STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

October 11, 2007

Mr. Mark Kesselring
18 Pancake Hill Road
St George, N.B. E5C 3k9

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0036960
Maine Waste Discharge License (WDL) #W009015-5Q-A-N
Final Permit
Preble Island – DMR Lease FREN-PI2

Dear Mr. Kesselring:

Enclosed please find a copy of your **final** MEPDES permit/WDL which was approved by the Department of Environmental Protection. You must follow the conditions in the permit to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State Law and is subject to enforcement action.

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.*"

Should you have questions regarding this matter, feel free to call me at (207) 287-7693.

Sincerely,

Gregg Wood
Division of Water Quality Management
Bureau of Land and Water Quality

Enc.

cc: Matt Young, DEP/EMRO
Jon Lewis, DMR
[redacted]

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

DEPARTMENT ORDER

IN THE MATTER OF

GREAT BAY AQUACULTURE, LLC		)	MAINE POLLUTANT DISCHARGE
SORRENTO, HANCOCK COUNTY, MAINE		)	ELIMINATION SYSTEM PERMIT
AQUACULTURE, PREBLE ISLAND		)	AND
DMR SITE DESIGNATION #FREN-PI2		)	WASTE DISCHARGE LICENSE
ME0036960		)	
W009015-5Q-A-N	**APPROVAL**	)	**NEW**

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, et. seq., and Maine Law 38 M.R.S.A., Section 414-A et. seq., and all applicable regulations, the Department of Environmental Protection (Department hereinafter) has considered the application of GREAT BAY AQUACULTURE, LLC (GBA hereinafter), with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

GBA has filed an application with the Department for a new combination Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0036960/Maine Waste Discharge License (WDL) #W009015-5Q-A-N for the discharge(s) of wastes associated with the operation of an aquaculture facility located off the southern shore of Preble Island in Sorrento, Maine. GBA proposes to operate a facility that is experimenting with the cultivation of Atlantic cod. The facility will be located within the boundaries of an existing Maine Department of Marine Resources lease (FREN-PI2) currently leased to James West. The facility will occupy approximately 2.0 acres and be comprised of four (4) polar circles, each measuring 70 meters in circumference with a maximum of 100,000 fish, a stocking density target of 18 kg/m^3 and a maximum biomass of 360,000 kg.

PERMIT SUMMARY

This permitting action establishes:

1. A water column mixing zone extending out 30 meters beyond the perimeter of the net pen.

2. A sediment mixing zone extending out 30 meters beyond the perimeter of the net pen.

3. Seasonal far-field ambient water quality monitoring.

4. Seasonal near-field ambient water quality monitoring.

5. Sediment and benthic monitoring programs.

PERMIT SUMMARY (cont'd)

6. Numeric impact thresholds for sediments and the benthic community.

7. Routine video and photographic monitoring.

8. Best management practices for the operation of the net pens.

9. Certain husbandry practices for the facility operations.

10. Limitations on the use of drugs for disease control.

11. Best management practices for spill control via the development and maintenance of a Spill Prevention Control and Countermeasure (SPCC) plan.

12. Submission of monitoring results to the Department via Discharge Monitoring Report (DMR) forms.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated September 7, 2007, 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, 38 M.R.S.A., Section 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) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   (d) Where the actual quality of any classified receiving water body 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 quality of any water body, 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.

ACTION

THEREFORE, the Department APPROVES the above noted application of GREAT BAY AQUACULTURE, LLC, to discharge wastes associated with the operation of a finfish aquaculture facility referred to as the Preble Island site located in Frenchman's Bay in Sorrento, Maine. The aquaculture facility will be SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including:

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 effluent limitations and monitoring requirements.

3. This permit expires five (5) years from the date of signature below.

DONE AND DATED AT AUGUSTA, MAINE, THIS 15TH DAY OF OCTOBER 2007.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____, FOR
David P. Littell, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application August 3, 2007.

Date of application acceptance August 13, 2007.

FILED
OCT 16 2007
BOARD OF ENVIRONMENTAL PROT.
STATE OF MAINE

Date filed with Board of Environmental Protection: _____

This order prepared by GREGG WOOD, BUREAU OF LAND AND WATER QUALITY

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM (MEPDES) PERMIT
&
MAINE WASTE DISCHARGE LICENSE (WDL)

Table of Contents

SPECIAL CONDITIONS

A. **General limitations.** The Great Bay Aquaculture LLC (GBA) facility (2.0 acres located within the 35.7-acre DMR site FREN-PI2, currently leased to James West) is limited to stocking Atlantic cod in four (4) polar circles (each measuring 70 meters in circumference) or submersible spherical cages (Aqua pods) at any given time and is subject to the discharge limitations, monitoring requirements and management practices specified in the following sections. The facility may discharge from discrete floating net pens the following: fish excrement, fish feed, and drugs pursuant to Special Condition K, *Use of Drugs for Disease Control,* of this permit. Additionally, other discharges incidental to the normal and proper operation of the facility such as the loss of fish scales and treatment compounds used on structures and vessels to limit marine growth, may occur provided they do not have significant adverse effects on water quality.

Domestic waste shall not be discharged and must be collected and transported to a land-based facility authorized to dispose of domestic waste.

B. **Feeding rates and monitoring.** The discharge of fish feed shall be at the minimum amount necessary to sustain an optimal rate of fish growth with the minimum loss of uneaten feed. For each species and year-class, the facility shall report its Food Conversion Ratio (FCR) as kilogram (kg) of feed used per kg of live weight of fish harvested or lost over the time those fish are confined to net pens. In calculating the FCR, the facility may use processing facility and gut loss information provided that records supporting the FCR determination are made available to the Department for review. These records are to be compiled in accordance with Department standards. Fish maintained in separate net pens as broodstock need not be included in FCR calculations.

The facility shall maintain a real-time monitoring system designed to track the rate of feed consumption and detect uneaten feed passing through the net pens. Such systems include, but are not limited to, doppler radar detection or video cameras. There shall not be any significant accumulation of unconsumed feed on the sea floor beneath or adjacent to net pens.

C. **Mixing zones.** This permit designates two mixing zones: (1) a Water Column Mixing Zone, and (2) a Sediment Mixing Zone. Outside the allocated Mixing Zones, discharges from the facility shall not cause or contribute to conditions that are hazardous or toxic to aquatic life, or that would impair the uses designated by the classification of the receiving waters. The location of the mixing zones may be shifted to reflect the effect of currents unique to a specific site, provided that the offset mixing zones are no larger in area than those defined by the size of the net pen(s).

1. **Water Column Mixing Zone.** The Water Column Mixing Zone is defined as the area within and extending 30 meters beyond the perimeter of a net pen in all directions on the surface, and down to the sea floor/water column interface.

SPECIAL CONDITIONS

2. **Sediment Mixing Zone.** The Sediment Mixing Zone is defined as the sea floor directly below a net pen and extending on the sea floor 30 meters beyond the perimeter of each net pen in all directions. See Special Condition G, *Impact Thresholds* of this permit for limitations on changes that may occur within the Sediment Mixing Zone.

D. Narrative limitations. The facility shall at all times comply with the State's water quality laws, including, but not limited to, the following narrative limitations that apply to waters beyond the designated Water Column Mixing and Sediment Mixing Zones. Discharges from the facility;

1. Shall not cause a visible oil sheen, foam, or floating solids at any time that would impair the uses designated by the classification of the receiving waters;
2. Shall not contain materials in concentrations or combinations that are hazardous or toxic to aquatic life, or that would impair the existing or designated uses of the receiving waters;
3. Shall not cause toxicity, visible discoloration, turbidity or other effects to the receiving water that would impair the existing or designated uses of the receiving waters;
4. Shall not discharge suspended or settleable solids that will have significant adverse effects on the quality or any uses of the receiving water body;
5. Shall not produce or result in harmful algae blooms that may be characterized by excessive growths of, but not limited to, the genera *Alexandrium, Dinophysis, Prorocentrum, Pseudonizschia, Phaeocyctis, Enteromorpha, Ulva or Aureococcus*; and
6. Comply with specific conditions of this permit and shall not cause or contribute to violations of water quality standards.

E. Monitoring Requirements

1. **General requirements.** The permittee shall conduct periodic monitoring for ambient water quality, benthic analysis, biological assessment and video/photo surveys. Based on the results of monitoring or site-specific conditions, the Department may require the facility to conduct additional monitoring to determine compliance with this permit and applicable statutory requirements.

   Summary of limitations and monitoring requirements. The following table is a summary of the monitoring required by the various Special Conditions below.

Special Condition	Topic
E.4	Fish feeding and monitoring
E.5	Near-field water quality monitoring requirements
E.6	Far-field and reference site monitoring requirements
E.7	Video and photographic monitoring requirements
E.8	Sediment and benthic monitoring requirements

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

2. **Sampling information.** All monitoring information and records required by this permit shall be kept current at all times and made available to representatives of the Department and the Department of Marine Resources upon request. For all water column and benthic monitoring samples collected, the permittee shall measure and maintain records of the following information:
   a. The sampling location, recorded as latitude and longitude to the nearest one-tenth second.
   b. The date and time of day.
   c. The current direction in relation to true north.
   d. The tidal stage to the nearest one-half meter above/below mean low water.
   e. The depth of water.

3. **Modification of monitoring requirements.** The Department may, after notice to the permittee and interested parties of record, modify this permit to ensure that sufficient information is available to determine compliance with applicable water quality standards and the terms and conditions of this permit.

4. **Feed discharge and fish monitoring requirements.** For each species of fish, the permittee shall maintain and report monthly to the Department the following information.
   a. The number of net pens in use, including type, size and configuration;
   b. The age, weight and number of fish in each net pen;
   c. The number and total weight of fish contained in all net pens in use;
   d. The total amount of feed added to <u>each</u> net pen; and
   e. The total amount of feed added to <u>all</u> net pens.

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

5. **Near-field water quality monitoring requirements.** During the period of **June 1 through October 31** each year, the facility shall maintain the specified conditions and conduct the following monitoring of the ambient water **within the water column mixing zone** of the net pen. All samples shall be grab samples at locations selected to represent the greatest level of any impact of the facility's operation.

Table E.5. Monitoring Requirements **at locations within 5 meters down-current of the pens** (prevailing conditions at the time of sampling).

Sea Water Characteristic	Location			Monitoring Frequency
	Mid-Net Pen Depth	Mid-Water Column Depth	One Meter Above Sea Floor	
Dissolved Oxygen Concentration	≥6 mg/L	≥6 mg/L	≥6 mg/L	1/Week
Dissolved Oxygen Saturation	Report %	Report %	Report %	1/Week
Salinity	Report ‰	Report ‰	Report ‰	1/Week
Temperature	Report °C	Report °C	Report °C	1/Week
Transparency	Report meters			1/Week

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

5. Near-field water quality monitoring requirements

June 1 through October 31 each year.

a. Sampling Locations. Samples collected in compliance with the above monitoring **requirements shall be taken within 5 meters of the net pens and down-current** (prevailing conditions at the time of sampling), from where water passes through pens stocked with fish and at a point selected to best represent the maximum impact of the facility's operation. The **samples shall be taken at mid-pen depth** (i.e. if the containment net is 6 meters deep, take the sample at 3 meters from the surface), **mid-water column depth, and within 1 meter of the sea floor**, where each station's results are reported separately.

b. Sampling methods. Water samples shall be analyzed for dissolved oxygen (DO) concentration and saturation, temperature and salinity at the frequencies specified in Table E.5 of this permit. Measurements of temperature and salinity (in parts per thousand) shall be used to determine percent saturation of dissolved oxygen and stratification. Samples should be taken within one hour before or after slack water prior to 9:00 AM. If the frequency of sampling is increased such that early morning slack tide measurements cannot be made, samples shall be collected prior to 9:00 AM, irrespective of tidal conditions. All measurements shall be made using approved methods, and in accordance with the applicable manufacturer's instructions, including calibration of instruments. The depths of all measurements shall be recorded to at least the nearest one-half meter.

c. Transparency readings shall be made by lowering a 30 cm Secchi disk vertically through the water column. Observations are to be made using a viewing scope to penetrate the surface of the water. The depth of disappearance upon descent and reappearance upon retrieval of the disk shall be measured and averaged.

d. Compliance with DO concentration. If DO concentrations below 6 mg/L are recorded at any depth, additional samples shall be taken to determine if the DO depression is a result of the facility's discharge. To determine if DO depression below 6 mg/L reflects natural conditions, readings must be taken at the far-field and reference sites (see Special Condition E.6 and Special Condition F) at the comparable times, depths and tidal conditions and reported to the Department with the monthly Discharge Monitoring Reports. **Further, any time the DO saturation is less than 85% as measured within 5 meters of the net pens, far-field monitoring described in Special Condition E.6 shall be conducted.**

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

6. **Far-field and reference site water quality monitoring requirements.** During the period of **June 1 through October 31** each year, or as required by Special Condition 5(d) of this permit, the facility shall maintain the specified conditions and conduct the following monitoring of the ambient water adjoining the net pens. **All samples shall be vertical profiles measured at intervals of 1 meter or less** at a location selected to represent the greatest level of any impact of the facility's operation.

Table E.6. Far-field and reference site water quality monitoring requirements.

Sea Water Characteristic	Minimum value	Average value	Maximum value	Monitoring Frequency
Dissolved Oxygen Concentration	Report mg/l	Report mg/l	Report mg/l	2/Year in August and September and as required by Special Condition E.5.d
Dissolved Oxygen Saturation	85%	Report %	Report %	2/Year in August and September
Temperature	Report °C	Report °C	Report °C	2/Year in August and September
Salinity	Report ‰	Report ‰	Report ‰	2/Year in August and September
Transparency	Report meters			2/Year in August and September

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

6. Far-field and reference site water quality monitoring requirements

a. Sampling locations. Samples collected in compliance with the above monitoring requirements shall be taken at a position approximately 30 meters down-current (prevailing conditions at the time of sampling) from where water passes through pens stocked with fish and at a point selected to best represent the maximum impact of the facility's operation. As required by the Department, samples shall also be collected at the reference site (see Special Condition F). **All information recorded in profiles shall be reported to the Department.**

b. Sampling methods. Water samples shall be analyzed for dissolved oxygen (DO) concentration and saturation, temperature and salinity at the frequencies specified in Table E.6 Measurements of temperature and salinity (in part per thousand) shall be used to determine percent saturation of dissolved oxygen. Samples should be taken one hour before or after slack water prior to 9:00 AM. If the frequency sampling is increased such that early morning slack tide measurements cannot be made, samples shall be collected prior to 9:00 AM, irrespective of tidal conditions. All measurements shall be made using approved methods, and in accordance with the applicable manufacture's instructions, including calibration of instruments. The depths of all measurements shall be recorded to at least the nearest one-half meter.

c. If DO saturation levels below 85% are recorded at any depth, additional samples may be taken to determine if the DO depression is a result of the facility's discharge. In order to determine if DO depression below the specified saturation reflects natural conditions, readings must be taken at the reference site (see Special Condition F) at the comparable times, depths and tidal conditions and reported to the Department with the applicable Discharge Monitoring Reports.

d. Transparency readings shall be made by lowering a 30 cm Secchi disk vertically through the water column. Observations are to be made using a viewing scope to penetrate the surface of the water. The depth of disappearance upon descent and reappearance upon retrieval of the disk shall be measured and averaged.

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

7. **Video and monitoring requirements.** The facility shall conduct color video evaluations of the sea floor under and adjacent to the net pen system as follows. Multiple evaluations may be needed where independent pens or systems preclude coverage by one transect. Monitoring and evaluation shall be conducted in accordance with protocols established by the Department of Environmental Protection, unless otherwise specified herein.

Table E.7. a – Once per year between August and October of each year

Monitoring Characteristic	Substrate Video Monitoring Transects			
	Transect Beneath Pens	Transect 60 m Up-current From Edge of Pens	Transect 60 m Down-current From Edge of Pens	Monitoring Frequency
Video Tapes of Substrate	Report	Report	Report	1/Year

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

7. Video tape monitoring requirements

a. Reports of monitoring shall include the date(s) on which monitoring was conducted and the video tapes, along with all supporting information including a site schematic of the video track location in relation to the net pens. The beginning and ending points of transects shall be located by GPS.

Video tapes and written reports shall be submitted to the Department within 30 days of the monitoring event.

Video tapes for evaluations conducted at times other than required by this permit shall kept on file at the permittee's home office and made available to regulatory agencies for periodic review within 15 days of the monitoring event.

Written reports for evaluations conducted at times other than required by this permit shall be submitted to the Department within 30 days of each monitoring event.

b. Except as provided below, the survey shall be documented with continuous video footage. The filmed survey shall document the sediment type and color, as well as features, noting erosional or depositional areas. The survey shall also document the flora/fauna observed as to their relative abundance, as well as any feed pellets or other man-made debris. The presence of *Beggiatoa* type mats shall be noted, and its growth described as light, moderate, or heavy. Black sediments, spontaneous or induced gassing, or the presence of pimpled sediments shall be noted. "Pimpled" sediments may also represent the presence of infauna, and as such, will not be used exclusively as an Impact Limit unless such marks are readily distinguishable from infauna burrows. The location of any nets located on the bottom shall be documented relative to the pen system, and the extent to which the net is buried beneath sediments shall be noted. Relative abundance of *Beggiatoa* should be characterized approximately as follows: abundant, frequently present within the film coverage; common, seen occasionally throughout the film coverage or existing in patches; rare, only seen once or in a few places throughout the dive.

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

7. Video and photographic monitoring requirements

c. A video/photo transect shall be conducted beneath the pens (directly adjacent to the up-current edge of the pens) along an axis representing the direction of the prevailing current, and extend 60 meters beyond the pen system on each end, and located to best reflect the extent of the facility's impact on benthic conditions. Video coverage of sediments beneath or adjacent to feed or service barges shall be noted on the film narrative.

d. The film coverage shall be in color, and of sufficient detail and clarity to allow for the accurate assessment of benthic conditions. The camera should be positioned at a height above the substrate that will provide approximately one square meter of bottom coverage, and be illuminated with sufficient artificial light to enable the accurate identification of epibenthic organisms and sediment conditions. A brief written narrative with the tape or photos describing reference points shall be provided. All film documentation shall include the dates on which it was taken, the direction of the current, and the geographic positions of the start and endpoints of the transects.

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

8. The facility shall conduct monitoring of the sediments on the sea floor as follows. Benthic monitoring shall focus on sediment conditions and the infaunal community. The reference site is described in Special Condition F. The Department may require that the monitoring required by this condition be continued following removal or relocation of a net pen as necessary to evaluate residual impacts. Monitoring and evaluation shall be conducted in accordance with protocols established by the Department of Environmental Protection, unless otherwise specified herein.

Table E.8. Sediment and benthic monitoring requirements.

Monitoring Characteristic	Sample Location			Monitoring Frequency
	Within the mixing zone	30 m from net pens	Reference Site	
Redox Potential	Report mV	Report mV	Report mV	1/5 Years(1) in August-October
Sulfide	Report uM	Report uM	Report uM	1/5 Years(1) in August-October
Anoxic Sediments, Gas Formation, and *Beggiatoa*	Report	Report	Report	Each time when video monitoring
Azoic Conditions	Report /0.1 square m	Report /0.1 square m	Report /0.1 square m	1/5 Years(1) and as required, see Special Cond.E.8.a
Taxa Present, Absolute, Relative Abundance, and Shannon-Wiener Diversity Index	Report /0.1 square m	Report /0.1 square m	Report /0.1 square m	1/5 Years(1) and as required, see Special Con.8.a
Sediment grain size	Report % sand, silt, clay or gravel	Report % sand, silt, clay or gravel	Report % sand, silt, clay or gravel	When taxa measurements are made
Total Organic Carbon in Sediment	Report, mg/g	Report, mg/g	Report, mg/g	When taxa measurements are made
Copper, Total metal	Report mg/kg Dry weight	Report mg/kg Dry weight	Report mg/kg Dry weight	1/5 Years(1)
Zinc, Total metal	Report mg/kg Dry weight	Report mg/kg Dry weight	Report mg/kg Dry weight	1/5 Years(1)
Medications used	Report ug/kg Dry weight	Report ug/kg Dry weight	Report ug/kg Dry weight	Within one month of use

(1) Sediment and bentic sampling is only required by the fifth year of the term of this permit if fish occupy the site for <u>at least</u> three consecutive years.

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

8. Sediment and benthic monitoring requirements

a. Sampling locations and times. Samples for all parameters shall be taken at the same locations. Sampling locations shall be along a transect as described for video monitoring in Special Condition E.7. of this permit. There shall be a minimum of 4 locations along the transect, 2 on each side of the net pens. On each side of the net pen system, one location shall be taken at 30 meters from the pens and will represent conditions outside of the mixing zone. Another sample shall be taken within the mixing zone where benthic impact is observed to be the greatest; if no differences in impact can be observed, the location shall be approximately 5 meters from the pens. At each location, a minimum of 3 individual samples shall be collected along a line perpendicular to the transect line, and spaced at distances reflecting and within the lateral extent of the greatest benthic impacts at that location. In order to fully evaluate conditions, the Department may require additional sampling locations on a case-by case-basis.

Benthic sampling shall be done at the same time as the video observations are made. See Special Condition E.8.f for testing of medications. At a minimum, azoic conditions and taxa measurements shall be conducted in August – October once during a 5-year period in a year when fish in the facility are near their maximum biomass. Additionally, these measurements shall be made at any time a warning level in Special Condition G is exceeded, unless the Department determines that the cause of the exceedence has been corrected pursuant to Special Condition G. Copper and zinc are to be tested once per two years in a year when fish in the facility are near their maximum biomass, and reports shall include the percent solids of the sediment sampled. Other measurements shall be conducted twice per year, in April – May and August – October. However, the Department may modify the April – May benthic sampling if the video monitoring is modified pursuant to Special Condition E.7. See Special Condition F for when reference sites must be sampled.

b. Reports shall include the date(s) of the sampling and the results of the analyses, along with all supporting information including a site schematic of the sample locations. **Reports shall be submitted to the Department within 150 days of the monitoring event.** However, based on prior benthic monitoring, video monitoring, or other information that indicate the facility may be adversely impacting the sediment, the Department may require earlier submission of benthic monitoring reports.

SPECIAL CONDITIONS

E. Monitoring Requirements (cont'd)

8. Sediment and benthic monitoring requirements

c. Each grab sample shall be inspected for evidence of anoxia, the presence of *Beggiatoa* type bacterial mats, and gas formation (hydrogen sulfide or methane). The surface color of the sediment sample (specifically, sediments are black or significantly darker than natural sediment in the area), and any evidence of gas formation (e.g. pimpled sediments, hydrogen sulfide odor) or *Beggiatoa* shall be reported. If sub-samples are taken from a grab or box type corer for the sediment analysis and the remaining sample is used for infauna analysis, no more than one-quarter of the surface of each sample can have been removed for the sediment analysis.

d. Cores for metals or medications must be of the top 2 cm, and in the top 3 cm for Redox potential and sulfide. Single cores 4 inches or greater in diameter shall be taken from the sediment for infauna and must be inserted to resistance or 15 cm, whichever is less. Depth of the core shall be reported. The permittee shall conduct a grain size analysis and determine percent (%) solids for each core. Infauna samples shall be sieved through a 1.0 mm mesh sieve. Organisms shall be fixed in 10% buffered formalin and stained with a 1% Rose Bengal staining solution. After 5 days in the formalin solution, the formalin shall be replaced with 70% ethanol to ensure preservation of the organism's integrity. Organisms shall be identified to the family or a lower practical taxonomic level and enumerated. The Department may require more specific identification of organisms in order to determine compliance with this permit. A conversion coefficient shall be developed to convert the core sample surface area to $0.1m^2$ for reporting family abundance and richness.

e. Sediment sample collection, handling, preservation, storage, and analysis shall be conducted in accordance with EPA approved methods. See references listed in Attachment A of this permit (EPA 1995, and 1986-1991) for appropriate guidance.

f. Tests for medications shall be conducted for each medication used within one month of such use and shall include analysis for the compound(s) used and any known primary metabolites. The Department may waive this testing if the facility provides information demonstrating that medications used do not accumulate in the sediments or organisms.

SPECIAL CONDITIONS

F. Reference sites. The permittee shall maintain a reference site and the baseline information to provide comparative information on water quality and benthic conditions in the area of the net pens. Relevant baseline data will be used with reference station data for comparative information in evaluating the results of benthic monitoring tests. If baseline benthic data are no longer representative, and for water column information, additional reference site sampling shall be conducted in order to establish comparative information. The Department may require repeat or continual reference site monitoring as necessary to properly evaluate the results of monitoring data. The Department may require additional reference sites to be used where necessary to adequately characterize conditions in an individual location. New reference site(s) will be selected to best represent local conditions free of influences from the activities of the facility or other uses of the receiving water in the vicinity of the facility.

SPECIAL CONDITIONS

G. Impact thresholds. With respect to the sediment and benthic monitoring specified in Special Condition E.7and E.8, the following criteria will be applied by the Department in determining if discharges from the facility are causing or contributing to impairment of the State's water quality criteria.

Table G.1. Sediment Mixing Zone impact thresholds **under or within 30 m** of the net pen.

Metric	Warning Level	Impact Limit
Redox Potential[1]	Mean value -100 to 0 mV nhe[7]	Mean value <-100 mV nhe[7]
Sulfide[1]	Mean 1300 – 6000 uM	Mean >6000 uM
Beggiatoa Coverage	≥25% photo coverage[4, 7]	≥ 50% photo coverage[4, 7]
Anoxic Sediments[3]	≥25% photo coverage[4, 7]	≥ 50% photo coverage[4, 7]
Pollution-Tolerant Taxa[5] Pollution-Sensitive Taxa[6]	Number of individuals in single taxa > 70% **AND** >50% reduction in mean abundance of taxa not identified as pollution-tolerant	Report information Report information
Taxa richness	>25% reduction in total number of all taxa compared to mean baseline or reference site	Report information
Azoic conditions	>50% reduction in total abundance compared to mean baseline or reference site	Absence of infauna[7]

SPECIAL CONDITIONS

G. Impact thresholds (cont'd)

Table G.2. Sediment Impact Thresholds Beyond Sediment Mixing Zone (≥ **30 m from the nets pens).**

Metric	Impact Limit
Redox Potential[1]	Report information
Sulfide	Report information
Beggiatoa Coverage	Compelling evidence [2, 7]
Anoxic Sediments	Compelling evidence [2, 7]
Pollution-Sensitive Taxa[6]	Significant decrease in mean number of listed taxa as compared to mean baseline or reference site value[8]
Taxa Richness	Significant decrease in mean number of total taxa as compared to mean baseline or reference site value[8]

Footnotes to Tables G.1 and G.2:

[1] Redox Potentials (Eh) shall be measured in millivolts (mV) relative to the normal hydrogen electrode (nhe) for the top 3 cm of the sediment profile. See Wildish et al. 1999 for an acceptable approach to redox sampling, analysis and instrument calibration. Mean values for redox and sulfide shall be the average of all individual samples collected at a location a given distance from the net pens.

[2] Compelling evidence includes photo or video documentation, diver observations, or sediment analyses that reveals actual off-gassing, or evidence of gas formation, including "pimpled" sediments and the smell of hydrogen sulfide gas emitted from grab samples or the presence of *Beggiatoa*, and such conditions are not observed in the baseline or reference site, or are the result of natural conditions.

[3] Anoxic sediments consist of black or significantly darkened sediment in comparison to natural conditions in the area, and/or the formation of hydrogen sulfide or methane gas as characterized by emission of gas bubbles, "pimpled" sediments or odors in the sediment.

SPECIAL CONDITIONS

G. Impact thresholds (cont'd)

Footnotes to Tables G.1 and G.2:

[4] Percent cover shall be determined by the Department from the review of video footage taken beneath or adjacent to each pen.

[5] Pollution-tolerant taxa include the following the Polycheates: *Capitella capitata*, Oligocheates and other taxa that may be present as determined from baseline information and/or the reference site.

[6] A list of pollution-sensitive taxa is to be determined from pre-operation baseline studies and/or the reference site specified in this permit. Such species include, but are not limited to, amphipods and cumaceans.

[7] Unless similar abundance or values exist in the baseline or reference site specified in this permit, or are the result of natural conditions.

[8] The significance will be based on statistical analysis at a confidence interval acceptable to the Department, and meeting generally accepted professional standards.

The forgoing impact limits represent one definition of conditions that would represent non-attainment of narrative water quality standards. To assess compliance, the Department may consider the results of monitoring conducted pursuant to this permit, the conditions found in the baseline or reference site for comparative purposes and other available information. This information may include, but is not limited to, total abundance, relative abundance, diversity indices, dominant taxa, the percentage of mollusks, echinoderms and crustaceans, and trophic levels. In doing so, the Department may determine that other conditions found at an individual location may constitute a violation of narrative water quality standards.

Physical disturbance such as harrowing, dragging, or other mechanical means shall not be used to mitigate bottom conditions.

The permittee shall notify the Department as soon as it has reason to believe the warning levels that are specified for the Sediment Mixing Zone may be exceeded. At that time, or upon notification by the Department, the permittee shall review its past operations and propose any changes that it deems to be necessary to ensure that impact levels are not exceeded. If the degree by which warning levels are exceeded in subsequent monitoring events is increased, or if an impact level is exceeded at any time, the permittee shall include in its notification, for the Department's for review and approval, a plan and implementation schedule for modification of operations. Such modifications may include, but are not limited to, reducing standing stock, reduced feeding, fallowing of the site and/or collection of settled

SPECIAL CONDITIONS

G. Impact thresholds (cont'd)

materials before they reach the sea floor. New fish shall not be stocked into pens at the facility until the approved plan has been implemented. The Department may require additional monitoring to determine the effectiveness of these measures or continuing trends in benthic conditions.

H. Toxic impacts

1. The discharge of toxics into the waters of the State in concentrations identified by the Department as toxic to aquatic organisms is prohibited. When waters are temporarily contained within a barrier, such as a plastic tarpaulin, for the application of medications, at the point the barrier is removed the concentration of those medications shall not pose a risk of causing lethal effects on organisms passing through the water column. Within the water column mixing zone, acutely toxic (lethal response) conditions must not occur. At the edge of the water column mixing zone concentrations of any compound cannot exceed levels known to cause acute or chronic toxicity to marine organisms, or sub-lethal effects from repeated exposure.

2. Sediments within or beyond the Sediment Mixing Zone shall not contain toxics originating from the facility in concentrations or combinations that are likely to have a significant adverse effect on benthic infauna or epifauna, or bio-accumulate in organisms such that those organisms can have a significant adverse effect on marine life that prey upon them. Such marine life includes, but is not limited to, demersal finfish, lobster, and marine mammals.

SPECIAL CONDITIONS

I. Best Management Practices for operation of the facility

1. Unless prohibited by prolonged periods of adverse weather, **the permittee shall remove fish carcasses from the net pens at least once per week**. However, when diseases of regulatory concern are present or suspected in the area of the facility, carcasses shall be removed more frequently in accordance with the requirements of the Department of Marine Resources or the US Department of Agriculture. Carcasses shall not be disposed of into the receiving waters, but instead shall be collected transported in leak-proof containers to an approved land-based disposal facility. Records of carcasses removed shall be maintained by the facility and made available to the Department and the Department of Marine Resources upon request.

2. The discharge of blood, viscera, or transport water containing blood associated with fish harvesting is prohibited.

3. There shall be no discharge of disinfectants, cleaning agents or similar products, except for losses that may occur incidental to the proper use of these agents. The facility shall maintain and follow best management practices for the use and control of these substances.

4. The discharge of solid waste is prohibited. The facility shall collect used feed bags and other solid wastes for transport, recycling and/or disposal at a recycling or disposal facility approved by the Department.

5. The use of biocidal chemicals for cleaning nets on-site is prohibited. The use of air-drying, mechanical and other non-chemical procedures to control net-fouling organisms is encouraged. On-site mechanical cleaning of nets is permitted only if done in accordance with a management plan to ensure that solids from these practices do not accumulate on the sea floor or cause or contribute to impairment of water quality standards, or non-compliance with the thresholds established in Special Condition G. In order to control diseases of regulatory concern, net cleaning procedures required by the Department of Marine Resources or the US Department of Agriculture shall be followed. The on-shore disposal of materials removed from nets must be in compliance with applicable state and local laws. In the event that sediment monitoring indicates a potential for impact from copper or other anti-fouling agents or other established impact limits, the Department may require the use of alternate practices to avoid such effects.

6. The use of materials containing or treated with tributyl tin (TBT) compounds is prohibited.

SPECIAL CONDITIONS

I. Best Management Practices for operation of the facility (cont'd)

7. When in use, **horizontal predator nets shall be maintained at least three (3) meters above the sea floor at all times**. Nets may not impede the current flow or tidal exchange so as to contribute to the deposition of solids that would impair water quality standards. Vertical predator nets may extend to the sea floor. The storage of predator control or containment nets on the sea floor is prohibited. Any net accidentally dropped or lost during storm events that is not recovered immediately shall be tagged with a float, positioned using differential GPS, numbered, and reported to the Department within 24 hours. The net shall be recovered within 30 days from the date lost, unless the Department allows a longer time in an individual case, and the Department shall be notified on the date the net is recovered.

8. **The permittee shall notify the Department of the termination, addition to or significant reorientation of the existing mooring systems with 15 days of said activity**. Such changes may warrant modifications to the benthic and other monitoring plan requirements.

9. **The permittee shall report to the Department within 24 hours, any unusual events at the facility that might cause a significant environmental impact**. Reportable "unusual events" would include, but not be limited to, fish kills (i.e. wild fish, and cultured fish beyond a weekly mortality rate exceeding 150% of the average in the preceding month), algae blooms, significant damage to nets or other equipment, interactions with marine mammals, or vessel collisions with the net pen system. Upon request by the Department, the permittee shall collect and preserve a water sample, and store it until such time that the Department can retrieve it.

J. Husbandry Practices. The permittee shall stock only a single year class of fish and fallow the site for a sufficient time to avoid the harboring or spread of diseases from one year class to the next. However, unless otherwise directed by agencies concerned with fish health, the facility may maintain fish used for broodstock purposes during the period. The carryover shall not exceed 10% of the total number of fish in the year class during the last production cycle. The facility must be in compliance with the Department of Maine Resources' rules on the importation of live marine organisms, Chapter 24 that, among other things, govern disease surveillance and reporting.

SPECIAL CONDITIONS

K. Use of drugs for disease control

1. Drugs approved by the FDA for aquacultural purposes may be used consistent with label instructions. Drugs authorized, but not approved, by the FDA may be discharged consistent with Special Condition K.3, below. All applications must comply with applicable FDA requirements. The use of vaccines as a preferred means to control disease is encouraged. The discharge of any approved drug administered as preventative measures is prohibited 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. The term "discharge" includes any drug or other chemical treatment that is introduced to the fish through injection, ingestion, or immersion at the facility.

2. When the need to treat or control diseases necessitates the use of a FDA approved drug not identified in a permittee's application or inconsistent with FDA label instructions, the permittee shall notify the Department as soon as becoming aware of such circumstances. If advance notice is not possible, the permittee shall notify the Department on the next business day after the use has begun. The notification shall include a description of the drug, its intended purpose, amount, concentration, duration of the use and information on aquatic toxicity. 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 such use.

3. The discharge of drugs authorized by the FDA for use during studies conducted under the Investigational New Animal Drug (INAD) program is prohibited unless in accordance with specific consent given in writing by the Department. Proposals for the use of investigational drugs must demonstrate that the minimum amount of drug necessary to evaluate its safety, efficacy, and possible environmental impacts will be used. Proposals must also include 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. The program must consider the possible effects on the water column, benthic conditions and organisms in or uses of the surrounding waters.

4. **The discharge of any drug or other disease control chemicals shall be reported to the Department within 30 days of the application**. Included in this report shall be the following: a) date and time of treatment; b) drug or disease control chemical used; c) concentration of drug or disease control chemical administered and total quantity used, including amount of feed used if applied through feed; d) approximate number of fish as well as number of pens treated; e) method of application; and f) predominant current direction during treatment.

SPECIAL CONDITIONS

K. Use of drugs for disease control (cont'd)

5. The permittee shall place signs at the perimeter of its leasehold to notify the public that drugs are or have been in use at that facility. The signs shall be maintained for the duration of the use and any withdrawal period following termination of use. The signs shall be at least 18 by 24 inches in size and read: ***"Medications are in use at this site. Contact the Maine Department of Environmental Protection or Great Bay Aquaculture, LLC for details"*** and include the DMR site designation of FREN-PI2.

L. Best Management Practices for spill control

Any event that leads to the discharge of oil (including but not limited to: motor fuels, heating fuels, lubricating and hydraulic oils, waste oils, and transformer mineral oils) or hazardous substances into the waters of the State, or adjoining shorelines in a quantity sufficient to cause a film or sheen upon the water, or cause a sludge or emulsion to be deposited beneath the surface of the water or upon the adjoining shoreline shall be reported to the Department via the State Police at 1-800-4552-4664 and the National Response Center at 1-800-424-8802.

The permittee shall maintain and implement a current Spill Prevention Control and Countermeasure (SPCC) Plan for the facility prepared by a Professional Engineer or other qualified professional. This plan shall be approved by the Department and include information and procedures related to the prevention of spills and unplanned discharges of petroleum products including diesel fuel, gasoline, lubrication oils, or any other hazardous materials used at the facility.

1. The plan shall provide a complete list, including quantities, of all petroleum products and other hazardous materials stored at and transferred between the facility, its support craft and its shore-based storage facilities. The plan shall be amended when petroleum products and other hazardous materials not currently listed are transferred to the facility, and a copy sent to the Department.

2. The plan shall include descriptions of the procedures, including routine equipment inspections, used to prevent, control and/or treat spills and unplanned discharges of petroleum products and other hazardous materials according to the type and magnitude of spill or discharge.

3. The plan shall include a description of the supplies and equipment maintained onsite that prevent, control or treat spills and unplanned discharges. Supplies should include spill kits sufficient to contain a spill equal to the amount of product or material at the facility.

4. The plan shall include a description of the reporting system that will be used to alert responsible facility management, potentially effected landowners and municipalities, and appropriate legal and regulatory authorities.

SPECIAL CONDITIONS

L. Best Management Practices for spill control (cont'd)

5. All members of the facility staff shall have an operation familiarity with the plan. Training shall include an annual mock spill exercise incident to review the response and reporting procedures of the plan. Documentation of staff training shall be made available to the Department upon request.

6. If the facility at any point becomes subject to the Oil Pollution Prevention regulations at 40 CFR Part 112 and stores oil in excess of the minimum threshold amounts listed in 40 CFR section 112.1(d)(2), then the SPCC Plan shall also include any additional conditions required by those regulations.

M. Quality assurance for environmental monitoring and containment systems.

Prior to any environmental data collection, infauna identification, analysis work, or containment system assessment associated with this permit, the facility shall provide to the Department documentation of the employee's or contractor's demonstrated capabilities to conduct such work. Additionally, sampling techniques and analysis methods that differ from those identified in this permit shall be provided to the Department for review and approval.

N. Monitoring and reporting.

Monitoring results required under Special Conditions E.6, E.7 and E.8 of this permit shall be summarized and reported on separate Discharge Monitoring Report (DMR) forms provided by the Department and **postmarked on or before the thirteenth (13th) day of the month or hand-delivered to a Department Regional Office such that the DMR's are received by the Department on or before the fifteenth (15th) day of the month** following the completed reporting period. A signed copy of the DMR and all other reports required herein shall be submitted to the Department's facility compliance inspector (unless otherwise specified) to the following address:

Maine Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Quality Management
Aquaculture Monitoring
106 Hogan Road
Bangor, Maine 04401

SPECIAL CONDITIONS

O. Reopening the Permit For Modifications

Upon evaluation of the tests results or monitoring requirements specified in 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 anytime and with notice to the permittee, modify this permit to; 1) include effluent limits necessary to control specific pollutants 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 shall remain in full force and effect, and shall 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

REFERENCES

APHA/AWWA/WPCF. 1992. Standard methods for examination of water and wastewater. 18th Ed. American Public Health Association, 1015 Fifteenth Street NW, Washington D.C. 20005. 1268 pp.

Borja, A., J. Franco, V. Perez. 2000. A marine biotic index to establish the ecological quality of soft-bottom benthos within European estuarine and coastal environments. Mar. Pol. Bul. 40: No. 12. 1100-1114.

USEPA. 1997. Methods for the Determination of Chemical Substances in Marine and Estuarine Environmental Matrices - 2nd Edition. (EPA/600/R-97/072). National Exposure Research Laboratory, Cincinnati, OH.

USEPA. 1995. QA/QC Guidance for Sampling and Analysis of Sediments, Water, and Tissues for Dredged Material Evaluations. (EPA 823-B-95-001). Office of Water, Washington, DC. Pp 50-100.

USEPA. 1986-1991. Recommended protocols for measuring selected environmental variables in Puget Sound. U.S. EPA Region 10, Puget Sound Estuary Program. Seattle, WA.

USEPA. 2000. Estuarine and Coastal Marine Waters: Bioassessment and Biocriteria Technical Guidance. (EPA 823-B-95-001). Office of Water, Washington, DC.

Wildish, D.J., H.M. Akagi, N. Hamilton, and B.T. Hargrave. 1999. A recommended method for monitoring sediments to detect organic enrichment from mariculture in the Bay of Fundy. Can. Tech. Rep. Fish. Aquat. Sci. 2286: 31p.

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE

FACT SHEET

Date: **September 7, 2007**

PERMIT NUMBER: **ME0036960**
LICENSE NUMBER: **W009015-5Q-A-N**
DMR SITE DESIGNATION: **FREN-PI2**

NAME AND ADDRESS OF APPLICANT

GREAT BAY AQUACULTURE, LLC
153 Gosling Road
Portsmouth, N.H. 03801

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Preble Island
Frenchman's Bay
Sorrento, Maine

COUNTY: **Hancock County**

RECEIVING WATER/CLASSIFICATION: **Frenchman's Bay, Class SB**

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: **Chris Duffy**
Operations Manager
(603) 430-8057

1. APPLICATION SUMMARY

a. Application – Great Bay Aquaculture LLC (GBA) has filed an application with the Department for a new combination Maine Pollutant Discharge Elimination System (MEPDES) permit #ME0036960/Maine Waste Discharge License (WDL) #W009015-5Q-A-N for the discharge(s) of wastes associated with the operation of an aquaculture facility located off the southern shore of Preble Island in Sorrento, Maine. GBA proposes to operate a facility that is experimenting with the cultivation of Atlantic cod. The facility will be located within the boundaries of an existing Maine Department of Marine Resources lease (FREN-PI2) currently leased to James West. The facility will occupy approximately 2.0 acres and be comprised of four (4) polar circles, each measuring 70 meters in circumference, a maximum of 100,000 fish stocking density target of 18 kg/m^3 and a maximum biomass of 360,000 kg.

1. APPLICATION SUMMARY

b. General Description of Finfish Aquaculture - Finfish aquaculture activities are conducted by placing fish in a system of one or more free-floating net pens moored in the open ocean. Most fish are introduced as juveniles and raised to adult size for harvest as a commercial food source. Some fish may be maintained as brood stock. The fish are grown or maintained by adding fish food and, as necessary, medications to the water. Currently, Atlantic salmon (*Salmo salar*) is the only species that is being reared in net pens on a broad commercial scale in Maine.

The majority of discharges from the facility are expected to come from fish excrement and unconsumed feed. The discharges increase significantly during the months of August, September and October when the fish are growing more rapidly in response to increased feeding and optimum growing conditions. Medications may be used to prevent or combat infectious disease or parasites. The US Food and Drug Administration (FDA) grants approval for specific uses of medications, although a veterinarian may prescribe an approved drug for a use or rate not described on its approved label. Additionally, FDA may authorize the use of Investigational New Animal Drugs ("INAD") and aquaculture facilities may wish to use such medications as part of studies of their effectiveness. Other discharges incidental to the operation of an aquaculture facility include fish scales, disinfectants used to prevent the spread of disease, marine growth removed from nets and anti-fouling agents used to treat nets.

The State's Department of Marine Resources (DMR) issues finfish aquaculture leases. The individual leases range in size from less than 2 acres to 45 acres. The Preble Island lease (currently leased to James West) has an area of 35.66 acres for the cultivation of blue sea mussels and sea scallops. James West is currently not utilizing the site for said cultivation. The GBA facility will only occupy approximately 1.86 acres or approximately 5% of the lease. This location has not been used for finfish aquaculture within the past five years but this location was last used for salmon aquaculture in 1996. A baseline video has been taken on May 25, 2007 and been submitted to the Department for review. On the same date, benthic samples were collected for archiving and a current meter has been placed to verify current data for the full tidal cycle. The permittee has indicated when that data is complete it will be forwarded to the Department.

The location of finfish aquaculture facilities is important to both their success in rearing fish and in minimizing environmental impacts. Typically, facility owners seek locations that provide adequate tidal flushing, appropriate water depths, temperatures and dissolved oxygen concentrations in order to optimize fish growth. Facilities must also be located in areas that avoid conflicts with other marine uses such as public access, fishing and navigation. Additionally, facility operators also consider other siting considerations and are concerned with sites that have very low winter water temperatures, damaging ice floes or that are subject to high wind or rough seas since all these conditions can contribute to increased mortality of stocked fish.

1. APPLICATION SUMMARY (cont'd)

The following italicized text is taken from the permittee's 8/3/07 permit application;

The primary objective and purpose of this project is to demonstrate the commercial and economic viability of cod farming as a profitable and sustainable alternate species for culture within the waters of the State. The commercial culture of cod is relatively new and not all of the parameters for the efficient and sustainable rearing of cod are as clearly known or as well defined as with other species currently being reared. This project will build upon existing knowledge and experience gained from other commercial species but will investigate and seek to adapt new technologies and methods specific to cod. As such the initial cages and netting will be as detailed for the first two cages to be installed in the fall of 2007, however for the second two cages to be installed in the spring of 2008, the applicants may seek funding to trial a fully enclosed submersible spherical cage (AquaPod) . The applicants will also investigate and may seek to trail new netting material for the "traditional" polar circle type cages. The numbers of fish and stocking densities will not be changed. It is noted the permittee has recently indicated fish will likely not occupy the site until 2008 due to a setback at the hatchery where the fish are being hatched and reared.

The initial source of the cod juveniles (Gadus Morhua) are from wild native stocks of brood fish spawned at the Great Bay Aquaculture hatchery. Juveniles will be transferred from GBA to the University of Maine's Center for cooperative Aquaculture Research (CAAR). After rearing to an approximate size of 50 to 100 grams they will be transferred to the site of this application.

The maximum amount of feed per month in the first year of operation is anticipated at 19,000 kg. The maximum amount of feed per month in the second year of operation is anticipated at 25,000 kg. The maximum amount of feed per month in the third year of operation is anticipated at 4,000 kg. The anticipated total amount of feed for the first year is 88 tons, 160 tons in the second year and 48 tons in the third year. As the feed conversion ratio for cod will change and increase as the fish grow and as commercial cod culture is relatively new and the optimal size for marketing has yet to be determined a precise FCR cannot be stated, but at present it is anticipated that the biological feed conversion ratio for the complete grow out cycle will be at or below 1.4 to 1. The fish will be fed from 1 to 5 times daily. The number of feedings will change throughout the growth cycle as the smaller fish generally require smaller but more frequent meals while larger fish require larger but less frequent meals. Feeding frequency is also influenced by water temperature and weather conditions. Initial feeding will be done by hand with a feed blower to be employed as feed amounts increase. All feeding will employ the use of underwater cameras to monitor feeding activity and to minimize the loss of uneaten feed.

1. APPLICATION SUMMARY (cont'd)

In salmon aquaculture, feeding activity is more completely understood with most feeding taking place near surface or higher in the water column so camera placement within the cage is better understood. However cod tend to feed lower in the water column and near bottom of the net. As part of this project it is intended to study and develop practices for the monitoring of feeding activity through the optimal placement of cameras or other monitoring equipment that may be used.

Medications will only be administered as may be required to maintain fish health and as prescribed by a veterinarian. Medications will not be administered as a prophylactic. The application of Slice (to our understanding) is not presently considered for use in cod, but has been listed, as in the event that sea lice should become a fish health risk for cod, the applicants may seek approval as an Investigational New Animal Drug (INAD).

The only anticipated use of chemicals will be disinfectants for hand washing, foot baths and the occasional disinfection of sundry equipment. Nylon nets will be treated with an anti-fouling agent (Flexguard) by the manufacturer. It is anticipated that the nets will be changed at least once and at a maximum twice per year with fouled nets returned to the manufacturer for cleaning and re-treatment. The applicants are presently investigating the potential use of plastic coated nylon nets that will not require the application of an antifoulant.

1. APPLICATION SUMMARY (cont'd)

c. Prebble Island Operations:

1. Historical: The DMR issued the most current aquaculture lease for the Preble Island site on March 22, 2002 in the name of James West. The lease is due to expire on March 22, 2012. The site was last stocked with salmon smolts in the spring of calendar year 1995 with harvesting of adult fish in the fall of 1996. The site has been fallowed since 1997.

d. Proposal - See Attachment B of this Fact Sheet for the proposed pen configurations. A summary of some of the operational and site conditions are as follows:

Water depth in pen areas @MLW:	≈24 – 25 meters
Minimum clearance from pen to sea floor	12 meters[(1)]
Sea floor composition	Silty gravel
Current:	
1/2 way between sea floor and net bottom	5.9 cm/s (measured May 2007)
Baseline monitoring conducted	May 2007
	Atlantic cod
Maximum number of fish/pen	25,000 mature
Maximum biomass of fish/pen	90,000 kg
Maximum number of fish/site	100,000 mature
Maximum biomass of fish/site	360,000 kg
Pen volume (individual)	6,369 m^3
Stocking Density	18 kg/m^3
Maximum feeding rate	25,000 kg/month
Maximum feed/year	145,500 kg
Feed Conversion Ratio (FCR)	1.4 kg feed/kg fish

Footnotes:

(1) The minimum clearance from the bottom of the net pen to the sea floor will be as stated for the polar circles. The minimum clearance may change if a submersible cage is trialed.

2. REGULATORY AUTHORITY

a. Maine Department of Environmental Protection - A permit for the operation of a finfish aquaculture facility is required pursuant to Maine Law, 38 MRSA section 413(10) and the Department's rules, Chapter 521(7). Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges require application of best practicable treatment, 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, 38 M.R.S.A., Section 420 and Department

Regulation Chapter 530, *Surface Water Toxics Control Program*, requires the regulation of toxic substances at the levels set forth for Federal Water Quality Criteria as published by the U.S. Environmental Protection Agency pursuant to the Clean Water Act.

On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (EPA) to administer the National Pollutant Discharge Elimination System (NPDES) program in Maine. From that point forward, the program has been referred to as the MEPDES program and will utilize a permit number of #ME0036960 as the primary reference number for the GBA Preble Island MEPDES permit.

b. Maine Department of Marine Resources (DMR) - Pursuant to 12 MRSA, subchapter II and 13-188 CMR, Chapters 2 and 24, the DMR has regulatory authority over these facilities. The DMR may issue leaseholds for the location and operation of aquaculture operations after considering, among other things, the effects on navigation, fishing, rights of riparian owners, natural resources and public uses. The DMR further regulates the transfer of fish into marine aquaculture operations and has responsibility for fish health issues.

Under Maine law, 12 MRSA, section 6072 (7-A), the DMR is required to make the following findings prior to granting a lease for an aquaculture facility:

1. The facility will not unreasonably interfere with the ingress and egress of riparian owners;

2. The facility will not unreasonably interfere with navigation;

3. The facility will not unreasonably interfere with fishing or other uses of the area taking into consideration the number and density of aquaculture leases in an area. For the purposes of this paragraph, "fishing" includes public access to a redeemable shellfish resource, as defined by the Department, for the purpose of harvesting, provided that the resource is commercially significant and subject to a pollution abatement plan that predates the lease application, that includes verifiable activities in the process of implementation and that is reasonably expected to result in the opening of the area to the taking of shellfish within 3 years;

2. REGULATORY AUTHORITY (cont'd)

4. The facility will not unreasonably interfere with the ability of the lease site and surrounding areas to support existing ecologically significant flora and fauna;

5. The applicant has demonstrated that there is an available source of organisms to be cultured for the lease site; and

6. The lease does not unreasonably interfere with public use or enjoyment within 1,000 feet of municipally owned, state owned or federally owned beaches and parks or municipally owned, state owned or federally owned docking facilities."

These considerations are similar to, or more stringent than, those necessary to determine if the narrative water quality are met, and represent the findings of another State agency having expertise in these matters. In the absence of other information, the Department of Environmental Protection would normally place significant weight on the DMR's findings. Similarly, the US Army Corps of Engineers is considered to be experts on issues of navigation.

On March 22, 2002, the DMR issued an Aquaculture Lease to James West for submerged land totaling 35.66 acres off the southern shore of Preble Island in the Town of Sorrento. The 35.66-acre parcel is described by meets and bounds in the lease. The DMR has assigned a site designation of FREN-PI2 for the 35.66-acre lease site. The lease expires on March 12, 2012.

c. U.S. Army Corps of Engineers (ACOE) - The ACOE acting pursuant to Section 10 of the Rivers and Harbors Act of 1899, permits the installation of net pen containment systems in which aquaculture activities are conducted. The ACOE issued a permit to James West for the placement of floating fish pens structures within said site.

3. WATER QUALITY CLASSIFICATION STANDARDS

Maine law, 38 M.R.S.A., §469 states that the marine waters in an around the 36-acre DMR lease site are classified as Class SB waters. Maine law, 38 M.R.S.A., §465-A(2) states;

Class SB waters shall be of such quality that they are suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation and navigation and as habitat for fish and other estuarine and marine life. The habitat shall be characterized as unimpaired.

The dissolved oxygen content of Class SB waters shall be not less than 85% of saturation. Between May 15th and September 30th, the numbers of enterococcus bacteria of human origin in these waters may not exceed a geometric mean of 8 per 100 milliliters or an

3. WATER QUALITY CLASSIFICATION STANDARDS (cont'd)

instantaneous level of 54 per 100 milliliters. The numbers of total coliform bacteria or other specified indicator organisms in samples representative of the waters in shellfish harvesting areas may not exceed the criteria recommended under the National Shellfish Sanitation Program Manual of Operations, Part I, Sanitation of Shellfish Growing Areas, United State Department of Food and Drug Administration.

Discharges to Class SB waters shall not cause adverse impact to estuarine and marine life in that the receiving waters shall be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. There shall be no new discharge to Class SB waters which would cause closure of open shellfish areas by the Department of Marine Resources.

Maine law, 38 MRSA, Section 464 (4)(F) contains the State's antidegradation policy. The law states that existing discharges must, among other things, not cause existing uses or cause the classification standards to be violated. In addition, waters of higher quality must be maintained at that level. Water quality monitoring information will be used to assist the Department in evaluating existing facilities.

4. POTENTIAL WATER QUALITY IMPACTS

Finfish aquaculture facilities can cause changes in the immediate area of the net pens. Some deposition of material, primarily uneaten feed and feces, on the sea floor directly beneath and adjacent to net pens can be expected. This permit makes provisions for some adverse impacts within the benthic mixing zone, but all classification standards must be maintained outside the mixing zone. The deposition of organic materials on the sea floor can, through decomposition, result in depletion of oxygen in the sediments composing the sea floor. This, in turn, can render the area unsuitable for a normal number and diversity of natural organisms. Such conditions, which may occur in varying degrees, may be evidenced by reduced Redox Potential, the formation of gas in the sediment, the predominance of undesirable organisms or the loss of certain species. Since most of the accumulating material is biodegradable through natural processes, the reduction or suspension of aquaculture activities (fallowing) is anticipated to allow mitigation of benthic impacts without long term impacts.

The large number of fish in the net pens may, within the immediate water column, reduce dissolved oxygen concentrations due to respiration. The result may be DO saturation standards not being achieved under all conditions during the summer months. However, it should be noted that minimum dissolved oxygen concentrations measured by DMR's FAMP program have been more than adequate to sustain all marine life. This permit establishes a minimum dissolved oxygen concentration of 6.0 mg/L within the water column mixing zone and the saturation levels prescribed by the respective classification standards must be maintained outside the mixing zone at all times.

4. POTENTIAL WATER QUALITY IMPACTS (cont'd)

Aquaculture facilities may harbor diseases or parasites that could spread to native organisms or farmed fish at other aquaculture facilities. The use of disinfectants is a necessary part of preventative practices, and the Department supports their use consistent with recommendations of fish health authorities. However, the use of medications and disinfectants pose potential concerns for toxicity if discharged in excessive amounts. These effects include acute toxicity to non-target aquatic organisms in the immediate area of use, chronic effects on benthic organisms and bioaccumulation in the food chain.

The placement of net pens in the water does limit certain narrative uses of the water body. These concerns include fishing and navigation. Aesthetic concerns including visual impacts, noises from the operation of equipment and boat traffic, have also been raised. These arise from the physical placement of the pens, not discharge activities, and are therefore are not subject to regulation as pollutant discharges under this permit. However, the DMR lease approval process and the US Army Corps of Engineers permit for the Preble Island aquaculture operations considered these topics such that the public concerns and interests are protected.

5. SITE CONDITIONS

A document entitled, State of Maine Department of Environmental Protection, 2006 Integrated Water Quality Monitoring and Assessment Report, published by the Department indicates Frenchman's Bay is attaining the standards of its ascribed classification.

Baseline video and benthic sampling for this project was conducted on May 25, 2007. The Department and DMR have reviewed the information and determined the conditions at the site are currently suitable for the restocking of fish.

6. SUMMARY OF EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

This permitting actions establishes:

a. A water column mixing zone extending out 30 meters beyond the perimeter of the net pen.

b. A sediment mixing zone extending out 30 meters beyond the perimeter of the net pen.

c. Seasonal far-field ambient water quality monitoring.

d. Seasonal near-field ambient water quality monitoring.

e. Sediment and benthic monitoring programs.

6. SUMMARY OF EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont'd)

f. Numeric impact thresholds for sediments and the benthic community.

g. Routine video and photographic monitoring.

h. Best management practices for the operation of the net pens.

i. Certain husbandry practices for the facility operations.

j. Limitations on the use of drugs for disease control.

k. Best management practices for spill control via the development and maintenance of a Spill Prevention Control and Countermeasure (SPCC) plan.

l. Submission of monitoring results to the Department via Discharge Monitoring Report (DMR) forms.

7. DISCHARGE IMPACT ON RECEIVING WATER QUALITY

As permitted, the Department has made a determination based on a best professional judgment that the existing water uses will be maintained and protected and the discharge will not cause or contribute to the failure of the waterbody to meet standards for Class SB classification or cause unreasonable degradation of marine waters and will be in compliance with the State's antidegradation policy found at 38 MRSA, section 464 (4)(A)(11).

8. PUBLIC COMMENTS

Public notice of this application was made in the Ellsworth American newspaper or about July 30, 2007. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft permits shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

9. DEPARTMENT CONTACTS

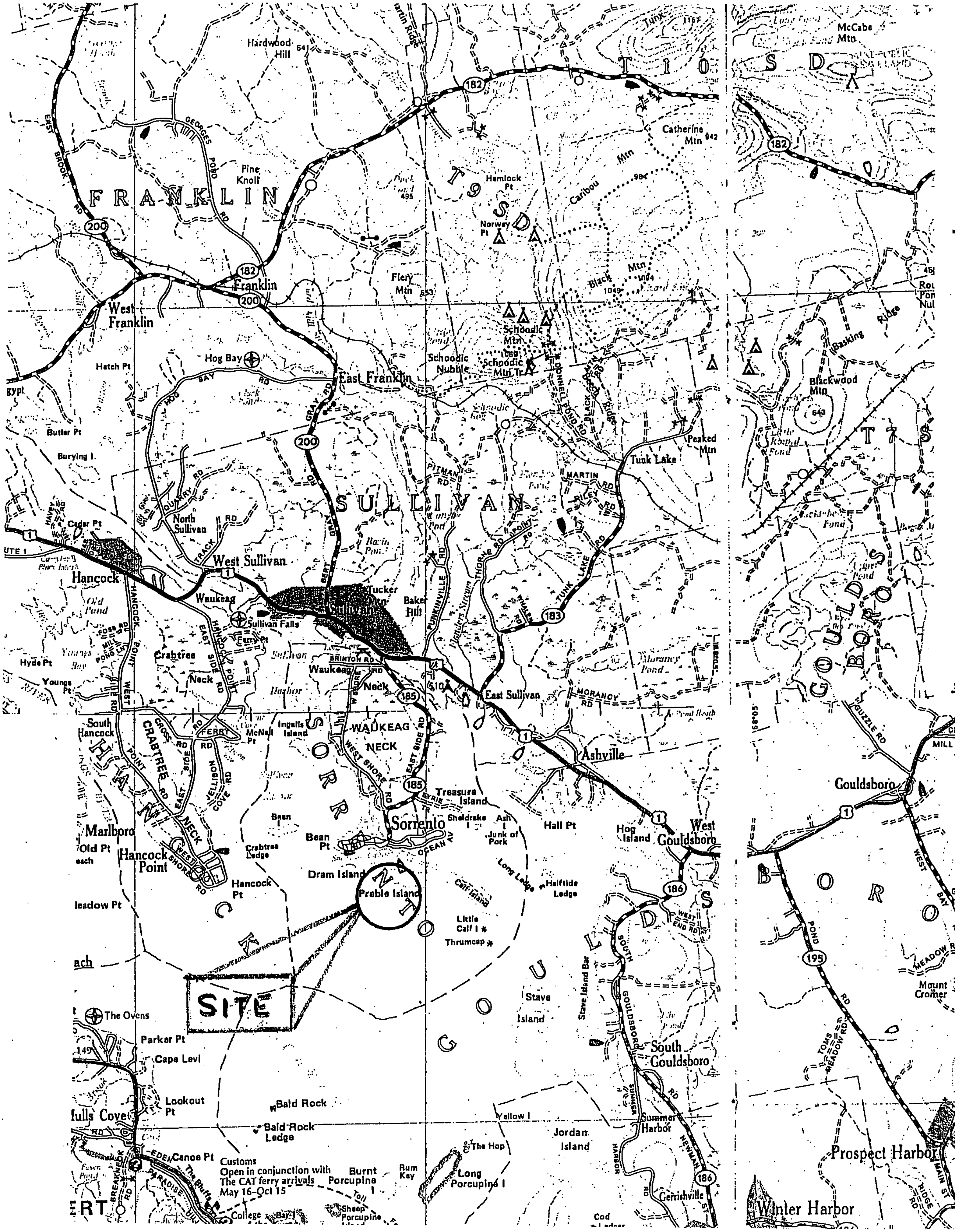
Additional information concerning this permitting action may be obtained from and written comments should be sent to:

Gregg Wood
Division of Water Quality Management
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017 Telephone (207) 287-3901
E-mail: gregg.wood@maine.gov

10. RESPONSE TO COMMENTS

During the period of September 7, 2007, 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 GBA operation in Sorrento. The Department did not receive comments from the permittee, state or federal agencies or interested parties that resulted in any substantive change(s) in the terms and conditions of the permit. Therefore, the Department has not prepared a Response to Comments.

ATTACHMENT A



FRANKLIN
SULLIVAN
SORRENTO
HANCOCK
GOULDSBORO
T 10 S D
T 9 S D
T 7 S
Hardwood Hill
Pine Knoll
Franklin
West Franklin
East Franklin
Hog Bay
Hatch Pt
Butler Pt
Burying I.
Fiery Mtn
Schoodic Mtn
Schoodic Nubble
Black Mtn
Caribou Mtn
Catherine Mtn
Hemlock Pt
Norway Pt
Tunk Lake
Peaked Mtn
McCabe Mtn
Blackwood Mtn
Basking Ridge
North Sullivan
West Sullivan
Cedar Pt
Hancock
Waukeag
Sullivan Falls
Sullivan
Tucker Mtn
Baker Hill
Ferry Pt
Crabtree Neck
Hyde Pt
Youngs Pt
Waukeag Neck
East Sullivan
Ashville
South Hancock
Ingalls Island
McNeil Pt
Treasure Island
Sorrento
Bean Pt
Bean
Sheldrake
Ash
Junk of Pork
Hall Pt
Hog Island
West Gouldsboro
Gouldsboro
Marlboro
Old Pt
Hancock Point
Hancock Pt
Crabtree Ledge
Dram Island
Preble Island
Long Ledge
Halftide Ledge
Calf Island
Little Calf I
Thrumcap
Meadow Pt
SITE
Stave Island
Stave Island Bar
The Ovens
Parker Pt
Cape Levi
Lookout Pt
Hulls Cove
Bald Rock
Bald Rock Ledge
Canoe Pt
Customs
Open in conjunction with
The CAT ferry arrivals
May 16-Oct 15
Burnt Porcupine
Rum Key
Long Porcupine I
The Hop
Yellow I
Jordan Island
South Gouldsboro
Summer Harbor
Gerrishville
Prospect Harbor
Winter Harbor
Mount Cromer
Sheep Porcupine
College
Cod Ledges
182
200
183
185
186
195
1

West, James
James West
22 Pond Street
Sorrento, ME 04677
207-422-3897 Fax:

Description: South of Preble Island Frenchman Bay Sorrento Hancock County

Species Cultivated: mussel blue sea (Mytilus edulis) - scallop sea (Placopecten magellanicus)

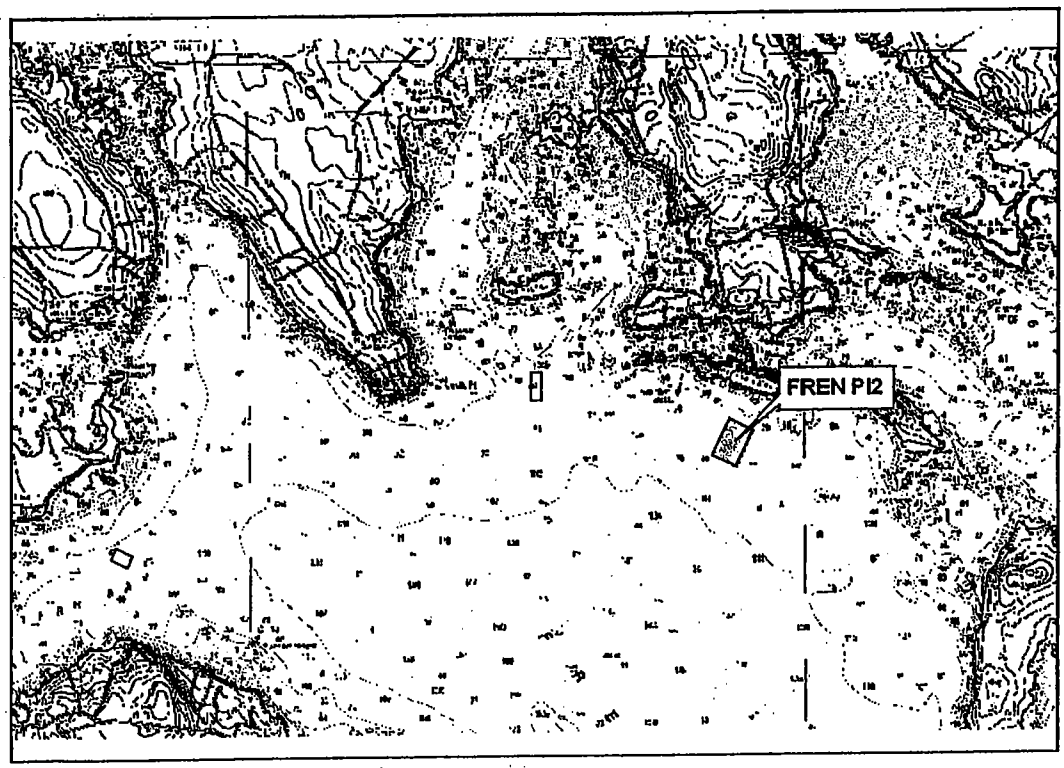
Cultivation Technique(s): Suspended

Conditions: Navigation shall be allowed on the open areas of the lease; the lease area shall be marked in accordance with U.S. Coast Guard and Department of Marine Resources regulations Chapter 2.80.

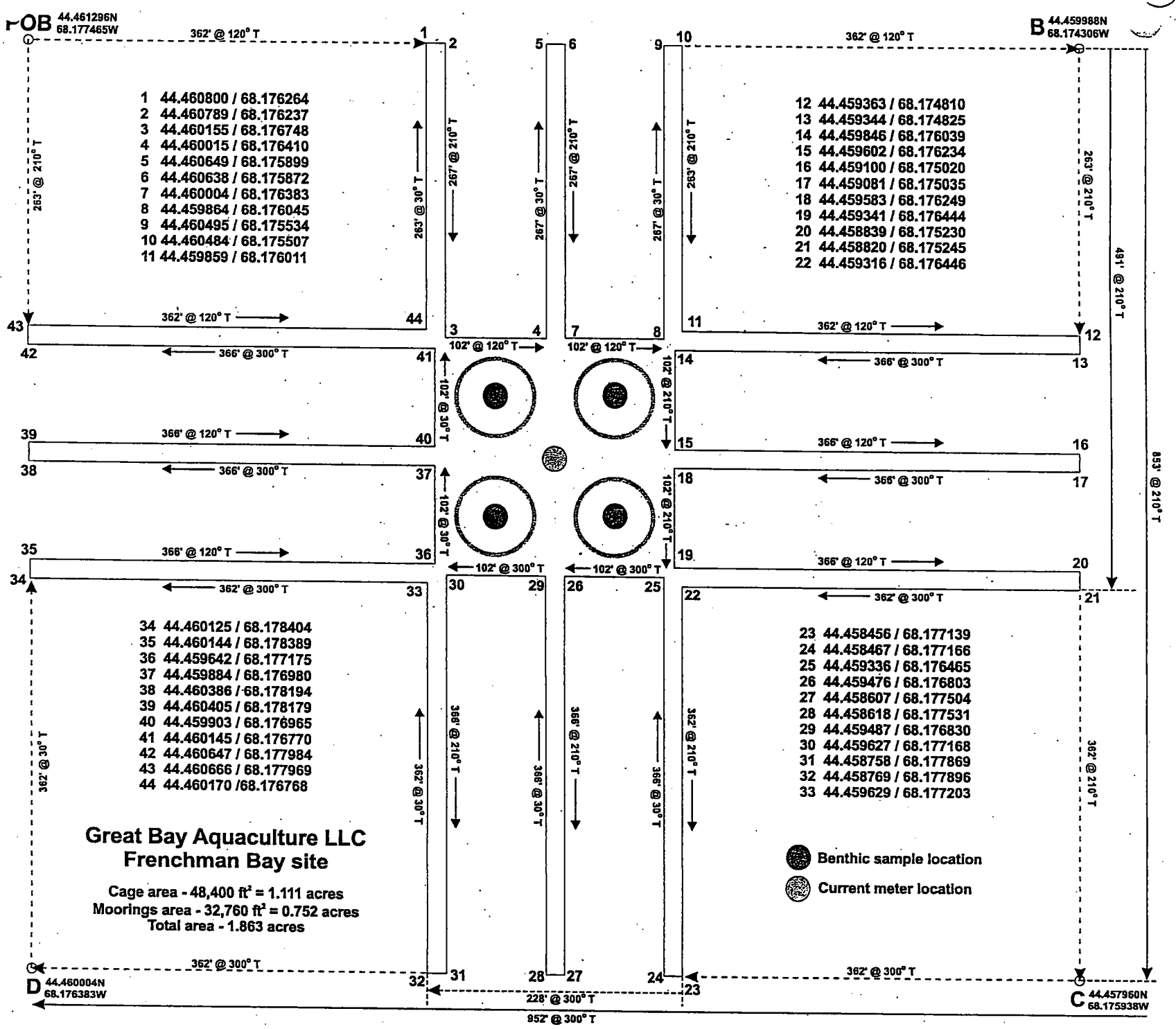
Original Date: 3/22/2002 **Effective Date:** 3/22/2002 **Expiration Date:** 3/21/2012

Transfer/Renewal History:

Acreage: 35.66 **NOAA Chart:** 13318



ATTACHMENT B



Prepared by *MER Assessment Corporation* 5-12-07

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

STANDARD CONDITIONS APPLICABLE TO ALL PERMITS

CONTENTS

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).

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 if 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 MAINTENACE 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

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.

(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.

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.

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

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).

(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.

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 contaminates 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.

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.

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.