Attachment C** of this permit.
 - b. Preventative treatments: The discharge of any approved drug administered as a preventative measure is not authorized by this permit, unless the following conditions are met: the drug must be approved by FDA, and the treatment and route of administration must be consistent with the drug's intended use. FDA approved drugs in the permittee's June 4, 2018 application are:
 1. Formalin (Parasite-S)
 2. Terramycine® 200 (oxytetracycline dehydrate)
 3. Aquaflor® (florfenicol)
 4. Romet ®30/Romet®TC (sulfadimethoxine/ormetoprim)
 5. Chloramine-T
 6. Hydrogen peroxide

SPECIAL CONDITIONS

I. DISEASE CONTROL (cont'd)

Effluent monitoring – The permittee must monitor the final effluent at a frequency of 1/Day anytime one or more of the following compounds are utilized in the facility.

1. Formalin (Parasite-S)
2. Terramycin® 200 (oxytetracycline dehydrate)
3. Aquaflor® (florfenicol)
4. Romet ®230/Romet®TC (sulfadimethoxine/ormetoprim)
5. Chloramine-T

Monitoring must commence the day of use of a compound(s) and continue until at least three days after the compound(s) is no longer being administered.

On or before six months following the effective date of this permit [ICIS code 53799] the permittee must submit a list of approved test methods for the compounds listed in this section. The individual tests results for each must be submitted as an attachment to monthly Discharge Monitoring Reports.

- c. Drugs not identified in the permittee's application: When the need to treat or control diseases requires the use of a FDA-approved drug not identified in the application (see **Attachment C** of this permit), the permittee must notify the Department orally or by electronic mail prior to initial use of the drug.
 1. The notification must include a description of the drug, its intended purpose, the method of application, the amount, the concentration, the duration of the use, and information on aquatic toxicity.
 2. ***Within seven (7) days of*** the initial notification the permittee must submit a written report that includes all of the information outlined in Section I.2(c)(1) above.
 3. The Department may require submission of an application for permit modification, including public notice requirements, if the drug is to be used for more than a 30-consecutive day period.
 4. If, upon review of information regarding the use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may restrict or limit use of the drug.

SPECIAL CONDITIONS

I. DISEASE CONTROL (cont'd)

3. **Extralabel drug use.** Extralabel drug use is not authorized by this permit, unless in accordance with a specific prescription written for that use by a licensed veterinarian.
 - a. Notification. The permittee must notify the Department orally or by e-mail prior to initial extralabel use of a drug.
 1. The notification must include a description of the drug, its intended purpose, the method of application, the amount, concentration, and duration of the use, information on aquatic toxicity, and a description of how and why the use qualifies as an extralabel drug use under FDA requirements.
 2. **Within seven (7) days of the initial notification** the permittee must submit a written report that includes all of the information outlined in Section I.3(a)(1) above. Notice must include documentation that a veterinarian has prescribed the drug for the proposed use. A copy of the veterinarian's prescription must be maintained on-site during treatment for Department review.
 3. If, upon review of information regarding the extralabel use of a drug pursuant to this section, the Department determines that significant adverse effects are likely to occur, it may deny, restrict or limit use of the drug.
4. **Investigational New Animal Drug (INAD).** The discharge of drugs authorized by the FDA for use during studies conducted under the INAD program is not authorized by this permit, unless in accordance with specific prior consent given in writing by the Department.
 - a. Initial report. The permittee must provide a written report to the Department for the proposed use of an INAD *within seven (7) days* of agreeing or signing up to participate in an INAD study. The written report must identify the INAD to be used, method of use, dosage, and disease or condition the INAD is intended to treat.
 - b. Evaluation and monitoring. *At least ninety (90) days prior to initial use* of an INAD at a facility, the permittee must submit for Department review and approval a study plan for the use of the drug that:
 1. Indicates the date the facility agreed or signed up to participate in the INAD study.
 2. Demonstrates that the minimum amount of drug necessary to evaluate its safety, efficacy, and possible environmental impacts will be used.

SPECIAL CONDITIONS

I. DISEASE CONTROL (cont'd)

3. Includes an environmental monitoring and evaluation program that at a minimum describes sampling strategies, analytical procedures, evaluation techniques and a timetable for completion of the program. Currently available data or literature that adequately characterizes the environmental fate of the INAD and its metabolite(s) may be proposed for consideration in determinations of environmental monitoring and evaluation programs required by the Department pursuant to this section.
- c. Notification. The permittee must notify the Department orally or by electronic mail *no more than forty-eight (48) hours after* beginning the first use of the INAD under the approved plan.

J. SPILLS

In the event of a spill of drugs, chemicals, feed, petroleum and/or hazardous waste products that results in a discharge to waters of the State, the permittee must provide an oral report of the spill to the Department within 24 hours of its occurrence and a written report on a form provided by the Department, within five (5) days to the Department. The report must include the identity and quantity of the material spilled.

K. PROTECTION OF ATLANTIC SALMON

The permittee is required to employ a fully functional Containment Management System (CMS) designed, constructed, operated, and audited so as to prevent the accidental or consequential escape of fish from the facility.

Each CMS plan must include:

1. a site plan or schematic;
2. site plan description;
3. procedures for inventory control, escape response; and unusual event management;
4. provisions for employee training, auditing methods, and record keeping requirements; and
5. the CMS must identify critical control points where escapes could potentially occur, specific control mechanisms for each of these points, and monitoring procedures to verify the effectiveness of controls.

The CMS site specific plan must also describe the use of effective containment barriers appropriate to the life history of the fish. The facility must have in place both a three-barrier system for fish up to 5 grams in size and a two-barrier system for fish 5 grams in size or larger.

SPECIAL CONDITIONS

K. PROTECTION OF ATLANTIC SALMON (cont'd)

The three-barrier system must include one barrier at the incubation/rearing unit, one barrier at the effluent from the hatch house/fry rearing area and a third barrier placed in line with the entire effluent from the facility. Each barrier must be appropriate to the size of fish being contained. The two-barrier system must include one barrier at the individual rearing unit drain and one barrier in line with the total effluent from the facility. Each barrier must be appropriate to the size of fish being contained. Barriers installed in the system may be of the screen type or some other similarly effective device used to contain fish of a specific size in a designated area. Barriers installed in the system for compliance with these requirements must be monitored daily.

Facility personnel responsible for routine operation must be properly trained and qualified to implement the CMS. Prior to any containment system assessment associated with this permit, the permittee must provide to the Department documentation of the employee's or contractor's demonstrated capabilities to conduct such work [*ICIS code 21599*].

On or before six months following the effective date of this permit [*ICIS code 53799*] the permittee must submit the CMS plan to the Department, NOAA, USFWS and DMR for review and approval and must maintain a current copy of the plan at the facility. Final approval of the plan will be determined by the Department. The permittee may not bring eggs or any size fish into the facility until the final CMS plan is approved by the Department.

The CMS must be audited at least once per year and within 30 days of a reportable escape by a third party qualified to conduct CMS audits and approved by the Department [*ICIS code 63899*]. A written report of these audits must be provided to the facility and the Department for review and approval within 30 days of the audit being conducted [*ICIS code 43699*]. Any time that a CMS audit identifies deficiencies, the written report must contain a corrective action plan including a timetable for implementation and provisions for re-auditing, unless waived by the Department, to verify completion of all corrective actions.

Additional third party audits to verify correction of deficiencies must be conducted in accordance with the corrective action plan or upon request of the Department. The facility must notify the Department upon completion of corrective actions.

SPECIAL CONDITIONS

K. PROTECTION OF ATLANTIC SALMON (cont'd)

The permittee must maintain for a period of at least five (5) years complete records, logs, reports of internal and third party audits and documents related to the CMS for each facility.

Compromised containment/Escape reporting. The permittee must notify by electronic mail (e-mail) the Escape Reporting Contact List (provided in this subsection) of any known system failures that compromise fish containment or suspected escape of any fish within 24 hours of becoming aware of the known or suspected loss to the following persons listed under "Escape Reporting Contact List."

The permittee must include in its e-mail notification the following information: 1) site location (town and waterbody); 2) date of event (or window of possible dates if exact date is unknown); 3) time of event (if known or specify "unknown"); 4) species (including strain); 5) estimated average weight; 6) age of escaped fish; 7) number of escaped fish (or if exact number is not possible, an estimate); 8) medication profile; 9) details of the escape; 10) corrective action(s) taken or planned; 11) and a contact person (including phone number) for the facility which is subject of the known or suspected escape.

Escape Reporting Contact List:

The agency contacts on this list may be revised by the state and/or federal agencies by provision of written notification to the permittee and the other agencies. Upon notice of any such change the permittee must notify all persons on the revised list in the same manner as provided in this protocol.

Army Corps of Engineers

Maine Project Office; Jay Clement; Jay.L.Clement@usace.army.mil

Maine Department of Environmental Protection

Regional Compliance Inspector, Clarissa Trasko, Clarissa.Trasko@maine.gov

Maine Department Marine Resources

Secretary to the Commissioner; Amy Sinclair; Amy.Sinclair@maine.gov

Marine Scientist, Division of Aquaculture, Marcy Nelson, Marcy.Nelson@maine.gov

Director, Division of Sea-Run Fisheries, Sean Ledwin, Sean.M.Ledwin@maine.gov

Maine Department of Inland Fisheries and Wildlife

Commissioner, Chandler Woodcock, Chandler.Woodcock@maine.gov, or current Commissioner

SPECIAL CONDITIONS

K. PROTECTION OF ATLANTIC SALMON (cont'd)

National Marine Fisheries Service

Maine Field Station; David Bean, David.Bean@noaa.gov

United States Fish & Wildlife Service

Maine Field Office; Wende Mahaney; Wende_Mahaney@fws.gov

L. FISH FEED

On or before 90 days prior to stocking the site with fish feed, the permittee must submit a detailed list of ingredients in the feed. If the list contains ingredients of concern, the Department reserves the right to reopen the permit pursuant to Special Condition O, *Reopening of Permit for Modifications*, to establish additional limitations and or monitoring requirements of the ingredients of concern.

M. 06-096 CMR 530(2)(D)(4) STATEMENT FOR REDUCED/WAIVED TOXICS TESTING

By December 31 of each calendar year, the permittee must provide the Department with a certification describing any of the following that have occurred since the effective date of this permit [*ICIS Code 96299*]. See **Attachment E** of the Fact Sheet of this permit for an acceptable certification form to satisfy this Special Condition.

- a. Changes in the number or types of non-domestic wastes contributed directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;
- b. Changes in the operation of the treatment works that may increase the toxicity of the discharge; and
- c. Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

In addition, in the comments section of the certification form, the permittee shall provide the Department with statements describing;

- d. Changes in storm water collection or inflow/infiltration affecting the facility that may increase the toxicity of the discharge.
- e. Increases in the type or volume of hauled wastes accepted by the facility.

SPECIAL CONDITIONS

M. 06-096 CMR 530(2)(D)(4) STATEMENT FOR REDUCED/WAIVED TOXICS TESTING (cont'd)

The Department reserves the right to reinstate routine surveillance level testing or other toxicity testing if new information becomes available that indicates the discharge may cause or have a reasonable potential to cause exceedances of ambient water quality criteria/thresholds.

N. COMMENCEMENT OF OPERATIONS

At a minimum of ninety (90) days prior to commencing production/operations, the permittee must meet with the Department's permitting and compliance inspection staff to review applicability of the permit limitations, monitoring requirements and reporting requirements. Should the Department determine the proposed production/operations are significantly different than what has been presented in the June 5, 2018, application materials, and as amended on September 10, 2018, the Department may require the permittee to submit a revised application to the Department.

O. REOPENING OF PERMIT FOR MODIFICATION

In accordance with 38 M.R.S. § 414-A(5) and upon evaluation of the tests results in the Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at any time and with notice to the permittee, modify this permit to: (1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded; (2) require additional monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information.

P. SEVERABILITY

In the event that any provision or part thereof, of this permit is declared to be unlawful by a reviewing court, the remainder of the permit must remain in full force and effect, and must be construed and enforced in all aspects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

ATTACHMENT A

Protocol for Nitrogen Sample Collection and Analysis for Waste Water Effluent

Approved Analytical Methods (from Table 1 B of Part 136 per the 2012 Method Update Rule): (laboratory must be certified for any method performed)

Total Kjeldahl Nitrogen (TKN):

Manual digestion and distillation or gas diffusion followed by any of the following	SM4500-Norg B-97 or C-97 and SM4500-NH3 B-97.	ASTM D3590-02 (06) (A)	I-4515-9145
Titration	SM4500-NH3 C-97	ASTM D3590-89, 02 (A)	973.48.3
Nesslerization		ASTM D1426-08 (A)	
Electrode	SM4500-NH3 D-97 or E-97	ASTM D1426-08 (B)	
Semi-automated phenate	EPA 350.1 Rev. 2.0 (1993)	SM4500-NH3 G-97 or H-97	
Manual phenate, salicylate, or other substituted phenols in Berthelot reaction based methods	SM4500-NH3 F-1997		
<i>Automated methods for TKN that do not require manual digestion</i>			
Automated phenate, salicylate, or other substituted phenols in Berthelot reaction based methods colorimetric (auto digestion and distillation)	EPA 351.1 (1978)		I-4551-788
Semi-automated block digester colorimetric (distillation not required)	EPA 351.2, Rev. 2.0 (1993)	SM4500-Norg D-97	ASTM D3590-02 (06) (B) I-4515-9145

Nitrate + Nitrite (NO₃ + NO₂):

Cadmium reduction, Manual		SM4500-NO3 E-00	ASTM D3867-04 (B)	
Cadmium reduction, Automated, or	EPA 353.2, Rev. 2.0 (1993)	SM4500-NO3 F-00	ASTM D3867-04(A)	I-4545-852
Automated hydrazine		SM4500-NO3 H-00		
Ion chromatography	EPA 300.0, Rev. 2.1 (1993) and EPA 300.1, rev. 1.0 (1997)	SM4110 B-00 or C-00	ASTM D4327-03	993.303
CIE/UV		SM4140 B-97	ASTM D6508-00 (05)	ASTM D6508, Rev. 2

Sample Collection: The Maine DEP is requesting that nitrogen analysis be conducted on composite effluent samples, unless a facility's Permit specifically designates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute H₂SO₄. This cleaning should be followed by several rinses with distilled water. Commercially purchased, pre-cleaned sample containers are an acceptable alternative. The sampler hoses should be cleaned; as needed.

Sample Preservation: During compositing the sample must be at 0-6 degrees C (without freezing). If the sample is being sent to a commercial laboratory or analysis cannot be performed the day of collection then the sample must be preserved using H₂SO₄ to obtain a sample pH of <2 su and refrigerated at 0-6 degrees C (without freezing). The holding time for a preserved sample is 28 days.

Laboratory QA/QC: Laboratories must follow the appropriate QA/QC procedures that are described in each of the approved methods.

Sampling QA/QC: If a composite sample is being collected using an automated sampler, then once per month run a blank on the composite sampler. Automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then analyze for total nitrogen. Preserve this sample as described above.

ATTACHMENT B

Protocol for Total Phosphorus Sample Collection and Analysis for Waste Water and Receiving Water Monitoring Required by Permits

Approved Analytical Methods: EPA 200.7 (Rev. 44), 365.1 (Rev. 2.0), (Lachat), 365.3, 365.4; SM 3120 B, 4500-P B.5, 4500-P E, 4500-P F, 4500-P G, 4500-P H; ASTM D515-88(A), D515-88(B); USGS I-4471-97, I-4600-85, I-4610-91; OMAAOAC 973.55, 973.56

Sample Collection: The Maine DEP is requesting that total phosphorus analysis be conducted on composite effluent samples, unless a facility's Permit specifically designates grab sampling for this parameter. Facilities can use individual collection bottles or a single jug made out of glass or polyethylene. Bottles and/or jugs should be cleaned prior to each use with dilute HCL. This cleaning should be followed by several rinses with distilled water. Commercially purchased, pre-cleaned sample containers are an acceptable alternative. The sampler hoses should be cleaned, as needed.

Sample Preservation: During compositing the sample must be at 0-6 degrees C (without freezing). If the sample is being sent to a commercial laboratory or analysis cannot be performed the day of collection then the sample must be preserved using H₂SO₄ to obtain a sample pH of <2 su and refrigerated at 0-6 degrees C (without freezing). The holding time for a preserved sample is 28 days.

Note: Ideally, Total P samples are preserved as described above. However, if a facility is using a commercial laboratory then that laboratory may choose to add acid to the sample once it arrives at the laboratory. The Maine DEP will accept results that use either of these preservation methods.

Laboratory QA/QC: Laboratories must follow the appropriate QA/QC procedures that are described in each of the approved methods.

Sampling QA/QC: If a composite sample is being collected using an automated sampler, then once per month run a blank on the composite sampler. Automatically, draw distilled water into the sample jug using the sample collection line. Let this water set in the jug for 24 hours and then analyze for total phosphorus. Preserve this sample as described above.

ATTACHMENT C

Whole Oceans Estimated Chemical Annual Usage (Discharged to Outfall 003)

Fungicides, Topical Bactericides, Parasiticides:

- Povidone iodine (iodophor): Active ingredient 10% polyvinylpyrrolidinone. Typical dose range for egg disinfection 50-100 ppm.
- Hydrogen peroxide (35% Perox-Aid): Active ingredient 35% hydrogen peroxide. Used for control of fungus on eggs/fish and potentially for bacterial gill disease on fish. Typical dose range between 100-1000 ppm depending on use.
- Chloramine-T (Halamid): Active ingredients N-chloro, p-toluenesulfonamide and sodium salt trihydrate. Used for control of bacterial gill disease. Typical dose range 12-20 ppm.
- Potassium permanganate: Considered as 97% active. Used for control of certain parasites and fungal infections in younger fish life-stages. Typical dose range 1.5-2.5 ppm.

Antibiotics:

- Terramycin® 200 (oxytetracycline dehydrate, 44% active): Used in accordance with label for a maximum of 3.75 g active oxytetracycline/100 lb fish/day as an in-feed treatment for susceptible bacterial infections.
- Aquaflor® (florfenicol; 50% active): Used in accordance with label with maximum of 15 mg/kg fish/day as an in-feed treatment for susceptible bacterial infections.
- Romet® 30/Romet® TC (sulfadimethoxine/ormetoprim, 30% active or 20% active, respectively): In accordance with label, 50 mg/kg fish as an in-feed treatment for susceptible bacterial infections.

Disinfectants:

- Sodium hypochlorite (bleach): Active ingredient: 8% sodium hypochlorite in concentrated form. Typically used at 100-1000 ppm for general cleaning/disinfection. Approximate annual use: 250 gallons of 1:100 diluted form.

Other Therapeutants:

- Sodium chloride: Discharge of up to 35 kg NaCl/day for periodic treatment of fish in nursery units, and discharge of up to 42,350 kg/day for maintaining salinity in growout systems.
- Calcium chloride [amount TBD]

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

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MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

A. GENERAL PROVISIONS

1. **General compliance.** All discharges shall be consistent with the terms and conditions of this permit; any changes in production capacity or process modifications which result in changes in the quantity or the characteristics of the discharge must be authorized by an additional license or by modifications of this permit; it shall be a violation of the terms and conditions of this permit to discharge any pollutant not identified and authorized herein or to discharge in excess of the rates or quantities authorized herein or to violate any other conditions of this permit.

2. **Other materials.** Other materials ordinarily produced or used in the operation of this facility, which have been specifically identified in the application, may be discharged at the maximum frequency and maximum level identified in the application, provided:

(a) They are not

(i) Designated as toxic or hazardous under the provisions of Sections 307 and 311, respectively, of the Federal Water Pollution Control Act; Title 38, Section 420, Maine Revised Statutes; or other applicable State Law; or

(ii) Known to be hazardous or toxic by the licensee.

(b) The discharge of such materials will not violate applicable water quality standards.

3. **Duty to comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of State law and the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(a) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act, and 38 MRSA, §420 or Chapter 530.5 for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

(b) Any person who violates any provision of the laws administered by the Department, including without limitation, a violation of the terms of any order, rule license, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

4. **Duty to provide information.** The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

5. **Permit actions.** This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. **Reopener clause.** The Department reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedule of compliance or other provisions which may be authorized under 38 MRSA, §414-A(5).

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7. Oil and hazardous substances. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the Federal Clean Water Act; section 106 of the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980; or 38 MRSA §§ 1301, et. seq.

8. Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Confidentiality of records. 38 MRSA §414(6) reads as follows. "Any records, reports or information obtained under this subchapter is available to the public, except that upon a showing satisfactory to the department by any person that any records, reports or information, or particular part or any record, report or information, other than the names and addresses of applicants, license applications, licenses, and effluent data, to which the department has access under this subchapter would, if made public, divulge methods or processes that are entitled to protection as trade secrets, these records, reports or information must be confidential and not available for public inspection or examination. Any records, reports or information may be disclosed to employees or authorized representatives of the State or the United States concerned with carrying out this subchapter or any applicable federal law, and to any party to a hearing held under this section on terms the commissioner may prescribe in order to protect these confidential records, reports and information, as long as this disclosure is material and relevant to any issue under consideration by the department."

10. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

11. Other laws. The issuance of this permit does not authorize any injury to persons or property or invasion of other property rights, nor does it relieve the permittee of its obligation to comply with other applicable Federal, State or local laws and regulations.

12. Inspection and entry. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the EPA Administrator), upon presentation of credentials and other documents as may be required by law, to:

- (a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- (c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- (d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

B. OPERATION AND MAINTENANCE OF FACILITIES

1. General facility requirements.

- (a) The permittee shall collect all waste flows designated by the Department as requiring treatment and discharge them into an approved waste treatment facility in such a manner as to

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

maximize removal of pollutants unless authorization to the contrary is obtained from the Department.

- (b) The permittee shall at all times maintain in good working order and operate at maximum efficiency all waste water collection, treatment and/or control facilities.
- (c) All necessary waste treatment facilities will be installed and operational prior to the discharge of any wastewaters.
- (d) Final plans and specifications must be submitted to the Department for review prior to the construction or modification of any treatment facilities.
- (e) The permittee shall install flow measuring facilities of a design approved by the Department.
- (f) The permittee must provide an outfall of a design approved by the Department which is placed in the receiving waters in such a manner that the maximum mixing and dispersion of the wastewaters will be achieved as rapidly as possible.

2. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

3. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Bypasses.

(a) Definitions.

- (i) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.
- (ii) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

- (b) 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 (c) and (d) of this section.

(c) Notice.

- (i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

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STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

- (ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D(1)(f), below. (24-hour notice).
- (d) Prohibition of bypass.
 - (i) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:
 - (A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
 - (B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
 - (C) The permittee submitted notices as required under paragraph (c) of this section.
 - (ii) The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in paragraph (d)(i) of this section.

6. Upsets.

- (a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
- (b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (c) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.
- (c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - (i) An upset occurred and that the permittee can identify the cause(s) of the upset;
 - (ii) The permitted facility was at the time being properly operated; and
 - (iii) The permittee submitted notice of the upset as required in paragraph D(1)(f) , below. (24 hour notice).
 - (iv) The permittee complied with any remedial measures required under paragraph B(4).
- (d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

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STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

C. MONITORING AND RECORDS

1. General Requirements. This permit shall be subject to such monitoring requirements as may be reasonably required by the Department including the installation, use and maintenance of monitoring equipment or methods (including, where appropriate, biological monitoring methods). The permittee shall provide the Department with periodic reports on the proper Department reporting form of monitoring results obtained pursuant to the monitoring requirements contained herein.

2. Representative sampling. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. If effluent limitations are based wholly or partially on quantities of a product processed, the permittee shall ensure samples are representative of times when production is taking place. Where discharge monitoring is required when production is less than 50%, the resulting data shall be reported as a daily measurement but not included in computation of averages, unless specifically authorized by the Department.

3. Monitoring and records.

- (a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- (b) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.
- (c) Records of monitoring information shall include:
 - (i) The date, exact place, and time of sampling or measurements;
 - (ii) The individual(s) who performed the sampling or measurements;
 - (iii) The date(s) analyses were performed;
 - (iv) The individual(s) who performed the analyses;
 - (v) The analytical techniques or methods used; and
 - (vi) The results of such analyses.
- (d) Monitoring results must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the permit.
- (e) State law provides that any person who tampers with or renders inaccurate any monitoring devices or method required by any provision of law, or any order, rule license, permit approval or decision is subject to the penalties set forth in 38 MRSA, §349.

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

D. REPORTING REQUIREMENTS

1. Reporting requirements.

- (a) Planned changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
 - (i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or
 - (ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Section D(4).
 - (iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;
- (b) Anticipated noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
- (c) Transfers. This permit is not transferable to any person except upon application to and approval of the Department pursuant to 38 MRSA, § 344 and Chapters 2 and 522.
- (d) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.
 - (i) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices.
 - (ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department.
 - (iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.
- (e) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
- (f) Twenty-four hour reporting.
 - (i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance

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has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

- (ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

- (A) Any unanticipated bypass which exceeds any effluent limitation in the permit.

- (B) Any upset which exceeds any effluent limitation in the permit.

- (C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours.

- (iii) The Department may waive the written report on a case-by-case basis for reports under paragraph (f)(ii) of this section if the oral report has been received within 24 hours.

- (g) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (d), (e), and (f) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (f) of this section.

- (h) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

2. Signatory requirement. All applications, reports, or information submitted to the Department shall be signed and certified as required by Chapter 521, Section 5 of the Department's rules. State law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained by any order, rule, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

3. Availability of reports. Except for data determined to be confidential under A(9), above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by State law, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal sanctions as provided by law.

4. Existing manufacturing, commercial, mining, and silvicultural dischargers. In addition to the reporting requirements under this Section, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Department as soon as they know or have reason to believe:

- (a) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

- (i) One hundred micrograms per liter (100 ug/l);

- (ii) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

- (iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or

- (iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

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- (b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
- (i) Five hundred micrograms per liter (500 ug/l);
 - (ii) One milligram per liter (1 mg/l) for antimony;
 - (iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
 - (iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

5. Publicly owned treatment works.

- (a) All POTWs must provide adequate notice to the Department of the following:
- (i) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA or Chapter 528 if it were directly discharging those pollutants.
 - (ii) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
 - (iii) For purposes of this paragraph, adequate notice shall include information on (A) the quality and quantity of effluent introduced into the POTW, and (B) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.
- (b) When the effluent discharged by a POTW for a period of three consecutive months exceeds 80 percent of the permitted flow, the permittee shall submit to the Department a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

E. OTHER REQUIREMENTS

1. Emergency action - power failure. Within thirty days after the effective date of this permit, the permittee shall notify the Department of facilities and plans to be used in the event the primary source of power to its wastewater pumping and treatment facilities fails as follows.

- (a) For municipal sources. During power failure, all wastewaters which are normally treated shall receive a minimum of primary treatment and disinfection. Unless otherwise approved, alternate power supplies shall be provided for pumping stations and treatment facilities. Alternate power supplies shall be on-site generating units or an outside power source which is separate and independent from sources used for normal operation of the wastewater facilities.
- (b) For industrial and commercial sources. The permittee shall either maintain an alternative power source sufficient to operate the wastewater pumping and treatment facilities or halt, reduce or otherwise control production and or all discharges upon reduction or loss of power to the wastewater pumping or treatment facilities.

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2. Spill prevention. (applicable only to industrial sources) Within six months of the effective date of this permit, the permittee shall submit to the Department for review and approval, with or without conditions, a spill prevention plan. The plan shall delineate methods and measures to be taken to prevent and or contain any spills of pulp, chemicals, oils or other contaminants and shall specify means of disposal and or treatment to be used.

3. Removed substances. Solids, sludges trash rack cleanings, filter backwash, or other pollutants removed from or resulting from the treatment or control of waste waters shall be disposed of in a manner approved by the Department.

4. Connection to municipal sewer. (applicable only to industrial and commercial sources) All wastewaters designated by the Department as treatable in a municipal treatment system will be cosigned to that system when it is available. This permit will expire 90 days after the municipal treatment facility becomes available, unless this time is extended by the Department in writing.

F. DEFINITIONS. For the purposes of this permit, the following definitions shall apply. Other definitions applicable to this permit may be found in Chapters 520 through 529 of the Department's rules

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For bacteria, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. Except, however, bacteriological tests may be calculated as a geometric mean.

Average weekly discharge limitation means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best management practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Composite sample means a sample consisting of a minimum of eight grab samples collected at equal intervals during a 24 hour period (or a lesser period as specified in the section on monitoring and reporting) and combined proportional to the flow over that same time period.

Continuous discharge means a discharge which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

Daily discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

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Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by approved States as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Flow weighted composite sample means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab sample means an individual sample collected in a period of less than 15 minutes.

Interference means a Discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- (1) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- (2) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum daily discharge limitation means the highest allowable daily discharge.

New source means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

- (a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or
- (b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Pass through means a discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR parts 122, 123 and 124. Permit includes an NPDES general permit (Chapter 529). Permit does not include any permit which has not yet been the subject of final agency action, such as a draft permit or a proposed permit.

Person means an individual, firm, corporation, municipality, quasi-municipal corporation, state agency, federal agency or other legal entity.

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

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Point source means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.

Pollutant means dredged spoil, solid waste, junk, incinerator residue, sewage, refuse, effluent, garbage, sewage sludge, munitions, chemicals, biological or radiological materials, oil, petroleum products or byproducts, heat, wrecked or discarded equipment, rock, sand, dirt and industrial, municipal, domestic, commercial or agricultural wastes of any kind.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works ("POTW") means any facility for the treatment of pollutants owned by the State or any political subdivision thereof, any municipality, district, quasi-municipal corporation or other public entity.

Septage means, for the purposes of this permit, any waste, refuse, effluent sludge or other material removed from a septic tank, cesspool, vault privy or similar source which concentrates wastes or to which chemicals have been added. Septage does not include wastes from a holding tank.

Time weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected over a constant time interval.

Toxic pollutant includes any pollutant listed as toxic under section 307(a)(1) or, in the case of sludge use or disposal practices, any pollutant identified in regulations implementing section 405(d) of the CWA. Toxic pollutant also includes those substances or combination of substances, including disease causing agents, which after discharge or upon exposure, ingestion, inhalation or assimilation into any organism, including humans either directly through the environment or indirectly through ingestion through food chains, will, on the basis of information available to the board either alone or in combination with other substances already in the receiving waters or the discharge, cause death, disease, abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in such organism or their offspring.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole effluent toxicity means the aggregate toxic effect of an effluent measured directly by a toxicity test.

**MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
WASTE DISCHARGE LICENSE**

FACT SHEET

Date: September 28, 2018

MEPDES PERMIT: ME0037478
WASTE DISCHARGE LICENSE: W009190-6F-A-N

NAME AND ADDRESS OF APPLICANT:

**WHOLE OCEANS, LLC
c/o Pierce Atwood LLP
254 Commercial Street
Portland, Maine 04101**

COUNTY: HANCOCK

NAME AND ADDRESS WHERE DISCHARGE OCCURS:

**Route #15
Bucksport, Maine 04416**

RECEIVING WATER / CLASSIFICATION: Penobscot River, Class SC

COGNIZANT OFFICIAL AND TELEPHONE NUMBER:

**Mr. James Mitchell, President &
Chief Operating Officer**

**E-mail: jmitchell@wholeoceans.com
Tel: (207) 751-3530**

1. APPLICATION SUMMARY

- a. Application - On June 4, 2018, and as amended on September 10, 2018, Whole Oceans LLC (Whole Oceans/permittee hereinafter) submitted an application to the Department of Environmental Protection (Department hereinafter) for a new Maine Pollutant Discharge Elimination System (MEPDES) permit/Maine Waste Discharge License (WDL)(permit hereinafter) for the monthly average discharge of 18.6 million gallons per day, subject to the attached conditions of this permit, of treated waste water associated with a land based recirculating aquaculture system (RAS) to the Penobscot River main stem, Class SC, in Bucksport, Maine. See **Attachment A** of this Fact Sheet for a location map.

1. APPLICATION SUMMARY (cont'd)

- b. Source Description - The permittee proposes to rear Atlantic salmon from the egg life stage to market size fish weighing 10-12 pounds. The facility will be built in phases as follows:

Phase I (initial) production up to 5,000 metric tons (MT) = 11 million pounds

Phase II (intermediate) production at 5,001 MT – 10,000 MT = 22 million pounds

Phase III (full build out) production at 10,001 - 20,000 MT = 44 million pounds

The permittee has plans to construct a fish processing facility (head-on, gutted) on-site at a later date. Limitations and monitoring requirements for this facility are not factored into this permit as the permittee is undecided as whether to convey this water to the local municipal waste water treatment facility for treatment or treat the waste water on-site and discharge the treated water to the Penobscot River. A separate review and approval process would be required for both options.

- c. Waste Water Treatment - The Whole Oceans facility intends to use Recirculating Aquaculture System (RAS) technologies to reduce water consumption while rearing fish in land based farms. As a result of the reduced water consumption, elevated concentrations of waste metabolites develop. These elevated concentrations normally result in concentrations high enough that can be treated and removed by basic RAS technologies without having concentrations so high that the fish are negatively impacted. Fish waste products that are treated with RAS technologies include BOD₅, TSS, and ammonia.

Technologies which are used to reduce total water consumption include:

- Filtration to remove solids (TSS), which contain BOD₅
- Bio-Reactors which biologically oxidize ammonia into nitrate. Excess bacteria are discharged periodically from the bio-reactors during routine cleaning which will elevate effluent TSS and BOD₅ concentrations occasionally and
- Aeration and oxygenation equipment which strip carbon dioxide from the water and replace it with oxygen.

In a typical RAS, 99% of the total flow is recirculated. As less than 1% is discharged per pass, concentrations for untreatable dissolved contaminants can be 100% higher than would be found in typical flow-through facilities. However, because much of the contaminants are waste solids, or are converted to waste solids by the biofiltration process, they can be extracted before the waste is released into the environment.

The process flow diagram in **Attachment B** of this Fact Sheet shows how water, contaminants and mortalities which are discharged from independent RAS modules are combined and treated before the combined effluent is to be discharged into the Penobscot River.

1. APPLICATION SUMMARY (cont'd)

From each of the independent fish rearing modules (excluding the quarantine module) within the farm, morts (mortalities), backwash & sediments and overflow/tank drains are discharged. The quarantine facility has a process designed to minimize risk that a pathogen could be released in the liquid wastes, solid wastes or via mortalities discharged from the facility.

The morts extracted from the non-quarantine RAS modules never enter the effluent discharge but are removed and sent to a composting facility. Similarly, any fish that manage to escape from the RAS modules which are retained by the exclusion screens are also discharged to the composting facility.

The backwash and sediments discharged from the RAS modules include the filter backwash water plus any high TSS water discharged from the biofilters. This represents approximately 1/3 of the total discharge from the facility (estimated at 1.589 MGD or 250 m³/hr). These flows are combined to pass through a belt filter system that will, if required, include chemical flocculants to enhance performance, similar to those treatments used in potable water treatment facilities. To manage disposal, it may be desirable to thicken the solids further with a mechanical centrifuge system. The filtrate from the belt filter system would then be combined with the "clean water" effluent discharge from the RAS modules. If necessary, additional treatments to enhance fine solids capture could be added to the filtrate from the belt filter (prior to combining with clean water flows). Such treatments could include additional filtration or oxidation using ozone (that would convert residual BOD₅ to carbon dioxide).

The overflow water and tank drain water is already suitable for fish rearing. Addition of the water extracted from the backwash and sediments flows may raise concentrations to levels above those found in flow-through facility discharges, but can be limited to prevent concentrations rising above acceptable discharge limits to protect the receiving water. The combined flows will then pass through additional treatments including additional drum filtration, fish exclusion barriers, and UV disinfection before it is released into the outfall pipe.

Initially much of the BOD₅ discharged from the RAS modules is in the form of TSS. Because mineralization of the solids wastes begins immediately, releasing contaminants back into the accompanying liquids, it is more important to separate the solids from the liquids quickly rather than focus on interception of fine particulates. The belt filter proposed is very gentle with the waste solids so that they are not masticated before they can be separated from the supernatant. The optional centrifuge is an effective tool for further concentrating the solids without releasing of significant masses of solids into the supernatant.

1. APPLICATION SUMMARY (cont'd)

Estimates have been included of water quality in combined flows discharged from the RAS modules. However, as conditions are constantly changing inside the facility as the fish hatch, grow and are harvested, the estimates applied have been identified as 'worst case' conditions. For example, although influent and effluent flows of up to 4.65 MGD have been identified as possible for Phase I, it is expected, when contamination levels are lower, that as little as 2.1 MGD may be required. Similarly, smaller fish produce finer waste products that are harder to extract, so a larger percentage of the feed can actually be converted into BOD5 and TSS which is discharged from the modules. The larger fish produce more waste because they consume more feed, but the percentage of feed that is converted into contaminants carried in the discharge water is reduced. Therefore, estimates of waste flows use estimated peak feed rates instead of relying on average feed rates and flow rates. Estimates of the quality of water discharged from the facility have been calculated using estimates of feed and water consumed by similar RAS facilities in other parts of the world.

Discharge quality estimates have been made using weighted averages of overflow/drain water combined with supernatant from the backwash and sediments discharges. Water quality from the backwash and sediments flows have been based on changes in water quality through belt filter/flocculation systems that have been observed in other aquaculture facilities such as the discharge from the USDA MCWNAC/University of Maine CCAR facility in Franklin, Maine and with research performed at the Freshwater Institute in Shepherdstown, West Virginia where removals of TSS and BOD5 of approximately 80% were observed.

The treated wastewater is discharged to the Penobscot River via one of two outfalls that are designated as Outfall #001B and Outfall #003. Outfall #001A is located at the intake screen to the pump house providing cooling water to the turbine generator for Bucksport Generation LLC and sea water to the RAS facility. This outfall will be used to discharge backwash waters to clean the facility's intake screens. The discharge configuration consists of a 24" diameter discharge pipe that runs below the intake screens to the non-contact cooling water structure. The discharge pipe has twelve 6" diameter diffuser pipes located 4 feet on centers. This outfall configuration is beneficial to the facility as it provides for continuous cleaning of the screens.

Outfall #001B is located just upstream of Outfall #001A and consists of a 48" diameter steel pipe that extends out into the river approximately 230 feet and necks down to two 24" diameter steel pipes that make up the wye-shaped diffuser. The end of the pipe is covered by approximately 16 feet of water at mean low tide and 27 feet of water at mean high tide.

1. APPLICATION SUMMARY (cont'd)

Outfall #003 is currently being utilized as a cooling water discharge for the No. 3 Turbine for the power plant owned and operated by Bucksport Generation LLC. The cooling water itself is limited and monitored in accordance with MEPDES permit ME0002160 last issued by the Department on October 15, 2015. Cooling waters from the power plant and process waste water from the Whole Oceans facility can be co-mingled to be discharged through a sloping 36" steel pipe with a diffuser. The diffuser has 10, 12" diameter vertical ports spaced 10 feet on center to enhance mixing with the receiving waters. The diffuser ports are covered by between 27 feet and 43 feet of water at mean low tide and 38 feet and 54 feet of water at mean high tide.

2. PERMIT SUMMARY

This permitting action is establishing:

- a. Three tiers of technology based numeric limitations for flow, biochemical oxygen demand (BOD), total suspended solids (TSS), total nitrogen and pH;
- b. A requirement to seasonally (May – October) monitor the effluent for total phosphorus and total ammonia.
- c. A requirement for the permittee to conduct a dye study to determine the mixing characteristics of the treated effluent discharge from the facility with the receiving water;
- d. A requirement to conduct seasonal (May – October) ambient water quality monitoring of the Penobscot River;
- e. A requirement for the facility to develop and maintain an Operations & Maintenance (O&M) Plan for the production facility and the wastewater treatment facility;
- f. A requirement to limit the use of antibiotics, fungicides, bactericides, paracitocides and other chemical compounds;
- g. A requirement for the facility to develop and maintain a Containment Management System (CMS) to prevent escape of fish from the facility; and
- h. A requirement for the permittee to meet with the Department's permitting and compliance inspection staff 90 days prior to commencement of operations, to review applicability of the permit limitations, monitoring requirements and reporting requirements.

3. CONDITIONS OF PERMIT

Conditions of licenses, 38 M.R.S. § 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require the application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, *Certain deposits and discharges prohibited*, 38 M.R.S. § 420 and Department rule *Surface Water Toxics Control Program*, 06-096 CMR 530 (last amended March 21, 2012), require the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584 (effective July 29, 2012), and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

4. RECEIVING WATER QUALITY STANDARDS

Classification of estuarine and marine waters, 38 M.R.S. § 469(2)(B)(1) classifies all tidal waters in Bucksport (which includes the area of the discharge) as Class SC waters. *Standards for classification of estuarine and marine waters*, 38 M.R.S. § 465-B(3) describes the standards for Class SC waters as follows:

Class SC waters shall be the 3rd highest classification.

- A. *Class SC waters must be of such quality that they are suitable for recreation in and on the water, fishing, aquaculture, propagation and restricted harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation and as a habitat for fish and other estuarine and marine life.*
- B. *The dissolved oxygen content of Class SC waters may be not be less than 70% of saturation. Between April 15th and October 31st, the number of enterococcus bacteria in these waters may not exceed a geometric mean of 14 per 100 milliliters in any 90-day interval or 94 CFU per 100 milliliters in more than one sample in any 90-day calendar interval. The number of total coliform bacteria or other specified indicator organisms in samples representative of the waters in restricted shellfish harvesting areas may not exceed the criteria recommended under the National Shellfish Sanitation Program, United States Food and Drug Administration.*
- C. *Discharges to Class SC waters may cause some changes to estuarine and marine life provided that the receiving waters are of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.*

5. RECEIVING WATER QUALITY CONDITIONS

The State of Maine 2016 Integrated Water Quality Monitoring and Assessment Report, prepared by the Department pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act, lists the Penobscot River Estuary, DEP Waterbody ID 722-45 (7,624 acres) in the area of the discharge, as:

Category 2: Estuarine and Marine Waters Attaining Some Designated Uses – Insufficient Information for Other Uses.

Category 4-A(b): Estuarine and Marine Waters with Impaired Use, TMDL Completed (for bacteria from combined sewer overflows). This category lists the Town of Bucksport's Publicly Owned Treatment Works as the responsible party for the elevated bacteria levels.

Category 5-B-1(a): Estuarine and Marine Waters Impaired for Bacteria Only – TMDL Required. The cause of the impairment is listed as elevated fecal indicators in DMR Pollution Area #35. See **Attachment C** of this Fact Sheet.

The Report lists all of Maine's fresh waters as, "Category 4-A: Waters Impaired by Atmospheric Deposition of Mercury." Impairment in this context refers to a statewide fish consumption advisory due to elevated levels of mercury in some fish tissues. The Report states, "All freshwaters are listed in Category 4A (Total Maximum Daily Load (TMDL) Completed) due to the USEPA approval of a Regional Mercury TMDL. Maine has a fish consumption advisory for fish taken from all freshwaters due to mercury. Many waters and many fish from any given water do not exceed the action level for mercury. However, because it is impossible for someone consuming a fish to know whether the mercury level exceeds the action level, the Maine Department of Health and Human Services decided to establish a statewide advisory for all freshwater fish that recommends limits on consumption. Maine has already instituted statewide programs for removal and reduction of mercury sources." Pursuant to 38 M.R.S. § 420(1-B)(B), "a facility is not in violation of the ambient criteria for mercury if the facility is in compliance with an interim discharge limit established by the Department pursuant to section 413 subsection 11." However, pursuant to *Interim Effluent Limitations and Controls for the Discharge of Mercury*, 06-096 CMR 519, the Department has made a best professional judgment determination to exempt fish hatcheries from applicability of the mercury rule.

The Department has made a best professional judgment determination based on information gathered to date, that as permitted, the discharge will not cause or contribute the failure of the receiving water to meet the standards of its ascribed classification and the designated uses of the waterbody will continue to be maintained and protected. If future modeling or ambient water quality monitoring determines the discharge is causing or contributing to the non-attainment, this permit will be re-opened per Special Condition O, *Reopening of The License For Modifications*, to impose more stringent limitations to meet water quality standards.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

- a. Flow: This permitting action is establishing a monthly average flow limitation of 4.65 MGD for Outfall #001B & Outfall #003 for Phase I, 9.3 MGD for Phase II and 18.6 MGD for Phase III based on information provided by the permittee.
- b. Dilution Factors: Dilution factors associated with wastewater discharges are derived in accordance with *Surface Water Toxics Control Program* 06-096 CMR 530 (effective date March 21, 2012). Department Regulation Chapter 530, states that for discharges to estuaries, dilution must be calculated using a method determined by the Department to be appropriate for the site conditions. Where freshwater river flow is dominant and instantaneous mixing across the width can be assumed, dilution must be calculated as in section 4(1) of the rule. Where tidal flow is dominant or incomplete mixing is assumed, dilution must be calculated as in section 4(2) of the rule. Where appropriate, other methods such as dye studies or water quality methods may be used.

At a full permitted flow of 18.6 MGD, the near-field dilution factors (utilized for toxics evaluations given acute and chronic effects) listed below are based on the Department's tidal velocity model and 15-minute travel time.

Acute = 54:1

Chronic = 354:1

Harmonic mean = 354:1

The permittee discharges to the estuarine portion of the Penobscot River, which is strongly influenced by freshwater during high spring flows, large rainfall events, and during ebb tides. These conditions make it very difficult to accurately define the mixing characteristics of the effluent from the permittee's facility and the receiving water at any given point in time. In addition, Verona Island, immediately seaward of the discharge, causes the river to be split into two channels, one to the east side of the island and one to the west side. The west channel carries the majority of the flow in the river. Unlike on the west side of Verona Island, the eastern channel is narrow and shallow at mean low tide, and is bounded by sizable intertidal flats.

For far-field dilution factors (utilized to evaluate impacts from nutrients and BOD), the Department evaluated the mixing characteristics based on a tidal prism of 22,080 MGD and a freshwater 7Q10 of 1,940 MGD (3,000 cfs) for a tidal daily flushing of 24,020 MGD. The far-field dilution factors for the Whole Oceans discharge based on the three phases of discharge, 5,000 MT (4.65 MGD), 10,000 MT (9.3 MGD) and 20,000 MT (18.6 MGD) were derived as follows:

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Phase I (5,000 MT)

Tidal Flushing Volume = 24,020 MGD

Discharge Flow Rate= 4.65 MGD

$$\frac{24,020 \text{ MGD}}{4.65 \text{ MGD}} = 5,166:1$$

Phase II (10,000 MT)

Tidal Flushing Volume = 24,020 MGD

Discharge Flow Rate= 9.3 MGD

$$\frac{24,020 \text{ MGD}}{9.3 \text{ MGD}} = 2,583:1$$

Phase III (20,000 MT)

Tidal Flushing Volume = 24,020 MGD

Discharge Flow Rate= 18.6 MGD

$$\frac{24,020 \text{ MGD}}{18.6 \text{ MGD}} = 1,291:1$$

These dilutions are achieved at the southern end of Verona Island after the east and west channels combine.

Given the uncertainty as to the split in river flows to the east and west channels around Verona Island, this permit is requiring the permittee to conduct a dye study once Phase I operations have commenced and steady state conditions with eggs, fry, smolts and adult fish in grow out tanks have been achieved. The information derived from this dye study will assist the Department in more accurately assessing the hydraulics associated with the discharge in the two channels.

- c. **Biochemical Oxygen Demand (BOD₅) and Total Suspended Solids (TSS):** This permitting action is establishing monthly average and daily maximum concentration limits of 30 mg/L and 50 mg/L respectively for BOD₅ and TSS based on Department best professional judgment (BPJ) of best practicable treatment (BPT) for re-circulating facilities. These limits were based on recommendations included in USEPA's 2002 proposed draft National Effluent Guidelines for TSS from re-circulated fish hatchery wastewater receiving a secondary level of treatment and the Department's long-standing view of the relationship with and significance of BOD₅, and consideration of effluent quality from facilities utilizing the Department's BPJ of minimum treatment technology. Mass limits were calculated based on the monthly average phased flow limits of 4.65 MGD, 9.3 MGD, 18.6 MGD, the applicable concentration limits, and a conversion factor of 8.34 lbs/gal for water. The limits were calculated as follows:

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Phase I (5,000 MT)

Monthly average: $(4.65 \text{ MGD})(30 \text{ mg/L})(8.34 \text{ lbs/gal}) = 1,163 \text{ lbs/day}$

Daily maximum: $(4.65 \text{ MGD})(50 \text{ mg/L})(8.34 \text{ lbs/gal}) = 1,939 \text{ lbs/day}$

Phase II (10,000 MT)

Monthly average: $(9.3 \text{ MGD})(30 \text{ mg/L})(8.34 \text{ lbs/gal}) = 2,327 \text{ lbs/day}$

Daily maximum: $(9.3 \text{ MGD})(50 \text{ mg/L})(8.34 \text{ lbs/gal}) = 3,878 \text{ lbs/day}$

Phase III (20,000 MT)

Monthly average: $(18.6 \text{ MGD})(30 \text{ mg/L})(8.34 \text{ lbs/gal}) = 4,654 \text{ lbs/day}$

Daily maximum: $(18.6 \text{ MGD})(50 \text{ mg/L})(8.34 \text{ lbs/gal}) = 7,756 \text{ lbs/day}$

The Department has modelled the impact of the Phase III discharge of BOD₅ on the ambient dissolved oxygen and determined the discharge will consume an additional 0.02 mg/L of dissolved oxygen in the receiving water. This level of depletion is considered to be not measurable and well below the acceptable level of accuracy of 0.2 mg/L (an order of magnitude higher) for instruments used for ambient water quality monitoring of dissolved oxygen.

- d. Total Nitrogen (TN) – Nitrogen is generally the limiting nutrient for primary productivity in marine waters. Discharges of excess quantities of immediately bioavailable nitrogen can cause algal blooms in the receiving waters, which can lead to negative impacts to dissolved oxygen levels. Immediately bioavailable nitrogen typically consists of dissolved inorganic forms, including nitrate (NO_3^-), nitrite (NO_2^-), and ammonium (NH_4^+). Total kjeldahl nitrogen (TKN) is the sum of organic nitrogen, ammonia (NH_3), and ammonium (NH_4^+). To calculate Total Nitrogen (TN), the concentrations of nitrate and nitrite are determined and added to TKN.

With the exception of ammonia, nitrogen is not acutely toxic; thus, the Department is considering a far-field dilution to be more appropriate when evaluating the more systemic types of influences associated with nitrogen in the marine environment. As of the date of this permitting action, the State of Maine has not promulgated numeric ambient water quality criteria for total nitrogen. According to several studies in USEPA's Region 1, numeric total nitrogen criteria have been established for relatively few estuaries, but the criteria that have been set typically fall between 0.35 mg/L and 0.50 mg/L to protect marine life using dissolved oxygen as the indicator. While the thresholds are site-specific, nitrogen thresholds set for the protection of eelgrass range from 0.30 mg/L to 0.39 mg/L.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

Given the absence of mapped eelgrass in both the east and west channels of the Penobscot River around Verona Island and the chronically high light attenuation occurring in the water column based on suspended solids and dissolved organic matter, the Department is not using a nitrogen threshold value intended to protect eelgrass in the vicinity of the discharge location. In the Department's best professional judgment of ambient nitrogen concentrations that are protective of Maine water quality standards, the Department instead considers a threshold of 0.45 mg/L to be appropriate to protect aquatic life, using dissolved oxygen (DO) as the indicator. The numeric value of 0.45 mg/L total nitrogen is being utilized as a guidance value. The Department utilizes a weight of evidence approach to determine attainment of water quality standards and places a greater weight on ambient water chemistry and biological data, including dissolved oxygen, pH, and chlorophyll *a* to determine whether the discharge will cause or contribute to violations of water quality.

The Department collected ambient water quality monitoring data at six to ten monitoring sites during May-October 2011, 2012, and 2018. See **Attachment D** of this Fact Sheet for the monitoring sites relative to Verona Island and local discharge locations. Ambient data collected from vertical water column profiles as well as from continuous deployments (continuous at sites P2 and O1 in 2018 only) indicate the Class SC dissolved oxygen criterion of 70% saturation was consistently met. Chlorophyll *a* concentrations were typically less than 5 µg/L, with the exception of one sampling event in 2012 during which concentrations at sites within the eastern channel ranged from 10.6-11.3 µg/L. Algal blooms are associated with prolonged levels of chlorophyll *a* levels of >10 µg/L. Visual monitoring of both channels as well as the Orland River estuary indicate that benthic diatom and green macroalgal mats on intertidal and shallow subtidal flats have been periodic in nature and restricted to the eastern shore of Verona Island and the Orland River estuary. During the period of widespread green macroalgal abundance in the Orland River estuary during summer 2007, no discharges from the former Verso mill site were occurring. As of the date of issuance of this permit, the Department has not identified any point source discharges as causing or contributing to these episodic algal blooms.

Ambient nitrogen data collected by the Department during 2011, 2012 and 2018 at locations bracketing the discharge location and when negligibly influenced by a sanitary wastewater or process water discharge, indicate ambient total nitrogen concentrations ranging from 0.27-0.60 mg/L, with an average value of 0.38 mg/L (n=25). The permittee has indicated the weighted average total nitrogen concentration discharged from the various waste streams at the facility after treatment is 48.1 mg/L. For Phase I, this permit is establishing a monthly average limitation of 1,865 lbs/day based on the following calculation:

$$\text{Monthly average: } (4.65 \text{ MGD})(48.1 \text{ mg/L})(8.34 \text{ lbs/gal}) = 1,865 \text{ lbs/day}$$

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

The impact to the Penobscot River is as follows;

Total nitrogen concentrations in the effluent = 48.1 mg/L

Far-field dilution factor = 5,166:1

In-stream concentration after dilution: $\frac{48.1 \text{ mg/L}}{5,166} = 0.009 \text{ mg/L}$

Therefore, the increase in the nitrogen concentration above background under Phase I discharge conditions is 0.009 mg/L or 2.4%, well below the Department's Antidegradation policy threshold of 20% as being significant. See section 7 of this Fact Sheet for the discussion on Antidegradation.

Given the historic, episodic macroalgal blooms, this permit is establishing a seasonal ambient water quality monitoring program to track ambient water quality above and below the proposed discharge from the Whole Oceans facility. Upon issuance of this permit, the permittee will be required to sample a background station (P1), a station in the eastern channel (P4), a station at the southern tip of Verona Island (P6), a station in the western channel (P7), and a station at the confluence of eastern channel and the Orland River (O3) during ebb tides. The permittee will be required to monitor the water column for at least temperature, salinity, pH, dissolved oxygen, chlorophyll *a* and turbidity, and surface concentrations of total kjeldahl nitrogen, nitrate + nitrite nitrogen and total phosphorus.

This permit is not establishing total nitrogen limitations for Phase II and Phase III upon issuance. The Department has made the determination it needs the additional information collected from the dye study and the ambient water quality monitoring required by Special Conditions F and G respectively, before establishing said nitrogen limitations, if appropriate. Special Condition A, *Effluent Limitations and Monitoring Requirements*, of this permit only authorizes the permittee to discharge under Phase II and Phase III conditions only after receiving a formal modification of the permit to do so. The Department will establish limitations for total nitrogen for Phase II and Phase III at that time.

- e. Total Phosphorus – Given that nutrients are the primary pollutant of concern, this permit is establishing a monitoring requirement for total phosphorus to determine the loading to the Penobscot River for each phase of production. For a more in-depth discussion on total phosphorus, see Response to Comments #7b on pages 24 and 25 of this Fact Sheet.
- f. Fish on Hand: This permitting action is establishing a reporting requirement for monthly average and daily maximum mass of fish on hand. This parameter is intended to enable both the Department and the permittee to evaluate management practices at the facility and trends in effluent quality and receiving water impacts as it relates to fish being held on site at any given time. A minimum monitoring frequency of once per month is based on the Department's BPJ of the monitoring frequency necessary to accurately characterize facility effluent conditions.

6. EFFLUENT LIMITATIONS & MONITORING REQUIREMENTS (cont'd)

- g. Toxics - Department rule *Surface Water Toxics Control Program*, 06-096 CMR 530 requires the regulation of toxic substances not to exceed levels set forth in *Surface Water Quality Criteria for Toxic Pollutants*, 06-096 CMR 584. Chapter 530 §(2)(D)(5) states "*The Department may waive or reduce testing or replace testing with requirements adequate to characterize the toxicity of identified pollutants when a discharger provides information adequate to:*
- a. *Identify all toxic pollutants present or demonstrate that no toxic pollutants are used in its processes in toxic amounts;*
 - b. *Demonstrate that chemicals used in or formed by the discharger's industrial processes are not known or suspected to result in the formation of toxic pollutants in toxic amounts; and*
 - c. *Demonstrate the discharger does not process or treat waters known or suspected to contain toxic pollutants."*

The permittee's application for this permit has provided the information cited above and the only pollutant of concern that approaches the threshold by which it has a reasonable potential to cause or contribute to a violation of the acute ambient water quality criteria is ammonia. As a result, the Department is making a best professional judgment to require the permittee to seasonally (May-October) monitor the treated effluent from the facility for total ammonia.

- h. pH – This permitting action is establishing a pH range limit of 6.0 – 9.0 standard units (su), considered by the Department as a best practicable treatment standard for fish hatcheries and rearing facilities and consistent with the pH limit established in discharge permits for these facilities.

7. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY

Maine's anti-degradation policy is included in 38 M.R.S., Section 464(4)(F) and addressed in the *Conclusions* section of this permit. Pursuant to the policy, where a new or increased discharge is proposed, the Department shall determine whether the discharge will result in a lowering of existing water quality.

In making a determination as to whether a new or increased discharge will result in a lowering of existing water quality, the DEP shall consider the following:

- a. The predicted change in ambient water quality, concentrations of chemical pollutants, or mass loading of pollutants under critical water quality conditions.

7. ANTI-DEGRADATION - IMPACT ON RECEIVING WATER QUALITY

- b. The predicted consumption of the remaining assimilative capacity of the receiving water. The remaining assimilative capacity is the increment of existing water quality above the minimum standards of the assigned classification under critical water quality conditions.
- c. The predicted change in the ability of the receiving water to support aquatic life and to meet applicable aquatic life and habitat criteria.
- d. The possible additive or synergistic effects of the discharge in combination with other existing discharges.
- e. The cumulative lowering over time of water quality resulting from the proposed discharge in combination with previously approved discharges.

Based on the above considerations, the DEP makes case-by-case determinations as to whether a new or increased discharge will result in a significant lowering of existing water quality. However, in any case where the new or increased discharge will consume 20% or more of the remaining assimilative capacity for dissolved oxygen or other water quality parameter, the resulting lowering of water quality will be determined to be significant.

Based on ambient water quality monitoring of dissolved oxygen conducted in 2018, the Department has made the determination the receiving water is attaining the standards of its assigned classification of >70% saturation. In addition, ambient chlorophyll *a* levels of 5 ug/L measured in 2018 are at approximately half of ambient levels which the Department considers to be indicative of algal bloom levels. The Department has also assessed the impact of the discharge of BOD, TSS and total and nitrogen from the Whole Ocean's facility and determined the impact to ambient dissolved oxygen levels is ten (10) times lower than the accuracy (± 0.2 mg/L) for instruments used in ambient water quality monitoring of dissolved oxygen and the impact to nitrogen levels at Phase I is ten (10) times lower than the certified laboratory minimum level of detection of 0.1 mg/L. Both are well below the threshold of 20% of the assimilative capacity cited in the Department's Anti-Degradation guidance.

Based on the information provided in this Fact Sheet, the Department has made the determination that the discharge approved by this permit will not result in a significant lowering of water quality. As permitted, the Department has determined the existing and designated water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the Penobscot River estuary to meet standards for Class SC classification.

8. PUBLIC COMMENTS

Public notice of this application was made in the *Ellsworth American* newspaper on or about March 8, 2018. The Department receives public comments on an application until the date a final agency action is taken on the application. Those persons receiving copies of draft permits must have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to *Application Processing Procedures for Waste Discharge Licenses*, 06-096 CMR 522 (effective January 12, 2001).

9. DEPARTMENT CONTACTS

Additional information concerning this permitting action may be obtained from, and written comments sent to:

Gregg Wood
Division of Water Quality Management
Bureau of Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone: (207) 287-7693
e-mail: gregg.wood@maine.gov

10. RESPONSE TO COMMENTS

During the period of September 28, 2018, through the issuance date of the permit/license, the Department solicited comments on the proposed draft permit/license to be issued for the discharge(s) from the Whole Oceans LLC facility. The Department received written comments from the following entities:

Maine Department of Marine Resources (DMR)
National Oceanic & Atmospheric Administration (NOAA)
National Resources Council of Maine (NRCM)
Friends of Penobscot Bay (FOPB)
Penobscot Indian Nation (PIN)
Gulf of Maine Institute (GMI)
Atlantic Salmon Federation (ASF)
Kennebec River Biosciences (KRB)
Whole Oceans LLC

Town of Bucksport
Des FitzGerald
Andrew Stevenson
James Merkel
Lew McGregor
Holly Faubel
Deborah Capwell
Karin Spitfire
Eileen Wolper

Therefore, the Department has prepared a Response to Comments as follows.

Water Quality Monitoring/Dye Study

Comment #1a (DMR) – DMR requests the opportunity to review and provide comments on any dye study plan and be provided any subsequent results of the dye study conducted with consideration to low and high flow periods. The DMR requests a thorough hydrographic review and/or model near the discharge location to determine the discharge dilution plume relative to the movement of the salt water wedge and associated turbidity maximum.

Response #1a: The DMR request is acceptable to the Department. Special Condition F, *Dye Study*, requires the dye study plan to be submitted to the Department for review and approval six months following the effective date of the permit. The Department will forward a copy of the plan to DMR once it is received by the Department.

Comment #1b (NRCM): NRCM states DEP should require at least one ambient water quality monitoring site very close to the WO outfall. The site should be as close to the WO facility as MP3 in Attachment D is to the Bucksport waste water treatment facility. The commenter requests monitoring near the outfall should include searching for *beggiatoa* mats. Significant growth has occurred under salmon pens when they are poorly run.

Response #1b: - The Department Division of Environmental Assessment responsible for ambient water quality monitoring to date does not agree a monitoring site closer to the outfall than monitoring station P2 is appropriate. A monitoring site closer will likely be within the zone of initial dilution for the discharge and will not capture the impact to ambient conditions but capture the characteristics of effluent as it mixes with the receiving water. Such a monitoring station will not be helpful in the overall assessment of the impact of the discharge on ambient conditions.

As for monitoring for *beggiatoa* mats, the Department does not believe this is necessary. *Beggiatoa* mats under the net pen sites were observed at sites where excessive quantities of uneaten food were collecting directly under the pen sites. The mats were generally associated with food depths of 6 to 24 inches deep. The WO facility is anticipating a 91% removal of fish feces and uneaten food as the waste stream passes through the waste water treatment facility. However, if the treatment facility fails to perform as expected and higher than expected solids loss results, the Department would be willing to revisit searching for *beggiatoa* mats.

Comment #1c (NRCM): NRCM states DEP should require WO to monitor all parameters it can with sondes rather than just turbidity. Parameters would include at least temperature, pH and dissolved oxygen.

Response #1c: - The Department agrees. Special Condition G, *Ambient Water Quality Monitoring*, has been rewritten to make clear which parameters are to be collected via a sonde and which parameters are to be monitored via grab sampling.

Water Quality Monitoring/Dye Study

Comment#1d (Holly Faubel) – The commenter states that WO should provide either peer reviewable modeling or a security bond to address algal blooms taking into account historic and predictive modeling of river and bay temperatures.

Response #1d: Special Condition F, *Dye Study*, Special Condition G, *Ambient Water Quality Monitoring*, and effluent monitoring required by Special Condition A, *Effluent Limitations and Monitoring Requirements*, will provide the necessary information the Department needs to determine whether the discharge from the WO is causing or contributing algal blooms.

Comment #1e (Karin Spitfire, FOPB): The commenter believes the impact from the dischargers (WO & Nordic Aquafarms) should be considered together rather than separately or sequentially. Unless this is done, it is not clear that the standards of Maine's anti-degradation policy will be met.

Response 1e: The Department will be evaluating both facilities separately as well as collectively. For WO, an independent evaluation of the discharge indicates the impact to ambient water quality is not measurable at the southern tip of Verona Island. As a result, the discharge from the WO facility will have no impact on the ambient water quality at the Nordic Aquafarms site. Therefore, the state's antidegradation policy has been met in that the discharge will not cause or contribute to failure of the receiving water to meet the standards of its assigned classification, and all designated use will be maintained and protected.

Antibiotics

Comment #2a (DMR)- DMR states the quantity of antibiotics in the draft permit application appears to be greater than necessary, as the annual level is based on maximum dosage, when the proposed use is limited to emergencies. DMR requests monthly reporting of antibiotic usage and the pathogen being treated as well as monitoring of residual antibiotics in the near-field sediments be conducted. DMR also requests development of a monitoring program to evaluate discharge effects of antibiotics at 18.6 MGD to the near field and far field marine environment and impacts to marine organisms.

Response #2a: DMR is correct in that the quantities in the application are too high as the mass calculation for Aquaflor® (florfenicol) was miscalculated and should be 750 kg/yr not 7,500 kg/yr. In addition, the annual quantities appear high because they were calculated based on maximum dosages not limited emergencies which inflates the mass values.

The Department has revised the permit to require the permittee to include monthly reporting of antibiotic usage and the pathogen being treated as well as monitoring of residual antibiotics in the effluent, but not the near-field sediments. If the effluent values are not detected at any flow regime there is no reason to conduct near field or far field sediment sampling or assess impacts to marine environments. However, if antibiotics are detected in the effluent that are at levels that have a

Antibiotics(cont'd)

reasonable potential to exceed thresholds that may impact marine organisms, the Department may re-open the permit pursuant to Special Condition O, *Reopening of Permit For Modifications*, to establish sediment sampling or require an assessment to the marine environment and or impacts to marine organisms.

Comment 2b (Andrew Stevenson) – The commenter thinks it is important for the DEP, DACF, DMR and the public to know how the fungicides, bactericides, parasiticides, antibiotics and therapeutants will be controlled, tracked, destroyed or neutralized. The commenter requests the applicant provide the DEP with credible information about how these substances bio-accumulate in the salmon (if they do) or how they persist in the effluent and the solids waste flows (if they do not).

Response #2b: The use of antibiotics in the salmon farming industry is becoming increasingly rare and in the case of Land Based/ RAS salmon industry extremely rare. If antibiotics are used, they are usually for a very short duration (e.g., 10 days) and they are never used prophylactically (on an ongoing basis) as they are commonly used in poultry or hog production. Atlantic salmon experts such as the Freshwater Institute, who have been growing fish for over 30 years, note that they have never used antibiotics. They typically are successful using mild treatments with salt or hydrogen peroxide to keep fish healthy. Whole Oceans will adopt these same practices.

Comment #2c (PIN, Holly Faubel): The commenters recommends that when drugs are used for disease control, the permittee should be required to monitoring the effluent for fungicides, bactericides, parasiticides, antibiotics and therapeutants to determine if the waste water treatment facility is capable of removing them before discharge to the river. The PIN also questions why environmental monitoring and evaluation is required for Investigational New Animal Drugs (INADs) but not other compounds used?

Response #2c : The Department has revised the permit to require the permittee to include monthly reporting of antibiotic usage and the pathogen being treated as well as monitoring of residual antibiotics in the effluent. INADs are investigational drugs and have not been completely vetted like the other compounds approved by the FDA. The environmental monitoring and evaluation is designed to gather additional data on the efficacy of the drug(s) as well as their fate and transport.

Comment #2d (Holly Faubel): The commenter requests WO documents its containment strategy for participation in the INAD program.

Response #2d: Special Condition I, *Disease Control*, §4(b)(3) contains the requirements of the environmental monitoring and evaluation program associated with the use INADs. The Department considers this sufficient for what the commenter terms as the containment strategy.

Antibiotics(cont'd)

Comment #2e (NOAA) – The commenter requested the Department incorporate a requirement for a biosecurity plan for the facility to eliminate introducing or spreading any pathogens (bacterial or viral) into the environment. This should be included in Special Condition I, *Use of Drugs for Disease Control*, of the permit.

Response# 2e: The permittee is actively preparing a biosecurity plan for the facility and will be prepared to submit the plan to the Department at the same time as the CMS plan. Both will be due on or before 6 months after the effective date of the permit.

Comment #2f (Karin Spitfire): The commenter requests standards be set for pesticides, germicides etc. that may be given to the fish and have those standards be evaluated by scientists who have nothing to gain from the aquaculture industry.

Response #2f: The fungicides, bactericides, parasiticides, antibiotics and therapeutants identified in the WOs application have been reviewed by IFWs fish pathologist, the State of Maine veterinarian and DMR staff familiar with aquaculture. The only compound identified as being of concern is Praziquantel (trematodes) which is not FDA approved and is therefore being removed from the final permit.

Containment and Escapement

Comment #3a (DMR) – DMR requests to be notified immediately of any tank or system failures where fish containment is compromised regardless of whether escaped quantities are known.

Response #3a: Special Condition K, *Protection of Atlantic Salmon*, has been modified accordingly in the final permit.

Comment #3b (NRCM,NOAA): The commenters stated DEP should require WO to prevent the escape of any fish and report the escape of even one fish.

Response 3b:: Special Condition K, *Protection of Atlantic Salmon*, has been modified accordingly in the final permit.

Comment #3c (NOAA) – The commenter requests Special Condition K, *Protection of Atlantic Salmon*, include a requirement for the Containment Management System (CMS) plan to be submitted to NOAA and the USFWS for review and approval prior to issuing a discharge permit for the facility. In addition, NOAA states that in the event anticipated risks to the ESA listed Atlantic salmon GOM DPS population from the facility increases as a result of improperly designed, operated on inadequate protective measures in place, the Services (NOAA and USFWS) reserve the right to require additional conditions such as marking of fish to identify the facility, and/or require rearing only North American origin populations to reduce the impacts from escapes.

Containment and Escapement

Response #3c: Special Condition K, *Protection of Atlantic Salmon*, of the draft permit requires the permittee to submit the CMS to the Department six months after the effective date of the permit for review and approval. The permittee is actively preparing a CMS plan for the facility and will be submitting it to the Department in a timely fashion, well in advance of the commencement of operations. Therefore, Special Condition K of the final permit has been revised to require the permittee to submit the CMS plan to the NOAA, USFWS and DMR for review at the same time as the submission to the Department. The Department will remain the agency responsible for final approval. In addition, Special Condition K has been modified to bar any eggs or fish of any age to be stocked at the site without final approval of the CMS.

Solids & Sludge Disposal

Comment #4a (Andrew Stevenson) – The commenter states there is not enough information in the application to tell how long sludge solids can be held at the facility before they must be trucked away and no description of the holding facilities that might be constructed. The commenter requests that the beneficial use be identified before DEP makes a permitting decision. The commenter also requests the applicant identify landfills capable of receiving and safely burying sterilized solids slurry generated in the quarantine area of the facility.

Response #4a: The sludge will be dealt with in two forms, solid and liquid, as each is used in different composting features. The solid form will be kept in a concrete bunker, which provides secondary containment, and when filled will be emptied to a sludge (slurry) tanker for removal on a regular basis to a Maine composting facility. WO is currently in negotiations with Maine composting facilities. WO is also examining the potential of using liquid waste and drying it out, through a drying process on site, down to a 15-20% solid, which will be stored in a similar concrete tank, and removed on a regular basis to an anaerobic digestion facility in Maine for use. There are a number of landfill facilities WO is currently in negotiations with to manage the facility's sludge, as they are currently licensed for other terrestrial animal disposal containment. The solids and sludge will pass through an in-house sterilization unit prior to tanker removal.

Comment #4b (Andrew Stevenson) – The commenter requests the applicant provide more details of incinerating or ensiling of mortalities and screenings from fish exclusion barriers. If either of the operations is part of the overall facility design, the commenter requests the applicant provide more information. If either operation is performed offsite by a third-party then the applicants need to identify the companies or services that can provide safe handling and disposal of the mortalities.

Response #4b: Ensilation will be carried out on site utilizing standard proven ensilation equipment, which will be installed and operated by WO staff. The ensilation activities will take place in an enclosed building, and once the process of ensilation has taken place, the sludge will be stored in a cement bunker with secondary containment, and removed on a regular basis to appropriate composting facilities.

Solids & Sludge Disposal

Comment #4c: (Andrew Stevenson) – The commenter states the waste stream flows diagrams indicate fish processing waste water is collected in sealed tanks and is then pumped to the municipal sewer but on other flow schematics indicates all waste water is being treated on-site and discharged to the Penobscot River. The commenter requests the applicant revise the application documents to clearly state that the only waste water to be discharged to the Bucksport municipal waste water treatment facility will be sanitary waste flows only from normal activities such as bathrooms and cafeterias if this is the case.

Response #4c: The permittee has not finalized its decision on whether to treat fish processing waste water on-site or convey it to the municipal waste water treatment facility. Once that decision is finalized the Department will require the permittee to submit revised schematics. This permitting actions does not take into consideration the waste stream from a fish processing facility. Inclusion of said waste stream will require a separate approval process and formal modification of this permit.

Fish Feed

Comment #5a (Andrew Stevenson): The commenter requests the applicant provide additional information on the composition of the feedstocks that WO will feed its fish at all stages of their life cycle. Without clear a clear statement of feedstock constituents, DEP cannot determine the complete nature of the plant effluent or the solid waste streams.

Response #5a: The permittee has not made a final decision on the formulation of their fish feed yet as this sector of the aquaculture industry is growing rapidly and new formulations are being created every month. To address the commenters concern, a new Special Condition L, *Fish Feed*, has been added to the final permit requiring the permittee to submit a list of all the ingredients in the feed prior to stocking it on site. Should the Department find compounds of concern which the Department believes need to be monitored in the final effluent, the permit may be reopened pursuant to Special Condition O, *Reopening Permit For Modification*, to require additional monitoring or impose limitations on pollutants of concern.

Comment #5b (PIN): The commenter questions why the facility is not subject to toxicity testing requirements of the DEP's Surface Water Toxics Control Program given potential toxicity from the fish food and drugs used at the facility.

Response #5b: 06-096 CMR Chapter 530, *Surface Water Toxics Control Program*, §2(D)(5) authorizes the Department to waive or reduce testing or replace testing with requirements adequate to characterize the toxicity of the identified pollutants when the discharger provides information as to the pollutants used at a facility. In the absence of the use of chemicals in Attachment C of the permit, the pollutants of concern are not toxic pollutants and routine whole effluent toxicity (WET (testing), analytical chemistry and priority pollutant testing are not necessary.

Fish Feed

However, the Department has revised the final permit to require the permittee to include monthly reporting of antibiotic usage and the pathogen being treated as well as monitoring of residual antibiotics in the effluent if used. If the effluent values are not detected at any flow regime there is no reason to conduct Chapter 530 toxicity testing requirements. However, if antibiotics are detected in the effluent that are at levels that have a reasonable potential to exceed thresholds that may impact marine organisms, the Department may re-open the permit to establish Chapter 530 testing requirements, sediment sampling or require an assessment to the marine environment and or impacts to marine organisms.

As for fish feed, a new Special Condition L, *Fish Feed*, has been added to the final permit requiring the permittee to submit a list of all the ingredients in the feed prior to stocking it on site. Should the Department find compounds of concern which the Department believes need to be monitored in the final effluent, the permit may be reopened pursuant to Special Condition O, *Reopening Permit For Modification*, to require additional monitoring or impose limitations on pollutants of concern.

Pursuant to Chapter 530, 2(D)(4) requires all dischargers waived or reduced testing must file an annual certification statement that describes:

- (a) Changes in the number or types of non-domestic wastes contributed directly or indirectly to the wastewater treatment works that may increase the toxicity of the discharge;
- (b) Changes in the operation of the treatment works that may increase the toxicity of the discharge; and
- (c) Changes in industrial manufacturing processes contributing wastewater to the treatment works that may increase the toxicity of the discharge.

Therefore, a new Special Condition M, *06-096 CMR 530(2)(D)(4) Statement For Reduced/Waived Toxics Testing*, has been added to the final permit requiring the permittee to file the annual Chapter 530.

Comment #5c (Deborah Capwell): The commenter states WO's hasn't said what they are planning to feed the fish. If we don't know that, how can we know what kind of impact the fish feces and uneaten food will have on the whole operation?

Response #5c : The permittee has not made a final decision on the formulation of their fish feed yet as this sector of the aquaculture industry is growing rapidly and new formulations are being created every month. To address the commenters concern, a new Special Condition L, *Fish Feed*, has been added to the final permit requiring the permittee to submit a list of all the ingredients in the feed prior to stocking it on site. Should the Department find compounds of concern which the Department believes need to be monitored in the final effluent, the permit may be reopened pursuant to Special Condition O, *Reopening Permit For Modification*, to require additional monitoring or impose limitations on pollutants of concern.

BOD & TSS

Comment #6a (NRCM): NRCM states the proposed levels of BOD, TSS and nutrient discharges are too high given another RAS facility proposed by Nordic AquaFarms Inc in Belfast proposes significantly lower treatment levels than WO. If the DEP accepts Nordic Aquafarms numbers as true, it should not approve the WO permit as written and at least require WO meet comparable limits as proposed by Nordic Aquafarms.

Response #6a: The Department acknowledges the contrast in the proposed effluent values for the two facilities. Until the facilities are constructed and running at steady state conditions and gathering effluent data via monitoring, it is impossible to determine what level of treatment these facilities will be able to actually achieve. As result, the Department is not in a position to accept either facilities proposal to be the standard for this new industry.

There are no promulgated numeric effluent guidelines/standards for discharges from RAS facilities, net pen facilities or flow through fish rearing facilities which the Department could utilize to establish best practicable treatment (BPT) standards. Therefore, limitations for BOD, TSS and nitrogen in this permit are based on a Department best professional judgment (BPJ) of effluent values expected from the waste water treatment proposed by the applicant. The treatment train of a drum filter followed by biofiltration followed by ultraviolet disinfection appears to be the standard treatment train for this industry. According to the permittee's application, it expects percent removal rates of 79% for BOD, 91% reduction for TSS, 89% for total phosphorus and 19% for nitrogen.

To address the commenters concern, the Department is footnoting the three parameters indicating that the next permit renewal, the Department will conduct a statistical evaluation of the data for the three parameters. Assuming the Nordic Aquafarm permit is approved, the Department will perform the same statistical evaluation for the Nordic facility and evaluate the results of the two facilities and make another BPJ of BPT for the industry (applicable to both facilities) based on actual performance data.

Nutrients

Comment #7a (NRCM): The commenter states DEP should require year-round monitoring and limitations for nutrients as nutrients may accumulate in sediments in winter months, and this accumulation may affect water quality in warmer months,

Response #7a : The Department's Division of Environmental Assessment that has been conducting ambient water quality monitoring on the Penobscot River in the vicinity of the discharge and around Verona Island does not think it is necessary to establish limitations or monitoring requirements for nutrients on a year-round basis. Any potential changes to ambient water quality due to nutrients will be limited to discharges during the summer months. The Department believes the required seasonal nutrient monitoring requirement is appropriate and therefore the permit remains unchanged.

Nutrients (cont'd)

Comment #7b (PIN) – The commenter requests that total phosphorus limitations be established for the facility similar to the approach used in the proposed draft permit for total nitrogen. Phosphorus limits are necessary to ensure adequate water quality protections

Response #7b: *Waste Discharge License Conditions*, 06-096 CMR 523 specifies that water quality based limits are necessary when it has been determined that a discharge has a reasonable potential to cause or contribute to an excursion above any State water quality standard including State narrative criteria. In addition, 06-096 CMR 523 specifies that water quality based limits may be based upon criterion derived from a proposed State criterion, or an explicit State policy or regulation interpreting its narrative water quality criterion, supplemented with other relevant information which may include: EPA's Water Quality Standards Handbook, October 1983, risk assessment data, exposure data, information about the pollutant from the Food and Drug Administration, and current EPA criteria documents.

USEPA's Quality Criteria for Water 1986 (Gold Book) puts forth an in-stream phosphorus concentration goal of less than 0.100 mg/L in streams or other flowing waters not discharging directly to lakes or impoundments, to prevent nuisance algal growth. The use of the 0.100 mg/L Gold Book goal is consistent with the requirements of 06-096 CMR 523 noted above for use in a reasonable potential (RP) calculation.

Based on the above rationale, the Department has chosen to utilize the Gold Book goal of 0.100 mg/L. It is the Department's intent to continue to make determinations of actual attainment or impairment based upon environmental response indicators from specific water bodies. The use of the Gold Book goal of 0.100 mg/L for use in the RP calculation will enable the Department to establish water quality based limits in a manner that is reasonable and that appropriately establishes the potential for impairment, while providing an opportunity to acquire environmental response indicator data, numeric nutrient indicator data, and facility data as needed to refine the establishment of site-specific water quality-based limits for phosphorus. Therefore, this permit may be reopened during the term of the permit to modify any reasonable potential calculation, phosphorus limits, or monitoring requirements based on site-specific data.

For the background concentration in the Penobscot River just upstream of the permittee's discharge, the Department utilized a background concentration of 0.017 mg/L. This value was determined to be representative of background conditions in ambient water quality sampling in the summer of 2014. For effluent concentration, the Department utilized a value of 0.9 mg/L based on information from the permittee's application.

Nutrients (cont'd)

Using the following calculation, the permittee's facility does not exceed or have a reasonable potential to exceed the EPA's Gold Book value of 0.100 mg/L and the Department's 06-096 CMR Chapter 583 draft criteria of 0.030 mg/L for Class B waters (classification before transition to Class SC). The calculations are as follows:

$$Cr = \frac{Q_e C_e + Q_s C_s}{Q_r}$$

Q _e = effluent flow i.e. facility design flow	=	18.6 MGD
C _e = effluent pollutant concentration	=	0.9 mg/L
Q _s = 7Q ₁₀ flow of receiving water (Brewer)	=	2,096 MGD (3,243 cfs)
C _s = upstream concentration	=	0.017 mg/L
Q _r = receiving water flow	=	2,115 MGD
Cr = receiving water concentration	=	?

$$Cr = \frac{(18.6 \text{ MGD} \times 0.9 \text{ mg/L}) + (2,098 \text{ MGD} \times 0.017 \text{ mg/L})}{2,115 \text{ MGD}} = 0.025 \text{ mg/L}$$

Cr = 0.025 mg/L < 0.100 mg/L ⇒ **No reasonable potential**

Cr = 0.025 mg/L < 0.030 mg/L ⇒ **No reasonable potential**

Given the facility does not exhibit a reasonable potential to exceed the Department's draft criteria, the Department does not believe a limitation is appropriate. However, the permit does contain a seasonal monitoring requirement for total phosphorus. If discharge levels are considerably higher than the value the permittee has presented in its application and the calculation indicates the discharge does exceed or have a reasonable to exceed the draft criteria, the Department may reopen the permit pursuant to Special Condition O, *Reopening of Permit For Modifications*, to establish appropriate limitations and or monitoring requirements.

Miscellaneous

Comment #8a (Andrew Stevenson): The commenter states the topographic map in the application depicts the saltwater intake point as being downstream of discharge point Outfall #003. Is this accurate? If not the applicant needs to provide a revised map.

Response #8a : The topographic map is incorrect. The intake structure for the facility is located along the banks of the Penobscot River in between discharge Outfalls #001B and Outfall #003. The facility has the option to discharge from Outfall #001B or Outfall #003. Outfall #003 will be the primary discharge outfall which is located downstream of the intake structure. The Fact Sheet of the draft states the following:

Miscellaneous (cont'd)

The treated wastewater is discharged to the Penobscot River via one of two outfalls that are designated as Outfall #001B and Outfall #003. Outfall #001A is located at the intake screen to the pump house providing cooling water to the turbine generator for Bucksport Generation LLC and sea water to the RAS facility. This outfall will be used to discharge backwash waters to clean the facility's intake screens. The discharge configuration consists of a 24" diameter discharge pipe that runs below the intake screens to the non-contact cooling water structure. The discharge pipe has twelve 6" diameter diffuser pipes located 4 feet on centers. This outfall configuration is beneficial to the facility as it provides for continuous cleaning of the screens.

Outfall #001B is located just upstream of Outfall #001A and consists of a 48" diameter steel pipe that extends out into the river approximately 230 feet and necks down to two 24" diameter steel pipes that make up the wye-shaped diffuser. The end of the pipe is covered by approximately 16 feet of water at mean low tide and 27 feet of water at mean high tide.

Outfall #003 (downstream of Outfall #001A) is currently being utilized as a cooling water discharge for the No. 3 Turbine for the power plant owned and operated by Bucksport Generation LLC. The cooling water itself is limited and monitored in accordance with MEPDES permit ME0002160 last issued by the Department on October 15, 2015. Cooling waters from the power plant and process waste water from the Whole Oceans facility can be co-mingled to be discharged through a sloping 36" steel pipe with a diffuser. The diffuser has 10, 12" diameter vertical ports spaced 10 feet on center to enhance mixing with the receiving waters. The diffuser ports are covered by between 27 feet and 43 feet of water at mean low tide and 38 feet and 54 feet of water at mean high tide.

Comment #8b (NOAA): The commenter suggests the facility should have requirements to eliminate impingement and entrainment of juvenile fish on the facility's intake screens and that said measures are properly maintained and monitored regularly.

Response #8b: The Fact Sheet for the NPDES permit for the former mill contained an analysis by the USEPA concluded the intake structure for the mill utilizes best available technology (BAT) thereby satisfying the requirement of Section 316(b) of the Clean Water Act to minimize adverse environmental impact on the waterway. Section 316(b) of the Clean Water Act regulates cooling water intake structures that can be responsible for killing fish and other organisms either from being trapped against the structures (impingement) or drawn into the systems' and then exposed to extreme heat, chemicals or physical stress (entrainment). Though the intake structure will be utilized for something other than cooling water and is not subject to Section 316(b) requirements, BAT is still being applied.

Miscellaneous (cont'd)

Comment #8c (Holly Faubel) – The commenter states that testing for BOD, TSS and ammonia testing will only be done for May-Oct while the facility is discharging 12 months out of the year and that scientific reports show that ammonia is more hazardous to fish at colder temperatures. The commenter requests WO be required to conduct testing year-round.

Response #8c: The draft permit contains year-round monitoring for BOD and TSS at a frequency of 3/Week. Ammonia is seasonal, May 1 – October 31. The Department has adopted ambient water quality criteria (AWQC) for ammonia. The toxicity associated with ammonia is pH and temperature dependent. The higher the temperature the lower the AWQC meaning it is more toxic at higher temperatures not lower temperatures. Therefore, monitoring for total ammonia in the warmer months is appropriate but not necessary in the colder months.

Comment #8d: (Deborah Capwell) – The commenter states that the permit application she accessed is for a little over 5,000 tons. Will WO have to reapply when they are at full build out of 20,000 tons?

Response #8d: The permit authorizes the facility to discharge under full production capacity of 20,000 metric tons. See pages 6 and 7 of 21 of the permit. However, total nitrogen limits for Phases II & III will be established at a later date after a statistical evaluation is conducted on the nutrient data that is collected for Phase I. The permittee will be required to submit a permit modification application to incorporate these limitations.

Comment #8e (Holly Faubel) – The commenter requests WO be required to provide a plan for handling complete die-off of their total tonnage if fish.

Response #8e : If in the event of a total, or significant mortality event, WO has stated it will activate the Catastrophic Mortality Composting Plan, whereby all fish will be quickly and efficiently removed from the tanks, via pumps, to slurry (bulk) tankers for immediate transport to either pre-agreed rendering facilities or landfill sites for composting.

Comment #8f (FOPB): The commenter states it is not clear how WO's slaughterhouse effluent will be managed. Will it be sent to Bucksport's POTW or get discharged as part of WO's waste water effluent?

Response #8f: The permittee has not made a final decision on whether to construct a fish processing facility on-site and therefore, this draft permit does not take that process into consideration. If a processing facility is constructed, the permittee has indicated it will explore both the treatment and disposal of the waste water on-site or by way of the municipal waste water treatment facility. A separate review and approval process would be required for these options.

Miscellaneous (cont'd)

Comment #8g (Deborah Capwell): Can the Bucksport's municipal system handle such a significant increase in the sanitary waste water (around 10,000 gallons/day)? If not, what is the back-up plan?

Response #8g: The WO facility is not likely to generate around 10,000 gallons per day of sanitary waste water. The facility will employ somewhere around 100 people. The Maine State Plumbing Code allocates 30 gallons/day/employee which would total 3,000 gpd. The permittee has indicated it has spoken to the Town of Bucksport about the ability to serve and been told there is sufficient capacity to receive the sanitary waste water from WO. It is noted the treatment facility completed an upgrade to a secondary level of treatment in calendar year 2017.

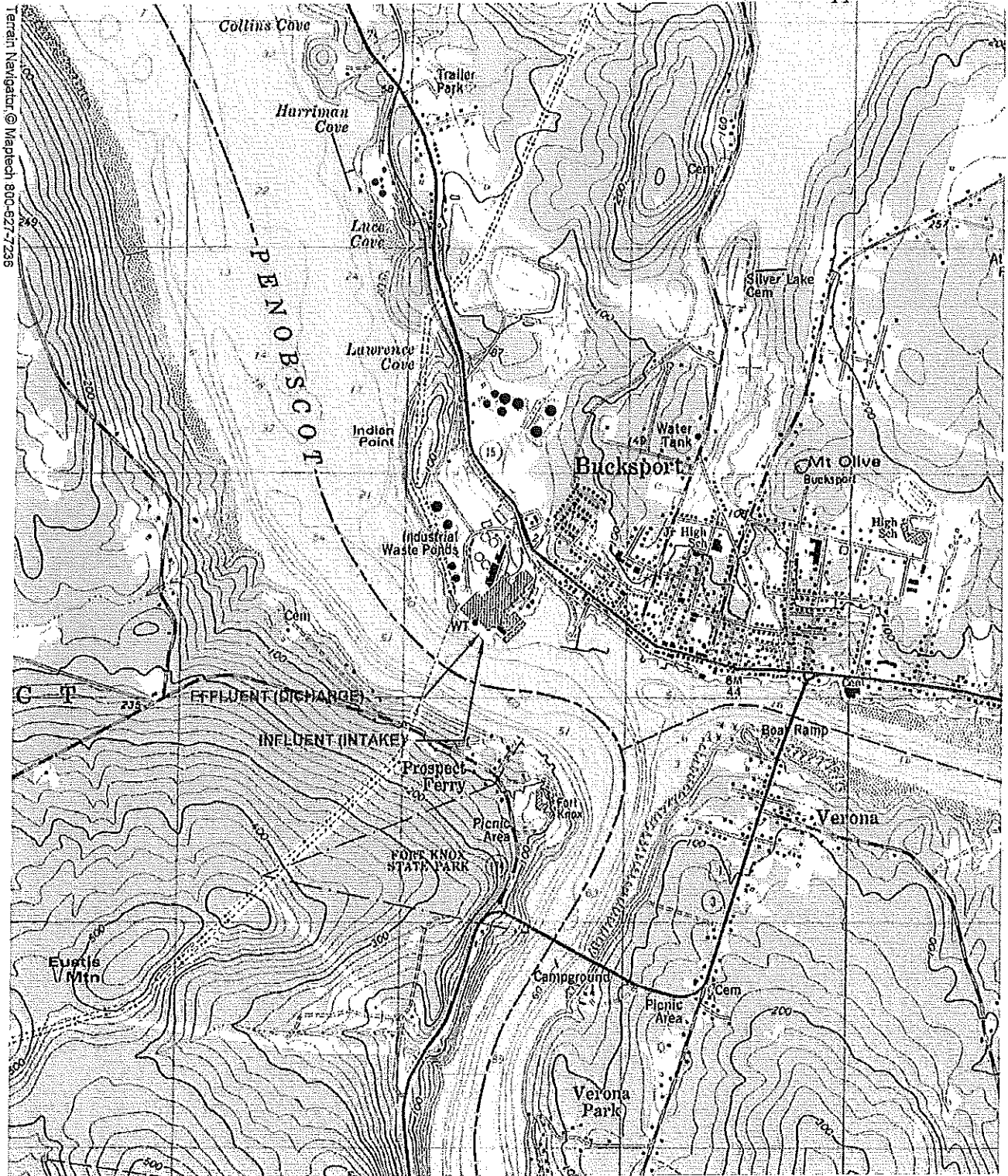
Comment #8h (Eileen Wolper): If the Bucksport Sanitary Water Treatment Facility cannot handle the amount of fish oil and nutrient load of fish processing, will that effluent end up being dumped into the Penobscot River? Will there be a way to monitor this? Is the Water Treatment Plant of Bucksport aware of this potential compromise in their sewage treatment from fish oil? Who pays for any necessary upgrades to the city facility? Will oil content of effluent be monitored and reported?

Response #8h: The permittee has not made a final decision on whether to construct a fish processing facility on-site and therefore, this draft permit does not take that process into consideration. If a processing facility is constructed, the permittee has indicated it will explore the option of treating the waste water onsite or convey it to the municipal waste water treatment facility. A separate review and approval process would be required for these options. Conveyance to the municipal waste water treatment will likely result in WO providing some level of pretreatment before the waste water is conveyed to the municipal treatment facility.

Comment #8i (FOPB, Jim Merkel) – The Department should be evaluating kairomones in the discharge.

Response #8i: A fish pathologist at the MIFW researched the kairomone issue and found literature that suggests that kairomones have very short half lives in aquatic environments (minutes to hours to days, all depending on the study and design). A quick search also found experimental evidence to support that exposure to UV light from the sun is a major factor in the rate of degradation. As UV light is known to degrade a number of chemicals and organic compounds, such is not surprising. Noteworthy in these studies is the effect that UV light exposure had at natural environmental levels, a dose that is less than 1/1000th of the dose that WO will use for effluent UV treatment. Based on the limited available information, it is likely that the UV effluent treatment, which is included in the WO operational plan, will neutralize kairomone content to that of being ecologically insignificant. When combined with information that kairomone discharge from land-based salmon farms is unlikely to result in the attraction and accumulation of sea lice in Penobscot Bay, the concern over kairomones in the discharge seems to be unwarranted.

ATTACHMENT A



SOURCE:
U.S.G.S. TOPOGRAPHIC QUADRANGLE
BUCKSPORT
@ 1:24,000

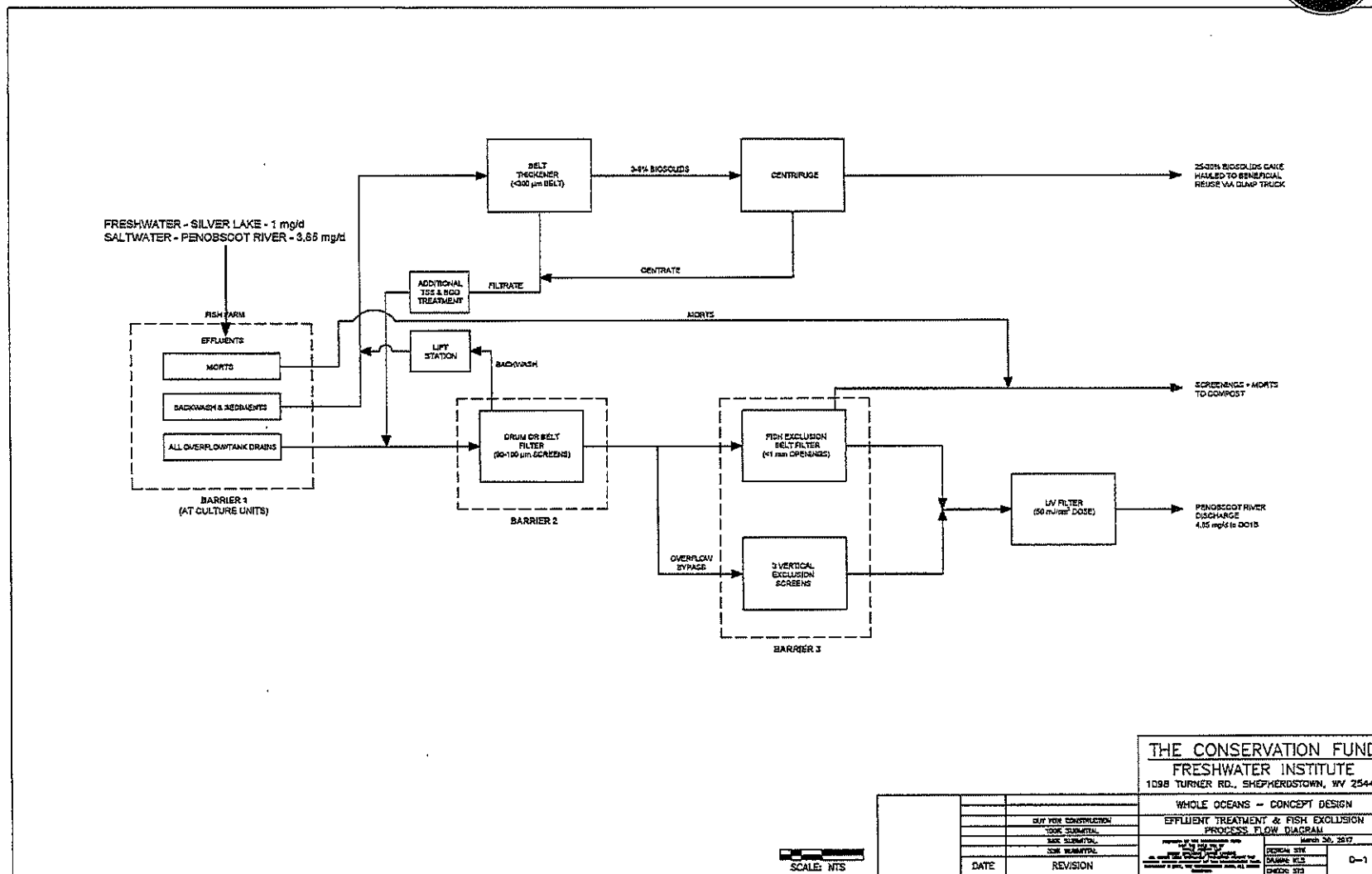
CES INC
WHOLE OCEANS LLC
BUCKSPORT, MAINE
LOCATION MAP

2018-05-11
12340.002

ATTACHMENT B

Figure 2: Effluent treatment Process Flow Diagram
WATER FLOW SCHEMATIC AND CONTAINMENT MANAGEMENT

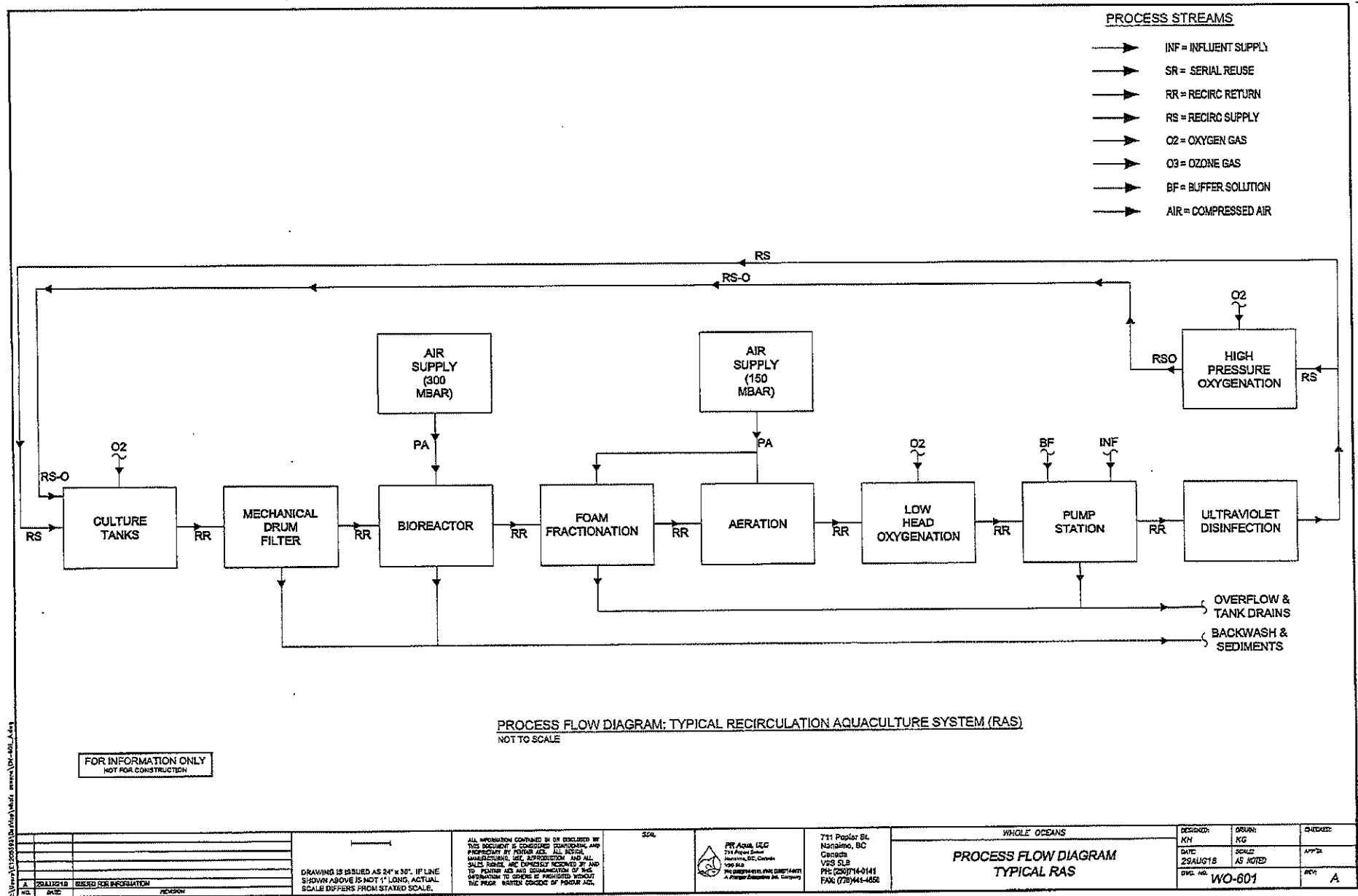
Attachment A to Question 2
 Food Processing Facilities Form



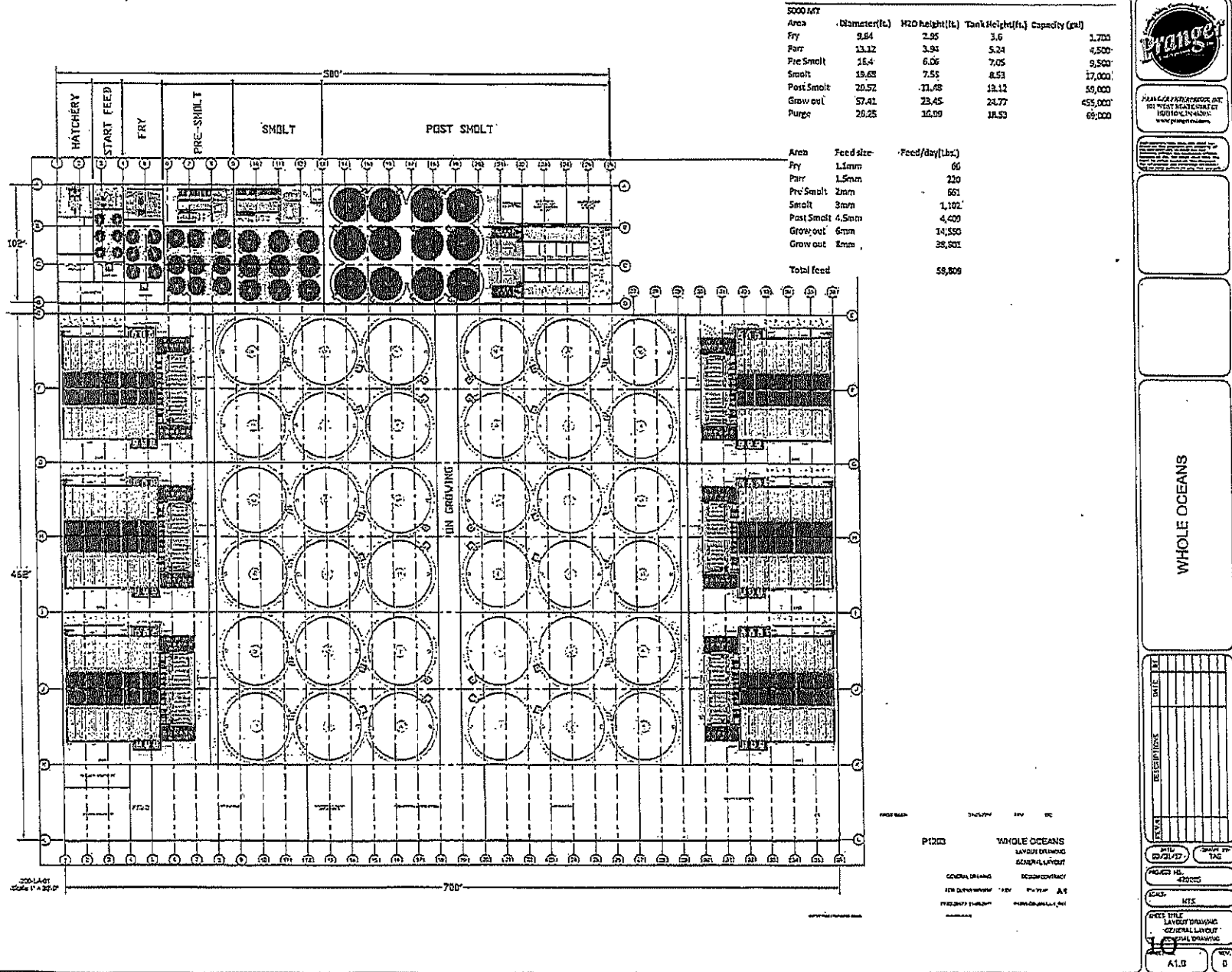
THE CONSERVATION FUND FRESHWATER INSTITUTE 1098 TURNER RD., SHEPHERDSTOWN, WV 25443	
WHOLE OCEANS - CONCEPT DESIGN EFFLUENT TREATMENT & FISH EXCLUSION PROCESS FLOW DIAGRAM	
DATE: _____ REVISION: _____	March 30, 2017 D-1



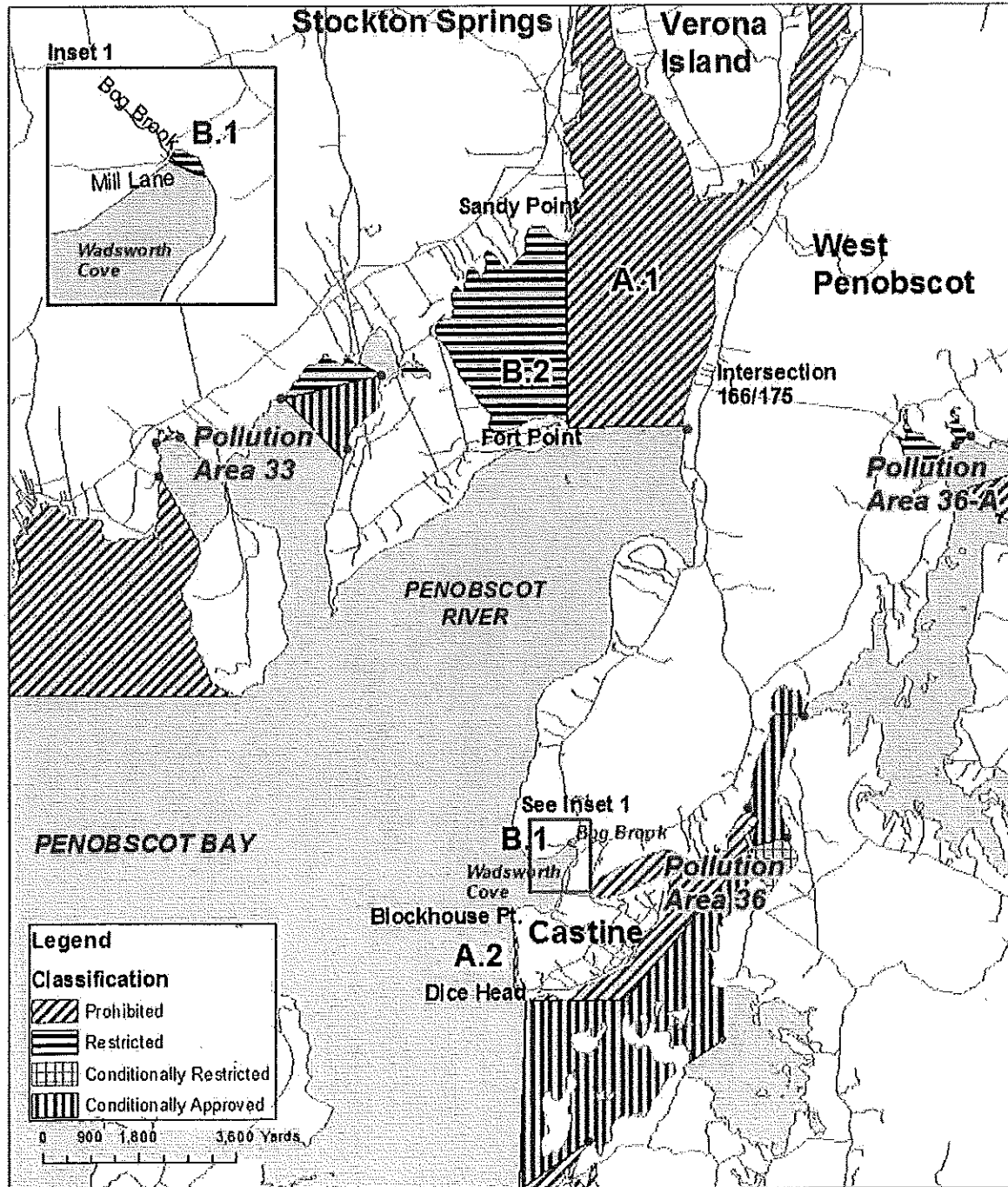
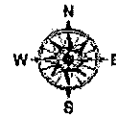
Figure 1: Typical RAS process flow diagram



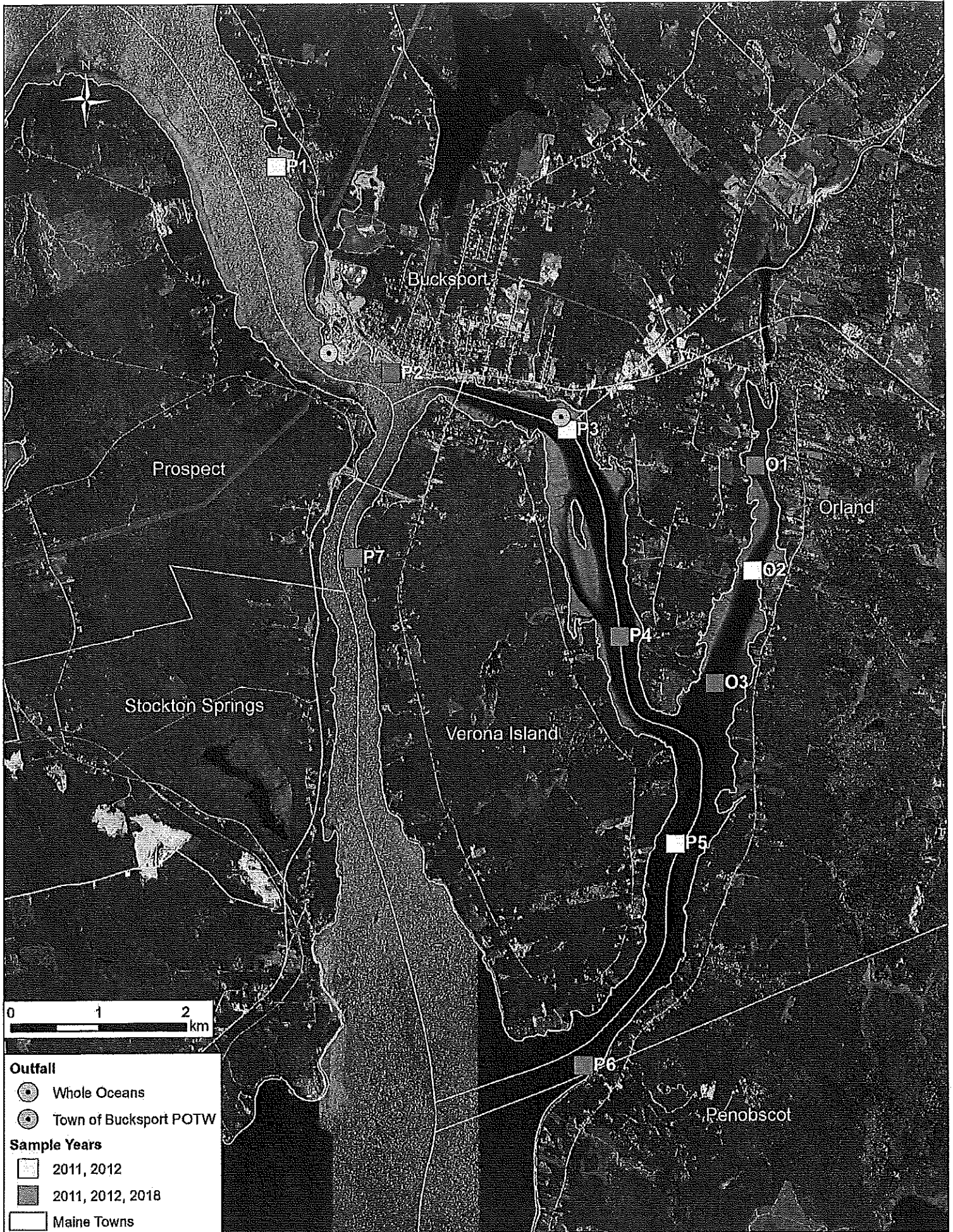
Attachment A to Question 9
Fish Rearing Form



ATTACHMENT C



ATTACHMENT D



ATTACHMENT E

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAPTER 530.2(D)(4) CERTIFICATION

MEPDES# _____ Facility Name _____

Since the effective date of your permit, have there been;		NO	YES Describe in comments section
1	Increases in the number, types, and flows of industrial, commercial, or domestic discharges to the facility that in the judgment of the Department may cause the receiving water to become toxic?	<input type="checkbox"/>	<input type="checkbox"/>
2	Changes in the condition or operations of the facility that may increase the toxicity of the discharge?	<input type="checkbox"/>	<input type="checkbox"/>
3	Changes in storm water collection or inflow/infiltration affecting the facility that may increase the toxicity of the discharge?	<input type="checkbox"/>	<input type="checkbox"/>
4	Increases in the type or volume of hauled wastes accepted by the facility?	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS:

Name (printed): _____

Signature: _____ Date: _____

This document must be signed by the permittee or their legal representative.

This form may be used to meet the requirements of Chapter 530.2(D)(4). This Chapter requires all dischargers having waived or reduced toxic testing to file a statement with the Department describing changes to the waste being contributed to their system as outlined above. As an alternative, the discharger may submit a signed letter containing the same information.

Scheduled Toxicity Testing for the next calendar year

Test Conducted	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
WET Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Priority Pollutant Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Analytical Chemistry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other toxic parameters ¹	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please place an "X" in each of the boxes that apply to when you will be conducting any one of the three test types during the next calendar year.

¹ This only applies to parameters where testing is required at a rate less frequently than quarterly.