DRAFT AUTHORIZATION TO DISCHARGE UNDER
THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act as amended, 33 U.S.C. §§ 1251 et seq. (the "CWA"),

SouthCoast Wind LLC

is authorized to discharge from a facility located at

SouthCoast Wind Project
BOEM Renewable Lease Area OCS-A 0521

to receiving water named

Atlantic Ocean

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This Permit shall become effective on [*the first day of the calendar month immediately following 60 days after signature*].[1]

This Permit expires [*at midnight, five years from the last day of the month preceding the effective date*].

This Permit consists of this **cover page**, **Part I**, **Attachment A** (Biological and Thermal Monitoring Requirements), **Attachment B** (SouthCoast Wind Intake Screen Design) and **Part II** (NPDES Part II Standard Conditions, April 2018).

Signed this day of

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Ken Moraff, Director
Water Division
Environmental Protection Agency
Region 1
Boston, MA

[1] Pursuant to 40 Code of Federal Regulations (CFR) § 124.15(b)(3), if no comments requesting a change to the Draft Permit are received, the Permit will become effective upon the date of signature. Procedures for appealing EPA's Final Permit decision may be found at 40 CFR § 124.19.

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the Permittee is authorized to discharge non-contact cooling water, filter backwash, freshwater cooling system pumps/drains, and HVAC drains from the offshore converter station #1 ("facility"), through Outfall Serial Number 001 to the Atlantic Ocean. The intake and discharge shall be limited and monitored as specified below.

Effluent Characteristic	Effluent Limitations		Monitoring Requirements[1,2,3]	
	Average Monthly	Maximum Daily	Measurement Frequency[4]	Sample Type
Effluent Flow[5]	4.8 MGD	9.9 MGD	Continuous	Meter
Ambient pH[6]	Report Minimum and Maximum S.U.		1/Month	Meter
Effluent pH[6]	Report Minimum and Maximum S.U.		1/Month	Meter
Total Residual Oxidants (TRO)[7]	7.5 µg/L Compliance level = 30 µg/L	13 µg/L Compliance level = 30 µg/L	Continuous	Meter
Temperature	79.5°F	83.3°F	Continuous	Meter
Through-screen Intake Velocity[8]	---	≤0.5 fps	Continuous	Calculated

Footnotes:

1. Effluent samples shall yield data representative of the discharge. A routine sampling program shall be developed in which samples are taken at the discharge point to the receiving water, prior to co-mingling with stormwater and the receiving water. Changes in sampling location must be approved in writing by the Environmental Protection Agency Region 1 (EPA). The Permittee shall report the results to EPA of any additional testing beyond that required herein, if testing is done in accordance with 40 CFR Part 136.

2. In accordance with 40 CFR § 122.44(i)(1)(iv), the Permittee shall monitor according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O, for the analysis of pollutants or pollutant parameters. A method is "sufficiently sensitive" when: 1) the method minimum level (ML) is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or 2) the method has the lowest ML of the analytical

methods approved under 40 CFR Part 136 or required under 40 CFR chapter I, subchapter N or O for the measured pollutant or pollutant parameter. The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; they may be based on the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor.

3. When a parameter is not detected above the ML, the Permittee must report the data qualifier signifying less than the ML for that parameter (e.g., < 50 µg/L, if the ML for a parameter is 50 µg/L). For calculating and reporting the average monthly concentration when one or more values are not detected, assign a value of zero to all non-detects and report the average of all the results. The number of exceedances shall be enumerated for each parameter in the field provided on every Discharge Monitoring Report (DMR). All meters shall be calibrated no less frequently than required by the manufacturer.

4. Measurement frequency of 1/Month is defined as the sampling of one discharge event in each calendar month. Measurement frequency of 2/year is defined as the sampling of one discharge event during the first six months of the calendar year and one discharge event during the second six-month period of the calendar year. The first six months is defined as January through June, inclusive, and the second six months is defined as July through December, inclusive. A continuous measurement frequency must be continuously measured and recorded with a meter. If no sample is collected during the measurement frequencies defined above, the Permittee must report an appropriate No Data Indicator Code.

5. Effluent flow shall be reported in million gallons per day (MGD).

6. The minimum and maximum pH sample measurement values for the month shall be reported in standard units (S.U.). pH sampling must be conducted for a minimum of 12 months during the commissioning period of the offshore converter station. Effluent samples shall be collected downstream from the heat exchangers. Ambient samples shall be collected from either a location as close to the cooling water intake as is safely possible or from a reference location representative of, but outside the influence of, the outfall. Results shall be reported in the discharge monitoring report (DMR). After the commissioning period, the Permittee shall submit a summary report of the results of the ambient and effluent pH. If sampling demonstrates that all effluent pH samples are within the expected range of 6.5 to 8.5 standard units (S.U.) and the difference in effluent and ambient pH is within the range of naturally occurring variation (0.2 S.U.), the Permittee may request elimination of pH monitoring. Monitoring must continue as specified above until receiving written authorization by EPA to cease pH sampling.

7. For the purposes of this Permit, total residual oxidants (TRO) analysis must be completed using a test method in 40 CFR Part 136 that achieves a minimum level of detection no greater than 30 µg/L. The compliance level for TRO is 30 µg/L.

8. Through-screen velocity must be estimated for each intake pipe at a location representative of the point of entry through the screen or other exclusionary device. Through-screen velocity must be estimated based on pump pressure and flow rate and must be achieved under all conditions including during periods of maximum head loss across the screens during operation of the cooling water intake structure. The Permittee must program their Integrated Control and Monitoring System (ICIMS) with an alarm that is triggered when the calculated TSV is increasing toward the limit of 0.5 fps based on measures of head loss, pump speed, and intake flow. When this occurs, the Permittee must set into motion corrective actions designed to ensure compliance with the limit is maintained. See Part I.C.2.a(7).

Part I.A. continued.

2. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify EPA as soon as they know or have reason to believe (40 CFR § 122.42):

   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":

      (1) 100 micrograms per liter (µg/L);
      (2) 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (mg/L) for antimony;
      (3) Five times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
      (4) Any other notification level established by EPA in accordance with 40 CFR § 122.44(f).

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

      (1) 500 µg/L;
      (2) One mg/L for antimony;
      (3) 10 times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR § 122.21(g)(7); or
      (4) Any other notification level established by EPA in accordance with 40 CFR § 122.44(f).

   c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

B. UNAUTHORIZED DISCHARGES

1. This Permit authorizes discharges only from the outfall(s) listed in Part I.A.1, in accordance with the terms and conditions of this Permit. Discharges of wastewater from any other point sources are not authorized by this Permit and shall be reported in accordance with Part II. D.1.e of this Permit (Standard Conditions 24-hour reporting).

2. The discharge of any PFAS-containing substances from the offshore converter station #1 is prohibited.

C. SPECIAL CONDITIONS

1. Discharges of Chemicals and Additives

   a. The discharge of any chemical or additive, including chemical substitution, that was not reported in the application submitted to EPA or provided through a subsequent written notification submitted to EPA is prohibited.
   b. Upon the effective date of this Permit, chemicals and/or additives that have been disclosed to EPA may be discharged up to the frequency and level disclosed, provided that such discharge does not violate §§ 307 or 311 of the CWA.
   c. Discharges of a new chemical or additive are authorized under this Permit 30 days following written notification to EPA unless otherwise notified by EPA. To request authorization to discharge a new chemical or additive, the Permittee must submit a written notification to EPA in accordance with Part I.D.3 of this Permit. The written notification must include the following information, at a minimum, for each chemical and/or additive that will be discharged:

      (1) Product name, chemical formula, general description, and manufacturer of the chemical/additive;
      (2) Purpose or use of the chemical/additive;
      (3) Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
      (4) The frequency (e.g., hourly, daily), magnitude (i.e., maximum application concentration), duration (e.g., hours, days), and method of application for the chemical/additive;
      (5) If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC_{50} in percent for aquatic organism(s)) for the chemical/additive.
      (6) The Permittee must also submit a written rationale that demonstrates that the discharge of such chemicals and/or additives as proposed: 1) will not add any pollutants in concentrations that exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to, those currently in this Permit.

2. Cooling Water Intake Structure Requirements

   a. The design, location, construction, and capacity of the cooling water intake structure (CWIS) shall reflect the best technology available (BTA) for minimizing adverse environmental impacts from the impingement and entrainment of all life stages of fish (e.g., eggs, larvae, juveniles, and adults) by the CWIS. Nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act. The following requirements have been determined to represent the BTA for minimizing impingement and entrainment at this facility:

      (1) The Permittee must design, construct, and operate the CWIS with a design through-screen intake velocity no greater than 0.5 feet per second. The Permittee must calculate velocity at the point of entry through the screen based on intake flow and pump speed and report the maximum actual through-screen velocity in the monthly discharge monitoring report. See Part I.A.1 of the Permit.

      (2) The opening of the intake must include a screen as specified in the SouthCoast August 23 Memo submitted to EPA (*see* Attachment B of the Draft Permit), with openings no greater than 5 inches by 5 inches to exclude large aquatic organisms and constructed with anti-fouling alloys and/or materials that have been treated with anti-fouling coatings to minimize biological growth.

      (3) Permittee must operate variable frequency drives on the seawater lift pumps to withdraw the minimum amount of water actually needed to address cooling water needs based on ambient water temperature and electrical demand and achieve a maximum total CWIS intake flow of 9.9 MGD and an average CWIS monthly intake flow of 4.8 MGD.

      (4) The CWISs must be located at a depth between 10 to 20 meters above pre-construction seafloor grade (32.8 to 65.6 feet), provided the CWISs can be relocated in accordance with requirement (6) below.

      (5) The CWISs must be located outside the Enhanced Mitigation Area as defined by BOEM's Final EIS.

      (6) The CWISs must be located in waters at or greater than 50 meters in depth, away from the benthic ridge feature, to avoid adverse impact on essential fish habitat.

      (7) In the event that the calculated through-screen velocity exceeds 0.5 fps, the Permittee must implement best management practices to limit, diagnose and resolve the issue as soon as possible. At a minimum, the Permittee shall to the maximum extent practicable halt or reduce the rate of the pump with observed higher power

demand to reduce the through-screen velocity to 0.5 fps or less. The Permittee shall include a description of the event, the steps taken to limit, diagnose and resolve the issue, and the time elapsed before the through-screen velocity returned to 0.5 fps or less, in an attachment to the next subsequent monthly discharge monitoring report.

b. Any changes in the design or capacity of the CWISs that do not meet the requirements of (1) through (7) above are prohibited unless approved in writing by the EPA through a permit modification.

c. The Permittee shall submit a closed-cycle cooling retrofitting feasibility study. The study must provide engineering and cost information regarding retrofitting the OCS-DC1 with closed-cycle or closed-loop cooling and must be submitted to EPA with the next permit application (i.e., six months before permit expiration).

3. Ambient Monitoring

a. Biological Monitoring

The Permittee must conduct ichthyoplankton and zooplankton monitoring in accordance with the study design specified in Attachment A to this Permit. At a minimum, monitoring must be conducted over a 48-hour period each quarter at two depth zones: within the estimated Hydraulic Zone of Influence depth of the CWIS and the full water column. Sampling must begin no later than the first year of full-scale operation to verify the performance of the technologies and operational measures to minimize adverse environmental impact. Ichthyoplankton and zooplankton monitoring may begin prior to the first year of full-scale operation provided that cooling water withdrawals during the sampling period are representative of withdrawals during full-scale operation (i.e., at cooling water flows, effluent temperature, and TRO concentrations representative of planned operations). The Permittee may request a reduction in frequency for quarterly ichthyoplankton and zooplankton monitoring after four full years of monitoring during conditions representative of full-scale operations. Monitoring must continue as specified in the Permit until written authorization by EPA is received authorizing any changes in such monitoring.

b. Thermal Monitoring

The Permittee must conduct an ambient thermal monitoring program in accordance with the study design specified in Attachment A to this Permit. Ambient thermal monitoring must be conducted during spring of the second year of full-scale operation to verify the assumptions of the thermal model and document the extent of the thermal plume.

c. Ambient Monitoring Reports

The Permittee shall submit an annual report summarizing the results of the ambient monitoring effort no later than March 15th of the following year. The report shall summarize the daily and monthly effluent flow at the offshore converter station, the results of the biological monitoring as required in (a), and, when applicable, the results of the thermal monitoring as required in (b). The Permittee must submit electronic copies of this report and provide the corresponding data in .csv or .xlsx format to the NPDES Applications Coordinator as provided in Part I.D.3 and to the National Marine Fisheries Service at NMFS.GAR.HESDoffshorewind@noaa.gov.

4. Best Management Practices (BMPs)

The Permittee shall design, install, and implement control measures to minimize the discharge of pollutants from the operations at the facility to the receiving water. At a minimum, the Permittee must implement control measures, both structural controls (e.g., oil/water separator (OWS), containment areas, holding tanks) and non-structural measures (e.g., operational procedures and operator training).

a. The use and/or storage of PFAS-containing firefighting foams or other liquids at the offshore converter station #1 is prohibited.

b. The Permittee must comply with the following specific requirements related to the potential discharge of glycols:

(1) Pumps must have a drip pan for the collection of leaks and/or spills, which must be either plugged or directed to the glycol-water contaminated drain system;
(2) All other freshwater system locations subject to leaks and/or spills must be either plugged or connected to the glycol-water contaminated drain system;
(3) All drip pans must be inspected during regular manned maintenance activities and cleaned if contaminants are present;
(4) A glycol analyzer shall be maintained within the condensate tank;
(5) If glycol is detected in the condensate tank, the entire tank contents must be drained to the closed drain tank for offshore disposal;
(6) There shall be no intentional discharge of glycol or wastewater containing glycol from the facility; and
(7) All drains must be plugged during maintenance activities and any potential spills from maintenance activities must be cleaned before the drain route is re-opened.

c. The Permittee must comply with the following specific requirements related to the discharge of stormwater exposed to industrial activities:

(1) The OWS must be capable of treating oil and grease to a level of 5 ppm and be maintained to continue its effectiveness, including the regular removal of accumulated oil and solids from the OWS;
(2) Oil-emulsifying cleaning solutions (detergents) shall not be used in areas that flow into the OWS;
(3) All stormwater exposed to industrial activity, that is not routed directly to the closed drain tank, must be treated through the OWS;
(4) Stormwater flows above the design capacity of the OWS must be directed to the closed drain tank;
(5) The closed drain tank must be emptied prior to all major storm events;
(6) The OWS must include alarms and a diversion device which prevents high flows to the OWS and the discharge of oil and grease above 5 ppm;
(7) The oil content monitors (OCMs) must be capable of measuring oil and grease to a level of 5 ppm and be calibrated at least annually;
(8) The discharge OCM must never read above 5 ppm during discharges from the offshore converter station #1;
(9) The Permittee shall submit the design specifications of any OCM used, including detection limits and calibration schedules to EPA within one year of the effective date of the permit;
(10) The Permittee shall keep a record of any maintenance done to the OWS and all calibrations of the OCMs;
(11) The Permittee shall keep a record of any discharge events where the 5 ppm oil and grease level was exceeded, including the estimated flow volume of the event;
(12) The Permittee shall implement best management practices to limit, diagnose and resolve > 5 ppm discharge events as soon as possible, and shall record the steps taken to diagnose and resolve the event, including the time that elapsed from when the event began to its resolution; and
(13) All records must be kept for at least three years and made available to EPA upon request.

d. The Permittee must comply with the following limitations described in Part 2.1.2 and of EPA's Multi-Sector General Permit (MSGP):

(1) Minimize exposure of operating and material storage areas to stormwater discharges;
(2) Design good housekeeping measures to maintain areas that are potential sources of pollutants;
(3) Implement preventative maintenance programs to avoid leaks, spills, and other releases of pollutants that could be exposed to stormwater that is discharged to receiving waters. The Permittee shall report immediately the appearance of a sheen of any size attributable to the discharge from the offshore converter station

#1 to the appropriate U.S. Coast Guard Officer in accordance with Section 311 of the Clean Water Act (CWA);

(4) Implement spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur;

(5) Utilize runoff management practices to divert, reuse, contain, or otherwise reduce stormwater runoff;

(6) Develop proper handling procedures for salt or materials containing chlorides that are used for snow and ice control, if applicable;

(7) Conduct employee training to ensure personnel understand the requirements of this Permit; and

(8) Evaluate for the presence of non-stormwater discharges. Any non-stormwater discharges not explicitly authorized in the Final Permit or covered by another NPDES permit must be eliminated.

e. In addition to the general MSGP-based limitations described above, the Permittee must design, install, and implement the following BMPs:

(1) Comply with the control measure requirements in Part 2.1 and 2.1.1 of the 2021 MSGP in order to identify pollutant sources and select, design, install and maintain the pollution control technology necessary to meet the applicable requirements in this Permit that ensure dilution is not used as a form of treatment;

(2) Annually inspect the offshore converter station #1 in accordance with the inspection requirements in Part 3.1 of the 2021 MSGP and take the appropriate corrective actions as set forth in Part 5.1 of the 2021 MSGP;

(3) Document the measures and methods used to control flow through the treatment system to ensure that the design flow of the treatment system is not exceeded.

5. Stormwater Pollution Prevention Plan

The Permittee shall develop a Stormwater Pollution Prevention Plan (SWPPP) to document the selection, design and installation of control measures, including BMPs, selected to meet the applicable requirements in this Permit, and, consistent with the 2021 MSGP, to minimize the discharge of pollutants from the operations at the facility to the receiving water. The SWPPP shall be a written document and consistent with the terms of this Permit.

a. The SWPPP shall be developed and signed consistent with the signatory requirements in Part II.D.2 of this Permit within one year after the effective date of this Permit.

b. The SWPPP shall be consistent with the general provisions for SWPPPs included in Part 6 of EPA's 2021 MSGP. The SWPPP shall be prepared in accordance with good engineering practices and manufacturer's specifications. The SWPPP must identify potential sources of pollution that may reasonably be expected to affect the quality of the stormwater discharges and document the implementation of non-numeric technology based effluent

limitations in Part I.C.4 that will be used to reduce the pollutants and assure compliance with this Permit, including any corrective action taken when non-compliance occurs. Specifically, the SWPPP shall contain the elements listed in Parts 6.2.1 through 6.2.5 of the 2021 MSGP and briefly described below:

(1) Stormwater pollution prevention team;
(2) Site description;
(3) Drainage area site map;
(4) Summary of potential pollutant sources;
(5) Description of all stormwater control measures; and
(6) Schedules and procedures pertaining to implementation of stormwater control measures, inspections and assessments, and monitoring.

c. The Permittee shall amend and update the SWPPP within 14 days of any changes at the facility affecting the SWPPP. Changes that may affect the SWPPP include, but are not limited to: a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States; a release of a reportable quantity of pollutants as described in 40 CFR § 302; a determination by the Permittee or EPA that the SWPPP appears to be ineffective in achieving the general objective of controlling pollutants in stormwater discharges associated with industrial activity; and revisions or improvements are made to the stormwater management program based on new information and experiences with wet weather events. Any amended or new versions of the SWPPP shall be re-certified by the Permittee. Such re-certifications also shall be signed in accordance with the requirements identified in Part II.D.2 of this Permit.

d. The Permittee shall certify at least annually that the previous year's required inspections, corrective actions, control measures, and training activities were conducted, results were recorded, and records were maintained, as described. If the facility is not in compliance with any limitations and/or BMPs, the annual certification shall state the non-compliance and the remedies that are or will be undertaken. Such annual certifications also shall be signed in accordance with the requirements identified in Part II.D.2 of this Permit. The Permittee shall keep a copy of the current SWPPP and all SWPPP certifications (i.e., the initial certification, recertifications, and annual certifications) signed during the effective period of this Permit. The SWPPP, certifications, and all documentation of SWPPP activities shall be maintained for at least three years and provided to EPA upon request.

D. REPORTING REQUIREMENTS

Unless otherwise specified in this Permit, the Permittee shall submit reports, requests, and information and provide notices in the manner described in this section.

1. Submittal of DMRs Using NetDMR

The Permittee shall submit its monthly monitoring data in discharge monitoring reports (DMRs) to EPA electronically using NetDMR no later than the 15th day of the month following the monitoring period. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

2. Submittal of Reports as NetDMR Attachments

Unless otherwise specified in this Permit, the Permittee shall electronically submit all reports to EPA as NetDMR attachments rather than as hard copies. Because the due dates for reports described in this Permit may not coincide with the due date for submitting DMRs (which is no later than the 15th day of the month following the monitoring period), a report submitted electronically as a NetDMR attachment shall be considered timely if it is electronically submitted to EPA using NetDMR with the next DMR due following the particular report due date specified in this Permit.

3. Submittal of Requests and Reports to EPA Water Division (WD)

The following requests, reports, and information described in this Permit shall be submitted to the NPDES Applications Coordinator in EPA WD:

(1) Transfer of Permit notice;
(2) Request for changes in sampling location and/or frequency;
(3) pH summary report results;
(4) Request to discharge new chemicals or additives;
(5) Request for changes in the design or capacity of the CWISs;
(6) Closed-cycle cooling retrofitting feasibility study;
(7) Ambient Monitoring Reports; and
(8) Reports/notices required by Part I.C.4. and Part I.C.5.

These reports, information, and requests shall be submitted to EPA WD electronically at R1NPDESReporting@epa.gov or, if electronic mail is unavailable, by hard copy mail to the following address:

U.S. Environmental Protection Agency
Water Division
NPDES Applications Coordinator
5 Post Office Square - Suite 100 (06-03)
Boston, MA 02109-3912

4. Submittal of Reports in Hard Copy Form

The following notifications and reports shall be signed and dated originals, submitted in hard copy, with a cover letter describing the submission:

(1) Written notifications required under Part II, Standard Conditions. Beginning December 21, 2025, such notifications must be done electronically using EPA's NPDES Electronic Reporting Tool ("NeT"), or another approved EPA system, which will be accessible through EPA's Central Data Exchange at https://cdx.epa.gov/.

This information shall be submitted to EPA's Enforcement and Compliance Assurance Division (ECAD) at the following address:

U.S. Environmental Protection Agency
Enforcement and Compliance Assurance Division
Water Compliance Section
5 Post Office Square, Suite 100 (04-SMR)
Boston, MA 02109-3912

5. Verbal Reports and Verbal Notifications

Any verbal reports or verbal notifications, if required in Parts I and/or II of this Permit, shall be made to EPA. This includes verbal reports and notifications that require reporting within 24 hours (e.g., Part II.B.4.c. (2), Part II.B.5.c. (3), and Part II.D.1.e.).

Verbal reports and verbal notifications shall be made to EPA's Southeast Massachusetts ECAD contact at:

617-918-1510

ATTACHMENT A
BIOLOGICAL AND THERMAL MONITORING REQUIREMENTS

1. Ichthyoplankton and Zooplankton Monitoring

Ichthyoplankton and zooplankton monitoring will be conducted as specified in Part I.C.3 of this Permit with the primary purpose of documenting the extent of adverse impacts from entrainment at the cooling water intake structure. The intake survey area must be within the hydraulic zone of influence of the cooling water intake structure as identified in the SouthCoast Wind NPDES Permit Application.

1.1 Field Methods

Ichthyoplankton and zooplankton monitoring must be conducted at the location of the CWIS (*exact coordinates will be specified in the Final Permit*), beginning in the first year of full-scale operation. Ichthyoplankton and zooplankton monitoring may begin prior to the first year of full-scale operation provided that cooling water withdrawals during the sampling period are representative of withdrawals during full-scale operation. Monitoring for all species must be conducted a minimum of once per quarter. Quarters are defined as winter (December, January, February), Spring (March, April, May), Summer (June, July, August) and Fall (September, October, November). Sampling may be coordinated with other fisheries and benthic research monitoring.

Sampling must be performed at two depth regimes: at the depth of the hydraulic zone of influence of the CWIS described above and the full water column (within about 15 feet of the bottom). Discrete depth sampling at the depth of the intake zone shall be conducted using a tucker trawl as close as possible, but no greater than 500 m laterally from the cooling water intake structure, taking into account logistical and safety considerations for operation of the vessel and sampling equipment that can be opened or closed at depth, equipped with a 0.33 mm mesh net and a calibrated flowmeter. The full water column tow will be a 61-centimeter bongo net towed in an oblique manner from the surface to a depth within 15 feet of the bottom and includes the intake depth. At each depth regime, the Permittee will collect three pseudo-replicate (sequential) samples, each with a target volume of 300 m^3. Discrete depth sampling with the tucker trawl will be conducted during daylight and night while full column, bongo net sampling is only required to be completed during daylight hours. Night is defined as the period from 2+ hours after sunset to 2+ hours before sunrise. Daylight is defined as 2+ hours after sunrise to 2+ hours before sunset. Pre- and post-deployment flowmeter readings will be recorded as well as measurements for salinity and ambient ocean temperature during the tows. The nets will be washed down using filtered seawater and the contents preserved in ethanol. Preserved samples will be transported to a biological laboratory for analysis.

1.2 Laboratory Methods

In the laboratory, all ichthyoplankton eggs and larvae will be identified to the lowest practical

taxon. Subsampling will be allowed so that a minimum of 200 eggs and 100 larvae are identified. For eggs it may be necessary to group some taxa due to similarities in morphology and spawning season. Larvae are typically identified to the species level. For species that have clearly defined larval life stages (e.g., yolk sac, post-yolk sac, etc.), individuals will be assigned to the appropriate life stage. DNA sequencing is also required for the genetic identification of cod eggs as it is difficult to distinguish between early-stage eggs of cod, haddock (*Melanogrammus aeglefinus*), and witch flounder (*Glyptocephalus cynoglossus*) through typical visual examination of physical attributes.

Zooplankton will also be identified to the lowest practical taxon. Subsampling will be allowed so that a minimum of 100 organisms are identified.

Laboratory methods will employ a quality control (QC) program in which 10% of each sorter's samples (randomly selected out of batches of 10 samples) are reexamined by a qualified supervisor to ensure a minimum of 95% of the ichthyoplankton and zooplankton individuals have been removed. In addition, a randomly selected 10% of each taxonomist's samples will be reanalyzed by a senior taxonomist to ensure a minimum taxonomic accuracy of 95% for both ichthyoplankton and zooplankton.

1.3 Entrainment Analysis

Quarterly mean abundances will be used to calculate the number of individuals (by species, life stage, and size class) that are vulnerable to entrainment by multiplying abundance by 1) maximum permitted intake volume, and 2) actual intake volume. Study parameters therefore include time of year and abundance by species of all identifiable finfish, lobster eggs and larvae, and zooplankton. Densities of ichthyoplankton and zooplankton (no./100 m^3) will be multiplied by estimated volume of water withdrawn (m^3) to estimate the number of ichthyoplankton and zooplankton entrained at the OCS-DC1. The analysis will include a discussion of the variability of entrainment losses in sampling depth and date and its potential effects on the estimates of entrainment losses for key species, including American sand lance, Atlantic cod, and *Calanus finmarchicus*.

In addition to the analysis described above, a random sample of a maximum of 100 eggs positively identified as Atlantic cod will be genetically identified using DNA sequencing. In addition, a random sample of a maximum of 500 eggs collected during each sampling event and identified as Atlantic cod/haddock and Atlantic cod/haddock/witch flounder will be genetically identified using DNA sequencing. The estimate of total entrainment of Atlantic cod will be adjusted based on the percentage of eggs in the random samples positively identified as Atlantic cod.

2.0 Thermal Monitoring

Water quality monitoring will be conducted as specified in Part I.C.3 of the Permit with the primary purpose of documenting the extent of the thermal plume and verifying the

assumptions of the thermal model. Additional parameters that will be measured are salinity, dissolved oxygen, and current direction. Ambient temperature monitoring must be conducted during spring of the second year following the start of full-scale operation. Sampling must be conducted within 3.1 hours before or after slack tide.

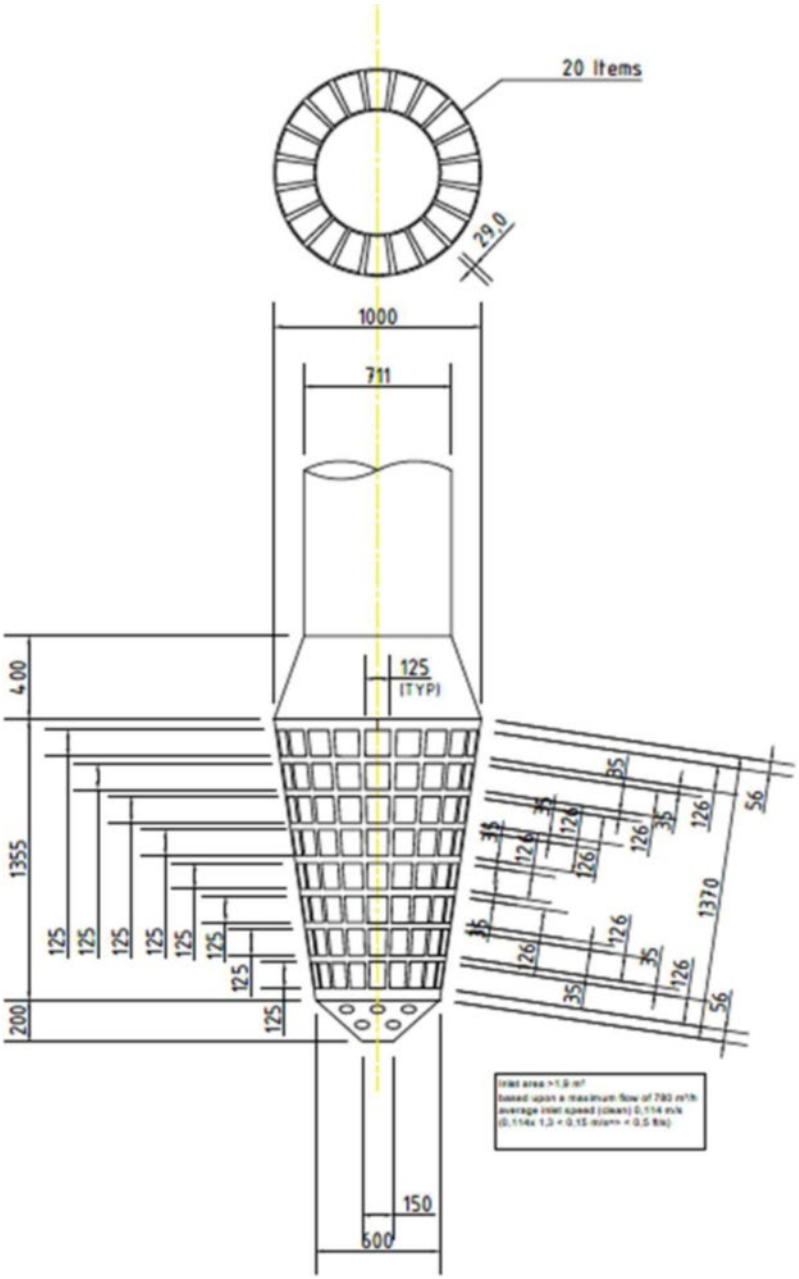
2.1 Field Methods

The average current direction of the uppermost 15 m of the water column will be measured using an Acoustic Doppler Current Profiler (ADCP) as close to Outfall 001 as practicable considering accessibility. This information will be used to determine the orientation of the sampling transect. Operating along a downcurrent transect, temperature, salinity, and dissolved oxygen profiles will be collected at 5 m intervals. The length of the transect will be a minimum of 30 m and extend until two adjacent sampling points have surface temperatures within 0.1°C of each other. At each sampling location, measurements will be made at 1 m intervals using appropriate probes along a vertical profile through the uppermost 15 m of the water column.

2.2 Data Analysis

Geo-referenced data from water column sampling will be plotted to document the two-dimensional behavior of the discharge plume.

ATTACHMENT B
SOUTHCOAST WIND INTAKE SCREEN DESIGN



NPDES PART II STANDARD CONDITIONS
(April 26, 2018)[1]

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[1] Updated July 17, 2018 to fix typographical errors.

A. GENERAL REQUIREMENTS

1. Duty to Comply

The Permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA or 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 for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, or standards for sewage sludge use or disposal, even if the permit has not yet been modified to incorporate the requirement.

b. Penalties for Violations of Permit Conditions: The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (83 Fed. Reg. 1190-1194 (January 10, 2018) and the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note. See Pub. L.114-74, Section 701 (Nov. 2, 2015)). These requirements help ensure that EPA penalties keep pace with inflation. Under the above-cited 2015 amendments to inflationary adjustment law, EPA must review its statutory civil penalties each year and adjust them as necessary.

(1) Criminal Penalties

(a) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to criminal penalties of not less than $2,500 nor more than $25,000 per day of violation, or imprisonment of not more than 1 year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation or by imprisonment of not more than 2 years, or both.

(b) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than 6 years, or both.

(c) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he or she is placing another person in imminent danger of death or serious bodily injury shall upon conviction be subject to a fine of not more than $250,000 or by imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing

endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in Section 309(c)(3)(B)(iii) of the Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

(d) *False Statement.* The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both. The Act further provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

(2) *Civil Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed the maximum amounts authorized by Section 309(d) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(3) *Administrative Penalties*. The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty as follows:

(a) *Class I Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(A) of the Act, the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

(b) *Class II Penalty.* Not to exceed the maximum amounts authorized by Section 309(g)(2)(B) of the Act the 2015 amendments to the Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, and 40 C.F.R. Part 19. *See* Pub. L.114-74, Section 701 (Nov. 2, 2015); 83 Fed. Reg. 1190 (January 10, 2018).

2. 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.

3. Duty to Provide Information

The Permittee shall furnish to the Director, within a reasonable time, any information which the Director 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 Director, upon request, copies of records required to be kept by this permit.

4. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the Permittee from responsibilities, liabilities or penalties to which the Permittee is or may be subject under Section 311 of the CWA, or Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

5. Property Rights

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

6. Confidentiality of Information

a. In accordance with 40 C.F.R. Part 2, any information submitted to EPA pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions or, in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 C.F.R. Part 2 (Public Information).

b. Claims of confidentiality for the following information will be denied:

(1) The name and address of any permit applicant or Permittee;
(2) Permit applications, permits, and effluent data.

c. Information required by NPDES application forms provided by the Director under 40 C.F.R. § 122.21 may not be claimed confidential. This includes information submitted on the forms themselves and any attachments used to supply information required by the forms.

7. 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. The Permittee shall submit a new application at least 180 days before the expiration date of the existing permit, unless permission for a later date has been granted by the Director. (The Director shall not grant permission for applications to be submitted later than the expiration date of the existing permit.)

8. State Authorities

Nothing in Parts 122, 123, or 124 precludes more stringent State regulation of any activity

covered by the regulations in 40 C.F.R. Parts 122, 123, and 124, whether or not under an approved State program.

9. Other Laws

The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. 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.

2. Need to Halt or Reduce 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.

3. 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.

4. Bypass

a. Definitions

(1) *Bypass* means the intentional diversion of waste streams from any portion of a treatment facility.

(2) *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

(1) *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. As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by state law.

(2) *Unanticipated bypass*. The Permittee shall submit notice of an unanticipated bypass as required in paragraph D.1.e. of this part (24-hour notice). As of December 21, 2020 all notices submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or required to do so by law.

d. *Prohibition of bypass.*

(1) Bypass is prohibited, and the Director 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 preventative maintenance; and

(c) The Permittee submitted notices as required under paragraph 4.c of this Section.

(2) The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed above in paragraph 4.d of this Section.

5. Upset

a. *Definition*. *Upset* means an exceptional incident in which there is an 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 B.5.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:

(1) An upset occurred and that the Permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated; and
(3) The Permittee submitted notice of the upset as required in paragraph D.1.e.2.b. (24-hour notice).
(4) The Permittee complied with any remedial measures required under B.3. above.

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 REQUIREMENTS

1. 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 5 years (or longer as required by 40 C.F.R. § 503), 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 Director at any time.

c. Records of monitoring information shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. Subchapters N or O.

e. The Clean Water Act provides that any person who falsifies, tampers with, or

knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than 2 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than 4 years, or both.

2. Inspection and Entry

The Permittee shall allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the 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.

D. REPORTING REQUIREMENTS

1. Reporting Requirements

a. *Planned Changes*. The Permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(1) 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 C.F.R. § 122.29(b); or

(2) 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 at 40 C.F.R. § 122.42(a)(1).

(3) 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 Director 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 after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the Clean Water Act. *See* 40 C.F.R. § 122.61; in some cases, modification or revocation and reissuance is mandatory.

d. *Monitoring reports*. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(1) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices. As of December 21, 2016 all reports and forms submitted in compliance with this Section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to report electronically if specified by a particular permit or if required to do so by State law.

(2) If the Permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 C.F.R. § 136, or another method required for an industry-specific waste stream under 40 C.F.R. Subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(3) Calculations for all limitations which require averaging or measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

e. *Twenty-four hour reporting.*

(1) 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 report shall also be provided within 5 days of the time the Permittee becomes aware of the circumstances. The written report 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. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather. As of December 21, 2020 all

reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases Subpart D to Part 3), § 122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section.

(2) 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. *See* 40 C.F.R. § 122.41(g).
(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 Director in the permit to be reported within 24 hours. *See* 40 C.F.R. § 122.44(g).

(3) The Director may waive the written report on a case-by-case basis for reports under paragraph D.1.e. of this Section if the oral report has been received within 24 hours.

f. *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.

g. *Other noncompliance.* The Permittee shall report all instances of noncompliance not reported under paragraphs D.1.d., D.1.e., and D.1.f. of this Section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph D.1.e. of this Section. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in paragraph D.1.e. and the applicable required data in Appendix A to 40 C.F.R. Part 127. As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events submitted in compliance with this section must be submitted electronically by the Permittee to the Director or initial recipient, as defined in 40 C.F.R. § 127.2(b), in compliance with this Section and 40 C.F.R. Part 3 (including, in all cases, Subpart D to Part 3), §122.22, and 40 C.F.R. Part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of Part 127, Permittees may be required to electronically submit reports related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section by a particular permit or if required to do so by state law. The Director may also require Permittees to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under 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 Director, it shall promptly submit such facts or information.

i. *Identification of the initial recipient for NPDES electronic reporting data*. The owner, operator, or the duly authorized representative of an NPDES-regulated entity is required to electronically submit the required NPDES information (as specified in Appendix A to 40 C.F.R. Part 127) to the appropriate initial recipient, as determined by EPA, and as defined in 40 C.F.R. § 127.2(b). EPA will identify and publish the list of initial recipients on its Web site and in the FEDERAL REGISTER, by state and by NPDES data group (see 40 C.F.R. § 127.2(c) of this Chapter). EPA will update and maintain this listing.

2. Signatory Requirement

a. All applications, reports, or information submitted to the Director shall be signed and certified. *See* 40 C.F.R. §122.22.

b. The CWA provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

3. Availability of Reports.

Except for data determined to be confidential under paragraph A.6. above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the State water pollution control agency and the Director. As required by the CWA, effluent data shall not be considered confidential. Knowingly making any false statements on any such report may result in the imposition of criminal penalties as provided for in Section 309 of the CWA.

E. DEFINITIONS AND ABBREVIATIONS

1. General Definitions

For more definitions related to sludge use and disposal requirements, see EPA Region 1's NPDES Permit Sludge Compliance Guidance document (4 November 1999, modified to add regulatory definitions, April 2018).

Administrator means the Administrator of the United States Environmental Protection Agency, or an authorized representative.

Applicable standards and limitations means all, State, interstate, and federal standards and limitations to which a "discharge," a "sewage sludge use or disposal practice," or a related activity is subject under the CWA, including "effluent limitations," water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," pretreatment standards, and "standards for sewage sludge use or disposal" under Sections 301, 302, 303, 304, 306, 307, 308, 403 and 405 of the CWA.

Application means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in

"approved States," including any approved modifications or revisions.

Approved program or *approved State* means a State or interstate program which has been approved or authorized by EPA under Part 123.

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.

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 United States." 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.

Bypass see B.4.a.1 above.

C-NOEC or *"Chronic (Long-term Exposure Test) – No Observed Effect Concentration" means* the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specified time of observation.

Class I sludge management facility is any publicly owned treatment works (POTW), as defined in 40 C.F.R. § 501.2, required to have an approved pretreatment program under 40 C.F.R. § 403.8 (a) (including any POTW located in a State that has elected to assume local program responsibilities pursuant to 40 C.F.R. § 403.10 (e)) and any treatment works treating domestic sewage, as defined in 40 C.F.R. § 122.2, classified as a Class I sludge management facility by the EPA Regional Administrator, or, in the case of approved State programs, the Regional Administrator in conjunction with the State Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely.

Contiguous zone means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

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 similar activities.

CWA means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483and Public Law 97-117, 33 U.S.C. 1251 *et seq*.

CWA and regulations means the Clean Water Act (CWA) and applicable regulations promulgated thereunder. In the case of an approved State program, it includes State program requirements.

Daily Discharge means the "discharge of a pollutant" measured during a calendar day or any

other 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 measurements, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Direct Discharge means the "discharge of a pollutant."

Director means the Regional Administrator or an authorized representative. In the case of a permit also issued under Massachusetts' authority, it also refers to the Director of the Division of Watershed Management, Department of Environmental Protection, Commonwealth of Massachusetts.

Discharge

(a) When used without qualification, *discharge* means the "discharge of a pollutant."

(b) As used in the definitions for "interference" and "pass through," *discharge* means the introduction of pollutants into a POTW from any non-domestic source regulated under Section 307(b), (c) or (d) of the Act.

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.

Discharge of a pollutant means:

(a) Any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source," or

(b) Any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any "indirect discharger."

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of "pollutants" which are "discharged" from "point sources" into "waters of the United States," the waters of the "contiguous zone," or the ocean.

Effluent limitation guidelines means a regulation published by the Administrator under section 304(b) of CWA to adopt or revise "effluent limitations."

Environmental Protection Agency ("EPA") means the United States Environmental Protection

Agency.

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

Hazardous substance means any substance designated under 40 C.F.R. Part 116 pursuant to Section 311 of CWA.

Incineration is the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device.

Indirect discharger means a nondomestic discharger introducing "pollutants" to a "publicly owned treatment works."

Interference means a discharge (see definition above) which, alone or in conjunction with a discharge or discharges from other sources, both:

(a) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

(b) 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 Resources Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SDWA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

Land application is the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil.

Land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal.

LC_{50} means the concentration of a sample that causes mortality of 50% of the test population at a specific time of observation. The LC_{50} = 100% is defined as a sample of undiluted effluent.

Maximum daily discharge limitation means the highest allowable "daily discharge."

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 C.F.R. § 257.2. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste and industrial solid waste. Such a landfill may be

publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not a MSWLF unit.

Municipality

(a) When used without qualification *municipality* means a city, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

(b) As related to sludge use and disposal, *municipality* means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities) created by or under State law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under Section 208 of the CWA, as amended. The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in Section 201 (e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use or disposal of sewage sludge.

National Pollutant Discharge Elimination System means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 402, 318, and 405 of the CWA. The term includes an "approved program."

New Discharger means any building, structure, facility, or installation:

(a) From which there is or may be a "discharge of pollutants;"

(b) That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;

(c) Which is not a "new source;" and

(d) Which has never received a finally effective NPDES permit for discharges at that "site."

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant, that begins discharging at a "site" for which it does not have a permit; and any offshore or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Director in the issuance of a final permit to be in an area of biological concern. In determining whether an area is an area of biological concern, the Director shall consider the factors specified in 40 C.F.R. §§ 125.122 (a) (1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

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.

NPDES means "National Pollutant Discharge Elimination System."

Owner or operator means the owner or operator of any "facility or activity" subject to regulation under the NPDES programs.

Pass through means a Discharge (see definition above) which exits the POTW into waters of the United States 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).

Pathogenic organisms are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

Permit means an authorization, license, or equivalent control document issued by EPA or an "approved State" to implement the requirements of Parts 122, 123, and 124. "Permit" includes an NPDES "general permit" (40 C.F.R § 122.28). "Permit" does not include any permit which has not yet been the subject of final agency action, such as a "draft permit" or "proposed permit."

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof.

Person who prepares sewage sludge is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

pH means the logarithm of the reciprocal of the hydrogen ion concentration measured at 25° Centigrade or measured at another temperature and then converted to an equivalent value at 25° Centigrade.

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, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff (see 40 C.F.R. § 122.3).

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials

(except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq*.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

(a) Sewage from vessels; or

(b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by the authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Primary industry category means any industry category listed in the NRDC settlement agreement (*Natural Resources Defense Council et al. v. Train*, 8 E.R.C. 2120 (D.D.C. 1976), *modified* 12 E.R.C. 1833 (D.D.C. 1979)); also listed in Appendix A of 40 C.F.R. Part 122.

Privately owned treatment works means any device or system which is (a) used to treat wastes from any facility whose operator is not the operator of the treatment works and (b) not a "POTW."

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 a treatment works as defined by Section 212 of the Act, which is owned by a State or municipality (as defined by Section 504(4) of the Act). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in Section 502(4) of the Act, which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

Regional Administrator means the Regional Administrator, EPA, Region I, Boston, Massachusetts.

Secondary industry category means any industry which is not a "primary industry category."

Septage means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or a holding tank when the system is cleaned or maintained.

Sewage Sludge means any solid, semi-solid, or liquid residue removed during the treatment of municipal waste water or domestic sewage. Sewage sludge includes, but is not limited to, solids removed during primary, secondary, or advanced waste water treatment, scum, septage, portable toilet pumpings, type III marine sanitation device pumpings (33 C.F.R. Part 159), and sewage sludge products. Sewage sludge does not include grit or screenings, or ash generated during the incineration of sewage sludge.

Sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired.

Sewage sludge unit is land on which only sewage sludge is placed for final disposal. This does

not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 C.F.R. § 122.2.

Sewage sludge use or disposal practice means the collection, storage, treatment, transportation, processing, monitoring, use, or disposal of sewage sludge.

Significant materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substance designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

Significant spills includes, but is not limited to, releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the CWA (see 40 C.F.R. §§ 110.10 and 117.21) or Section 102 of CERCLA (*see* 40 C.F.R. § 302.4).

Sludge-only facility means any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to section 405(d) of the CWA, and is required to obtain a permit under 40 C.F.R. § 122.1(b)(2).

State means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, the Trust Territory of the Pacific Islands, or an Indian Tribe as defined in the regulations which meets the requirements of 40 C.F.R. § 123.31.

Store or storage of sewage sludge is the placement of sewage sludge on land on which the sewage sludge remains for two years or less. This does not include the placement of sewage sludge on land for treatment.

Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant.

Surface disposal site is an area of land that contains one or more active sewage sludge units.

Toxic pollutant means 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.

Treatment works treating domestic sewage means a POTW or any other sewage sludge or waste water treatment devices or systems, regardless of ownership (including federal facilities), used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated for the disposal of sewage sludge. This definition does not include septic tanks or similar devices.

For purposes of this definition, "domestic sewage" includes waste and waste water from humans or household operations that are discharged to or otherwise enter a treatment works. In States where there is no approved State sludge management program under Section 405(f) of the CWA, the Director may designate any person subject to the standards for sewage sludge use and

disposal in 40 C.F.R. Part 503 as a "treatment works treating domestic sewage," where he or she finds that there is a potential for adverse effects on public health and the environment from poor sludge quality or poor sludge handling, use or disposal practices, or where he or she finds that such designation is necessary to ensure that such person is in compliance with 40 C.F.R. Part 503.

Upset see B.5.a. above.

Vector attraction is the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents.

Waste pile or *pile* means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Waters of the United States or waters of the U.S. means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands;"

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands", sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

    (1) Which are or could be used by interstate or foreign travelers for recreational or other purpose;

    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

    (3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland.

Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Wetlands means those areas that are inundated or saturated by surface or groundwater 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 (WET) means the aggregate toxic effect of an effluent measured directly by a toxicity test.

*Zone of Initial Dilution (*ZID) means the region of initial mixing surrounding or adjacent to the end of the outfall pipe or diffuser ports, provided that the ZID may not be larger than allowed by mixing zone restrictions in applicable water quality standards.

2. Commonly Used Abbreviations

BOD	Five-day biochemical oxygen demand unless otherwise specified
CBOD	Carbonaceous BOD
CFS	Cubic feet per second
COD	Chemical oxygen demand
Chlorine	
Cl_2	Total residual chlorine
TRC	Total residual chlorine which is a combination of free available chlorine (FAC, see below) and combined chlorine (chloramines, etc.)
TRO	Total residual chlorine in marine waters where halogen compounds are present
FAC	Free available chlorine (aqueous molecular chlorine, hypochlorous acid, and hypochlorite ion)
Coliform	
Coliform, Fecal	Total fecal coliform bacteria
Coliform, Total	Total coliform bacteria
Cont.	Continuous recording of the parameter being monitored, i.e. flow, temperature, pH, etc.
Cu. M/day or M^3/day	Cubic meters per day
DO	Dissolved oxygen

kg/day	Kilograms per day
lbs/day	Pounds per day
mg/L	Milligram(s) per liter
mL/L	Milliliters per liter
MGD	Million gallons per day
Nitrogen	
Total N	Total nitrogen
NH_3-N	Ammonia nitrogen as nitrogen
NO_3-N	Nitrate as nitrogen
NO_2-N	Nitrite as nitrogen
NO_3-NO_2	Combined nitrate and nitrite nitrogen as nitrogen
TKN	Total Kjeldahl nitrogen as nitrogen
Oil & Grease	Freon extractable material
PCB	Polychlorinated biphenyl
Surfactant	Surface-active agent
Temp. °C	Temperature in degrees Centigrade
Temp. °F	Temperature in degrees Fahrenheit
TOC	Total organic carbon
Total P	Total phosphorus
TSS or NFR	Total suspended solids or total nonfilterable residue
Turb. or Turbidity	Turbidity measured by the Nephelometric Method (NTU)
µg/L	Microgram(s) per liter
WET	"Whole effluent toxicity"
ZID	Zone of Initial Dilution

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: MA0006018

PUBLIC NOTICE START AND END DATES: October 3, 2024, through November 6, 2024

NAME AND MAILING ADDRESS OF APPLICANT:

SouthCoast Wind, LLC
101 Federal Street, Suite 1900
Boston, MA 02110

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

SouthCoast Wind Farm Offshore Converter Station #1
BOEM Renewable Energy Lease Area OCS-A 0521

RECEIVING WATER AND CLASSIFICATION:

Atlantic Ocean (OCS-A 0521)

SIC CODE: 4911 (Generation, Transmission, and/or Distribution of Electric Energy)

NAICS CODE: 22115 (Wind electric power generation)

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1.0 Proposed Action

SouthCoast Wind LLC (SouthCoast Wind or the "Applicant") has applied to the U.S. Environmental Protection Agency (EPA or the "Agency") for issuance of a National Pollutant Discharge Elimination System (NPDES) permit to authorize pollutant discharges and cooling water withdrawals at one of possibly several new offshore converter station-direct current (OCS-DC1) components (the "Facility") of SouthCoast Wind's proposed offshore wind farm. Specifically, SouthCoast Wind proposes that the OCS-DC1 would discharge pollutants to, and withdraw water for cooling from, federal waters in the Atlantic Ocean.

The new OCS-DC1 will support operation of SouthCoast Wind's proposed wind farm, which will be located in the federal Bureau of Ocean Energy Management's (BOEM) Renewable Lease Area OCS-A 0521. The Applicant submitted an application dated October 31, 2021, seeking an NPDES permit for the Facility from EPA. However, the application was deemed incomplete. A series of revised applications were submitted on December 12, 2022, April 10, 2023, and August 25, 2023. Based on the August 2023 revision (the "NPDES Application"), the Agency deemed the NPDES application complete on September 29, 2023. This permit would authorize 1) the intake and discharge of non-contact cooling water (NCCW), 2) the discharge from HVAC and freshwater cooling system pumps/drains, and 3) the discharge of treated stormwater exposed to industrial activities at the OCS-DC1, as identified in the NPDES Application and subsequent written notification submitted to EPA. Any other point source discharges associated with the construction or operation of the wind farm must be authorized by a separate individual or general permit (e.g., the Vessel General Permit, if applicable).

2.0 Statutory and Regulatory Authority for Setting NPDES Permit Requirements

Congress enacted the Federal Water Pollution Control Act, codified at 33 U.S.C. §§ 1251 – 1387 and commonly known as the Clean Water Act (CWA), "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." CWA § 101(a). To achieve this objective, the CWA makes it unlawful for any person to discharge any pollutant to the waters of the United States from any point source, except to the extent authorized under specific provisions of the CWA, including § 402. *See* CWA §§ 301(a), 402(a). *See also* 33 U.S.C. § 1362(12) ("[t]he term 'discharge of a pollutant' and the term 'discharge of pollutants' each means … any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft"). Section 402(a) establishes the CWA's NPDES permit program. Under this section, EPA may "issue a permit for the discharge of any pollutant or combination of pollutants" on the condition that the discharge will comply with the standards specified in certain other provisions of the statute (e.g., CWA §§ 301, 306 and 403). CWA § 402(a)(1). NPDES permits generally contain pollutant discharge limitations and establish related monitoring and reporting requirements. *See* CWA § 402(a)(1) and (2). When applicable, NPDES permits also set cooling water intake structure (CWIS) requirements under CWA § 316(b). *See* 40 CFR §§ 122.44(a)(1) and (b)(3), and 401.14. The regulations governing EPA's NPDES permit program are generally found in 40 CFR Parts 122, 124, 125, and 136.

"Congress has vested in the Administrator [of EPA] broad discretion to establish conditions for NPDES permits" in order to achieve the statutory mandates of Sections 301 and 402 of the CWA.

Arkansas v. Oklahoma, 503 U.S. 91, 105 (1992). Technology-based effluent limitations (TBELs) represent the minimum level of pollutant discharge control that must be satisfied under Sections 301(b) and 402(a)(1) of the CWA. *See also* 40 CFR § 125.3(a). When limits more stringent than TBELs are needed to maintain or achieve compliance with state water quality standards (WQS), then NPDES permits must include water quality-based effluent limits (WQBELs). *See* CWA §§ 301(b)(1)(C) and 401; 40 CFR §§ 122.4(d), 122.44(d)(1) and (5), 124.53, and 124.55.

In addition, point source dischargers subject to Sections 301 or 306 that have CWISs must also meet the CWIS requirements of CWA § 316(b), 33 U.S.C. § 1326(b), which dictates that "the location, design, construction, and capacity of cooling water intake structures [must] reflect the best technology available for minimizing adverse environmental impact" (BTA). *See also* 40 CFR § 122.44(b)(3). Federal standards for CWISs are specified in 40 CFR Part 125, subparts I (for new facilities), J (for existing facilities), and N (for new offshore oil and gas extraction facilities). In addition, the CWIS requirements in NPDES permits must also include any more stringent permit conditions needed for the CWIS(s) to satisfy any applicable state law requirements, including state WQS. *See* 40 CFR §§ 125.84(e) and 125.94(i).

2.1 Technology-Based Requirements

NPDES permit limits must, at a minimum, satisfy applicable federal technology standards under the CWA. *See* CWA §§ 301(b), 304(b) and 402(a); 40 CFR § 125.3(a). The statute specifies several different narrative technology standards that apply to different types of pollutants. Technology-based effluent limitations are set to reflect the degree of pollution control that can be achieved by using a technology that satisfies the applicable technology standard. Effluent limitations based on the "best practicable control technology currently available" (BPT) standard apply to "conventional pollutants" under certain circumstances, while effluent limitations applied to conventional pollutants are otherwise based on the "best conventional pollutant control technology" (BCT) standard. *See* CWA §§ 301(b)(2)(E) and 304(a)(4), (b)(1) and (b)(4). *See also* 40 CFR §§ 125.3(a)(2)(i) and (ii). Effluent limitations based on the "best available technology economically achievable" (BAT) standard apply to toxic and non-conventional pollutants. *See* CWA §§ 301(b)(1)(A) and (b)(2)(A) – (D) and (F), and 304(b)(2); 40 CFR §§ 125.3(a)(iii) and (iv); and 401.12. If a discharger is a "new source" under Section 306 of the CWA, 33 U.S.C. § 1316, however, then it must meet new source standards based on the "best available demonstrated technology" (BADT). *See also* 40 CFR §§ 122.2 (definition of "new source") and 122.29.

Subpart A of 40 CFR Part 125 establishes criteria and standards for developing and applying technology-based requirements in permits under §§ 301(b) and 402(a) of the CWA. Where EPA has established national effluent limitation guidelines (ELGs) for an industrial category or subcategory, permit *limits* for a facility within that category are set by applying the limits from the ELGs. 40 CFR § 125.3(c)(1). *See also* CWA § 402(a)(1)(A). Where EPA has not yet promulgated an applicable national ELG, however, then the permitting authority develops permit limits based on a facility specific, Best Professional Judgment (BPJ) application of the relevant technology standard. 40 CFR § 125.3(c)(2). *See also* CWA § 402(a)(1)(B). Where national ELGs have been promulgated for some, but not all, of the pollutants regulated by the permit, limits are set using the appropriate approach for each pollutant. 40 CFR § 125.3(c)(3).

EPA has not yet promulgated ELGs for wind-based electric power generation facilities, whether located on land or at sea, or for any converter stations that they might use. Although EPA has promulgated technology-based ELGs for Steam Electric Power Generating facilities (SIC 4911) in 40 CFR Part 423, these ELGs apply to fossil fuel and nuclear power plants and do not apply to wind-based electric power generation (NAICS 221115). *See* 40 CFR § 423.10. Therefore, in accordance with CWA § 402(a)(1)(B) and 40 CFR § 125.3(c)(2), EPA may establish technology-based effluent limitations for any discharges and cooling water withdrawals by wind farms and their associated converter stations on a case-by-case, BPJ basis.

EPA's NPDES permitting regulations at 40 CFR § 125.3(c)(2) state that for permits developed on a case-by-case basis under Section 402(a)(1)(B) of the CWA, EPA shall consider the appropriate factors listed in 40 CFR § 125.3(d) and (1) the appropriate technology for the category or class of point sources of which the applicant is a member, based on available information, and (2) any unique factors relating to the applicant.

Discharges from facilities other than publicly owned sewage treatment plants must generally comply with technology standards as expeditiously as practicable but in no case later than either three years after the date that technology-based limitations are established or March 31, 1989, whichever comes first. *See* 40 CFR § 125.3(a)(2). NPDES permits may not include compliance schedules inconsistent with a CWA statutory compliance deadline. 40 CFR § 122.47(a)(1).

With regard to CWISs regulated under CWA § 316(b), technology-based CWIS requirements for many types of *new facilities* are determined in accordance with EPA regulations promulgated at 40 CFR Part 125, Subpart I (the "New Facilities Rule"), but certain other types of new facilities are determined on a case-by-case, BPJ basis. *See* 40 CFR §§ 125.80(c), 125.81(d) and 125.90(b). Furthermore, CWIS requirements for new offshore oil and gas extraction facilities are determined in accordance with 40 CFR Part 125, Subpart N (the "New Offshore Oil and Gas Facilities Rule"). CWIS requirements for many types of *existing facilities* are developed in accordance with 40 CFR Part 125, Subpart J (the "Existing Facilities Rule"), whereas the requirements for other types of existing facilities are developed on a BPJ basis. *See* 40 CFR §§ 122.44(b)(3) and 125.90(b).[1] EPA explains the statutory and regulatory authority for regulating the CWIS at the OCS-DC1 in Section 2.3 of this Fact Sheet.

2.2 Water Quality-Based Requirements

The CWA requires that each state develop WQSs for all water bodies in the state. *See* CWA § 303 and 40 CFR §§ 131.10 - 131.12. As a matter of state law, state WQSs specify different water body classifications, each of which is associated with certain designated uses and particular numeric and narrative water quality criteria. The water quality criteria for each classification are intended to help

[1] *See also* July 6, 2022, Transmittal of Revised Framework for Best Professional Judgement for Cooling Water Intake Structures at Hydroelectric Facilities. https://www.epa.gov/sites/default/files/2021-01/documents/transmittal_of_framework_for_bpj_for_cwis_at_hydroelectric_facilities_final_memo.pdf

the water bodies in that classification to attain the designated uses assigned to that classification. The state then assigns one of the water body classifications to each water body in the state.

The CWA and EPA regulations require that NPDES permits include limits based on water quality considerations when such limits are necessary to meet state WQS that apply to the body of water receiving the discharge. Such water quality-based limits are necessary when TBELs are less stringent than limits needed to attain or maintain compliance with WQS in the receiving water. *See* CWA § 301(b)(1)(C) and 40 CFR §§ 122.44(d)(1),122.44(d)(5), 125.84(e) and 125.94(i).

In the present case, however, the Facility is proposed to be installed in federal waters, well outside of state waters. Moreover, the Facility proposes to discharge pollutants to, and withdraw cooling water from, these federal waters. As a result, the NPDES permit for the Facility is subject to federal water quality criteria under CWA § 304(a)(1) and the Ocean Discharge Criteria (ODC) of CWA § 403, *see also* 40 CFR Part 125 Subpart M, rather than requirements based on state WQS.

2.2.1 CWA § 403 Ocean Discharge Criteria

As stated above, SouthCoast Wind's wind farm, including the OCS-DC1 is proposed to be placed in federal waters, well outside of state waters. Thus, the OCS-DC's pollutant discharges and cooling water withdrawals will occur in offshore waters of the Atlantic Ocean that are subject solely to federal jurisdiction. More specifically, these discharges and cooling water withdrawals are proposed to occur in the "ocean," as defined in CWA § 502(10) (i.e., waters lying seaward of the "contiguous zone," which is the nine-mile band of water lying seaward of the seaward edge of the territorial sea). *See also* CWA §§ 502(8) and (9) (definitions of "territorial seas" and "contiguous zone," respectively).

Point source pollutant discharges to the waters of the territorial seas, the contiguous zone, and the ocean, s*ee* CWA §§ 502(8), (9) and (10), are subject to the federal ODC under Section 403(a) of the CWA. 33 U.S.C. §1343(a). *See also* 40 CFR § 125.120. Therefore, the NPDES permit proposed for the Facility is subject to the ODC.

Pursuant to CWA § 403(c), EPA has promulgated regulations that include guidelines for regulating discharges to satisfy CWA § 403 and give effect to the ODC. These regulations are promulgated at 40 CFR Part 125, Subpart M. According to the ODC, EPA may not issue an NPDES permit to authorize any pollutant discharge to waters of the territorial sea, the contiguous zone, or the ocean, that the Agency determines will cause "unreasonable degradation of the marine environment." 40 CFR § 125.123(b). For permits subject to the ODC, EPA conducts an Ocean Discharge Criteria Evaluation (ODCE) using the guidelines in 40 CFR Part 125, Subpart M, to determine the extent to which the discharge will degrade the marine environment. 40 CFR §125.122. The requirements of the ODC guidelines and the details of the ODCE for this NPDES permit are discussed in more detail in Section 5.1.6 of this Fact Sheet.

2.2.2 State Certification

EPA may not issue a permit unless the state from which the discharge originates either certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate the State's WQSs, or the State waives, or is deemed to have waived, its right to certify. *See* 33 U.S.C. § 1341(a)(1). Regulations governing state certification are set forth in 40 CFR § 124.53 and § 124.55. If EPA determines that a discharge from one state will affect the waters of another state, then EPA must notify that other state and the procedures detailed in CWA § 401(a)(2) must be followed.

For this permit, however, based on the location of the Facility well offshore in federal waters (specifically, in the "ocean," as defined in CWA § 502(10)), the proposed discharge will not affect the water quality of state or tribal waters and a Section 401 certification is not required. That said, EPA has provided the state agencies of the three closest states, Massachusetts, Rhode Island, and Connecticut, a link to the Draft Permit and Fact Sheet for their review. In addition, EPA has also provided a link to the Draft Permit and Fact Sheet to the Narragansett, Wampanoag (Aquinnah and Mashpee), Mohegan, and Mashantucket Pequot Indian Tribes so that they can review the documents and to inquire whether they might be interested in consulting with EPA regarding the permit.

2.3 Cooling Water Intake Structure Requirements

The CWA largely focuses on controlling pollutant *discharges* to waters of the United States, but Section 316(b) of the statute addresses the adverse environmental impacts that may be caused by the *withdrawal* of water from a water body for cooling uses. Specifically, CWA § 316(b) provides that:

> [a]ny standard established pursuant to [CWA sections 301 or 306] and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

33 U.S.C. § 1326(b). Thus, Section 316(b) applies to facilities that are point source dischargers subject to an NPDES permit that also withdraw water for cooling from a water body through a cooling water intake structure (CWIS). The plain meaning of CWA § 316(b) is that Congress wanted EPA to ensure that the CWISs at such facilities would use the BTA for minimizing adverse environmental impacts. Section 316(b) applies to the SouthCoast Wind OCS-DC1 because it will have point source discharges of pollutants subject to NPDES permit requirements and effluent standards under CWA § 301, and it also will withdraw water for cooling from a water body through a CWIS.

The legislative history for CWA § 316(b) is relatively sparse, but what exists reinforces the plain meaning of the statutory language. In the House Consideration of the Report of the Conference Committee (October 4, 1972) on the final version of the 1972 CWA Amendments, Representative Clausen stated that "[s]ection 316(b) requires the location, design, construction and capacity of cooling water intake structures of steam-electric generating plants to reflect the best technology

available for minimizing any adverse environmental impact." 1972 Legislative History, p. 264. The impetus for enacting CWA § 316(b) seems to have been congressional awareness of the problem of fish being harmed by CWISs, as evidenced by the Senate Consideration of the Report of the Conference Committee (October 4, 1972) for the final 1972 CWA Amendments. *Id*. at 196–99, 202.[2]

EPA has promulgated three different sets of regulations to implement CWA § 316(b). First, on December 18, 2001, EPA promulgated regulations specifying requirements to satisfy the BTA standard for CWISs at *new facilities* that withdraw at least 2 million gallons per day (MGD) and use at least 25 percent of the water they withdraw for cooling purposes (the New Facilities Rule). 66 Fed. Reg. 65255. The New Facilities Rule regulations are codified at 40 CFR Part 125, Subpart I. Second, on June 16, 2006, EPA promulgated regulations at 40 CFR Part 125, Subpart N, to set standards under CWA § 316(b) for new offshore oil and gas extraction facilities (the New Offshore Oil and Gas Facilities Rule). 71 Fed. Reg. 35040. Finally, on August 15, 2014, EPA promulgated regulations at 40 CFR Part 125, Subpart J, that set standards under CWA § 316(b) for *existing facilities* (the Existing Facilities Rule). 79 Fed. Reg. 48430.

Given these three different sets of regulations, EPA must determine whether any of them apply to the SouthCoast Wind Facility. First, the Existing Facilities Rule does not apply because the proposed SouthCoast Wind OCS-DC1 is not an existing facility. *See* 40 CFR §§ 125.91, 125.92(k). Second, the New Offshore Oil and Gas Facilities Rule also does not apply because the proposed OCS-DC1 is not a new offshore oil and gas extraction facility as defined at 40 CFR § 125.131. *See also* 40 CFR §§ 125.130, 125.133 and 435.10.

Finally, EPA has also determined that SouthCoast Wind's proposed OCS-DC1 is not covered by the New Facilities Rule, but a more involved analysis was needed to reach this conclusion. The New Facilities Rule, in pertinent part, defines a "new facility" as:

> … any building, structure, facility, or installation that meets the definition of a "new source" or "new discharger" in 40 CFR 122.2 and 122.29(b)(1), (2), and (4) and is a greenfield or stand-alone facility; commences construction after January 17, 2002; and uses … a newly constructed cooling water intake structure …. New facilities include only "greenfield" and "stand-alone" facilities. ….

40 CFR § 125.83 (definition of "new facility"). 40 CFR 125.81(a). The proposed SouthCoast Wind OCS-DC1 satisfies this definition of new facility because it will be a be a "new discharger" that is also a "greenfield" facility with a newly constructed CWIS. *See* 40 CFR § 125.83 (definition of "new facility").[3] In addition, as proposed, the SouthCoast Wind OCS-DC1 meets the New Facilities Rule's applicability criteria which specify that the Rule applies to new facilities with CWISs that withdraw at

[2] *See also In re Pub. Serv. Co. of New Hampshire (Seabrook Station, Units 1 and 2)*, 1 E.A.D. 332 (Adm'r 1977), 1977 EPA App. LEXIS 16, *19–*20; *In re Brunswick Steam Elec. Plant*, Decision of the Gen. Counsel No. 41, at 200–01 (1976).

[3] As defined in 40 CFR § 122.2, a "new discharger" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants that did not commence the discharge of pollutants at a particular site prior to August 13, 1979, is not a new source, and has never received a finally effective NPDES permit for discharges at that site.

least 2 MGD and use at least 25 percent of the water they withdraw for cooling purposes. 40 CFR § 125.81(a).

Despite satisfying these basic terms of the New Facilities Rule, EPA has determined that the proposed SouthCoast Wind OCS-DC1 is *not* covered by the New Facilities Rule and, therefore, that CWIS requirements for the Facility should be developed based on a case-by-case, BPJ application of CWA § 316(b). *See* 40 CFR § 125.90(b). As explained in more detail below, EPA reaches this conclusion because siting a CWIS well offshore in ocean waters, as will be the case for the SouthCoast Wind OCS-DC1, poses distinct issues that were not considered by EPA when it developed and promulgated the New Facilities Rule. EPA has consistently addressed offshore facilities differently from other facilities and takes the same approach for SouthCoast Wind's OCS-DC1.

SouthCoast Wind proposes to locate the wind farm's OCS-DC1 (and its CWIS) well offshore in relatively deep ocean waters. The potential use of various impingement and entrainment reduction technologies, such as traveling screens, barrier nets, and closed-cycle cooling, at this type of offshore location would face potential engineering challenges, environmental considerations, and economic effects that were not considered during EPA's development of the New Facilities Rule. Consistent with this fact, EPA explicitly excluded the offshore and coastal oil and gas extraction point source category from coverage under the New Facilities Rule. 40 CFR § 125.81(d). EPA explained that it was "deferring regulation of these facilities due to the unique engineering, cost, and economic issues associated with offshore and coastal drilling rigs, ships, and platforms." 66 Fed. Reg. 65311. EPA later addressed these facilities in the New Offshore Oil and Gas Facilities Rule, as mentioned above. 71 Fed. Reg. 35005.[4] In that rulemaking, EPA recognized that there are inherent differences in the design and operation of land-based and offshore facilities, and that these differences may limit the use of certain CWIS technologies in offshore settings. As a result, the Agency adopted a regulatory approach that provides new offshore oil and gas extraction facilities additional flexibilities in complying with the Rule.[5] *See* 71 Fed. Reg. 35019.

Based on its proposed offshore location, the CWIS for SouthCoast Wind's OCS-DC1 will be more like the CWIS for an offshore oil and gas extraction facility than the CWIS for a land-based facility. The OCS-DC's CWIS presents site-specific challenges for the application of available technologies similar to the challenges presented by the CWISs for offshore oil and gas facilities. Yet, as stated above, the

[4] EPA also excluded *existing* offshore oil and gas extraction facilities, as well as existing offshore seafood processing vessels and existing offshore liquified natural gas terminals, from coverage by the Existing Facilities Rule and, instead, continued to address such facilities with a site-specific, BPJ approach. 40 CFR § 125.91(d). *See also* 79 Fed. Reg. 48310 (Aug. 14, 2014).

[5] Notably, EPA did not categorically exempt new facilities from any *land-based* industry segments, including land-based facilities in the oil and gas extraction point source category, from the New Facilities Rule. *See* 66 Fed. Reg. 65311. Rather, EPA concluded that land-based facilities meeting the in-scope requirements at 40 CFR § 125.81 must comply with the rule irrespective of whether the specific industry segment was explicitly analyzed for the Proposed Rule. *See Id*. EPA's decision to categorically exclude new offshore oil and gas extraction facilities from the New Facilities Rule, but not new land-based oil and gas facilities, indicates that this decision turned on the offshore location of the CWISs and the challenges posed by the offshore environment for selecting available CWIS technologies to minimize adverse environmental impacts, rather than turning on the point source category itself.

New Offshore Oil and Gas Facilities Rule simply does not apply to SouthCoast Wind because it is not a new oil and gas extraction facility. *See* 40 CFR §§ 125.131 and 125.133.

In addition, close examination of the New Facilities Rule confirms that EPA did not consider offshore high voltage direct current (HVDC) cooling systems or converter stations, or offshore wind farms, when establishing national requirements for new facilities. Instead, when developing the New Facilities Rule, EPA considered new facilities in two major industrial sectors: 1) steam electric generators (i.e., facilities using a steam electric prime mover); and (2) manufacturing facilities. *See* Technical Development Document (p. 1-1) and Economic Analysis (p. 1-1, 2-2). *See also* 65 Fed. Reg. 49061. The industry profile in the Economic Analysis supporting the Rule indicates that EPA focused on steam electric plants because these facilities use a substantial amount of cooling water. *See* Economic Analysis of the Final Regulations Addressing Cooling Water Intake Structures for New Facilities p. 3-3. The economic costs and impacts for electric generators implementing the requirements of the New Facilities Rule were based on the projected addition of 83 new steam electric generators between 2001 and 2020, which were expected to be comprised of either combined-cycle gas or coal facilities. *See id*. at 5-1. The record indicates that EPA simply did not consider cooling water use associated with the production of renewable energy from offshore wind farms. Although neither the regulations nor the preamble for the New Facilities Rule explicitly exclude offshore converter stations like the one proposed by SouthCoast Wind from coverage by the Rule, nothing in the analysis or record supporting the Rule indicates that EPA considered this type of facility or intended the Rule to apply to it. This is hardly surprising since the New Facilities Rule was promulgated in 2001 and an offshore converter station for an offshore wind farm is a relatively new type of facility. *See* Middleton and Barnhart 2022. Thus, EPA's conclusion that offshore converter stations associated with wind development are not covered by the New Facilities Rule is primarily based on the unique technical and economic challenges presented by the offshore location of these CWISs – SouthCoast Wind's CWIS would lie more than 15 miles offshore – which were not considered in the development of the Rule.[6] Therefore, EPA has determined that CWIS requirements for an offshore converter station like SouthCoast Wind's OCS-DC1 should be set on a case-by-case, BPJ basis. 40 CFR § 125.90(b).

EPA also notes that the potential for adverse environmental impacts from offshore CWISs is clearly demonstrated in Section 5.2 of this Fact Sheet. The determination that the SouthCoast Wind OCS-DC1 is not subject to the New Facilities Rule does not reflect any presumption about the degree of adverse environmental impacts that may be caused by the Facility and does not change the fact that the CWIS is subject to the statutory requirements of CWA § 316(b).

For the reasons stated above, EPA concludes that offshore converter stations associated with wind farms are not subject to the requirements of the New Facilities Rule. Instead, and consistent with 40 CFR §§ 125.90(b) and 401.14, CWISs at offshore converter stations for wind farms must meet §

[6] EPA took a similar position regarding the possible application of the 2014 Final Existing Facilities Rule to existing hydroelectric facilities, concluding that the Existing Facilities Rule did not apply because hydroelectric facilities were not considered in the development of the Rule. As a result, requirements under CWA § 316(b) would be set on a site-specific, BPJ basis for such facilities. *See* July 6, 2022, Transmittal of Revised Framework for Best Professional Judgement for Cooling Water Intake Structures at Hydroelectric Facilities. https://www.epa.gov/sites/default/files/2021-01/documents/transmittal_of_framework_for_bpj_for_cwis_at_hydroelectric_facilities_final_memo.pdf

316(b) requirements established on a case-by-case, BPJ basis. EPA's case-specific evaluation of the location, design, construction, and capacity of SouthCoast Wind's proposed CWIS is presented in Section 5.2 of this Fact Sheet.

2.4 Monitoring and Reporting Requirements

2.4.1 Monitoring Requirements

Sections 308(a) and 402(a)(2) of the CWA and the implementing regulations at 40 CFR Parts 122, 124, 125, and 136 authorize EPA to include monitoring and reporting requirements in NPDES permits.

The discharge-related monitoring requirements included in this permit have been established to yield data representative of the Facility's discharges in accordance with CWA §§ 308(a) and 402(a)(2) and consistent with 40 CFR §§ 122.41(h), (j) and (l)(9), 122.43(a), 122.44(i) and 122.48. The Draft Permit specifies routine sampling and analysis requirements to provide ongoing, representative information on the levels of regulated constituents in the OCS-DC1's discharges. The monitoring program is needed to enable EPA to assess the characteristics of the Facility's effluent, whether Facility discharges are complying with permit limits and conditions, and whether different permit conditions might be necessary in the future to ensure compliance with CWA standards. EPA may use the results of the analyses conducted pursuant to this permit, as well as national water quality criteria developed pursuant to CWA § 304(a)(1), and any other appropriate information or data, to develop numeric effluent limitations for any pollutants, including, but not limited to, those pollutants listed in Appendix D of 40 CFR Part 122.

NPDES permits require that the approved analytical procedures found in 40 CFR Part 136 be used for sampling and analysis unless other procedures are explicitly specified. *See* 40 CFR § 122.41(j)(4). Permits also include requirements necessary to comply with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*.[7] This Rule requires that where EPA-approved methods exist, NPDES applicants must use sufficiently sensitive EPA-approved analytical methods when quantifying the presence of pollutants in a discharge. Further, the permitting authority must prescribe that only sufficiently sensitive EPA-approved methods be used for analyses of pollutants or pollutant parameters under the permit. The NPDES regulations at 40 CFR § 122.21(e)(3) (completeness), 40 CFR § 122.44(i)(1)(iv) (monitoring requirements) and/or as cross referenced at 40 CFR § 136.1(c) (applicability) indicate that an EPA-approved method is sufficiently sensitive where:

- The method minimum level (ML)[8] is at or below the level of the effluent limitation established in the permit for the measured pollutant or pollutant parameter; or

[7] 79 Fed. Reg. 49001 (Aug. 19, 2014).

[8] The term "minimum level" refers to either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL), whichever is higher. Minimum levels may be obtained in several ways: They may be published in a method; based on the lowest acceptable calibration point used by a laboratory; or calculated by multiplying the MDL in a method, or the MDL determined by a laboratory, by a factor. EPA

- In the case of permit applications, the ML is above the applicable water quality criterion, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or parameter in the discharge; or
- The method has the lowest ML of the analytical methods approved under 40 CFR Part 136, or required under 40 CFR chapter I, subchapter N or O, for the measured pollutant or pollutant parameter.

The Draft Permit also proposes monitoring requirements related to the Facility's CWIS operations. These monitoring requirements are authorized by Sections 308 and 402(a)(2) of the CWA. *See also* 40 CFR §§ 122.48, 125.87, 125.88, and 125.137. The required monitoring is intended to provide data to help characterize the environmental effects of the Facility's CWIS operations and track compliance with the permit's CWIS-related requirements. This monitoring data may also be used to support future adjustments to the permit's CWIS-related requirements. The Permittee may seek a modification of the permit's monitoring requirements either when the permit is reissued or during the term of the permit if new information supports such modifications. *See* 40 CFR § 122.62(a)(2).

2.4.2 Reporting Requirements

The Draft Permit requires the Permittee to report monitoring results obtained during each calendar month to EPA and the State electronically using NetDMR. The Permittee must submit a Discharge Monitoring Report (DMR) for each calendar month no later than the 15th day of the month following the completed reporting period.

NetDMR is a national web-based tool enabling regulated CWA permittees to submit DMRs electronically via a secure internet application to EPA through the Environmental Information Exchange Network. NetDMR has eliminated the need for participants to mail in paper forms to EPA under 40 CFR §§ 122.41 and 403.12. NetDMR is accessible through EPA's Central Data Exchange at https://cdx.epa.gov/. Further information about NetDMR can be found on EPA's NetDMR support portal webpage.[9]

With the use of NetDMR, the Permittee is no longer required to submit hard copies of DMRs and reports to EPA unless otherwise specified in the Final Permit. In most cases, reports required under the permit shall be submitted to EPA as an electronic attachment through NetDMR, however certain reports, including the annual biological monitoring reports, must also be submitted to the NPDES Applications Coordinator via email. Certain exceptions are provided in the permit, such as for providing written notifications required under the Part II Standard Conditions.

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regards the following terms related to analytical method sensitivity to be synonymous: "quantitation limit," "reporting limit," "level of quantitation," and "minimum level." *See* Fed. Reg. 49001 (Aug. 19, 2014).

[9] https://netdmr.zendesk.com/hc/en-us

2.5 Standard Conditions

The Standard Conditions, included as Part II of the Draft Permit, are based on applicable provisions of EPA's NPDES permitting regulations. *See* 40 CFR § 122.41. *See also, generally,* 40 CFR Part 122.

2.6 Anti-backsliding

The CWA's anti-backsliding requirements prohibit a permit from being renewed, reissued, or modified with conditions less stringent than the corresponding conditions in a previous permit issued to the same facility, unless doing so is authorized by one of the specified exceptions to the anti-backsliding requirements. *See* CWA §§ 402(o) and 303(d)(4) and 40 CFR § 122.44(l). Anti-backsliding provisions apply to limits based on technology, water quality, and/or State certification requirements.

As this Permit will be the first to authorize pollutant discharges and cooling water withdrawals from the proposed, newly constructed SouthCoast Wind OCS-DC1, anti-backsliding requirements do not apply to this permit.

2.7 Environmental Review Under the National Environmental Policy Act

This NPDES permitting action for SouthCoast Wind is not subject to the environmental review requirements of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321, *et seq.* Section 511(c)(1) of the Clean Water Act (CWA), 33 U.S.C. § 1371(c)(1), expressly provides that only two types of EPA actions under the CWA are subject to the environmental review requirements of NEPA. The first is an EPA award of financial assistance for the construction of a publicly owned treatment works (POTW) under the CWA construction grants program, and the second is an EPA issuance of an NPDES permit under CWA § 402, 33 U.S.C. § 1342, to a facility that is a "new source" under CWA § 306, 33 U.S.C. § 1316. The current permitting action does not fall within either of these two categories of EPA actions, as described below. Therefore, it does not require NEPA review by EPA.

First, the proposed permitting action obviously does not involve financial assistance for construction of a POTW. Second, neither SouthCoast Wind nor its OCS-DC1 are new sources under CWA § 306. To be a new source under the CWA, a facility must satisfy several criteria, including that it must fall within an industrial category for which new source performance standards have been developed. *See* 33 U.S.C. § 1316(a)(2). *See also* 40 CFR §§ 122.2 (definition of "new source") and 122.29(b)(2). Since EPA has not promulgated new source performance standards for wind power facilities or any associated converter stations, whether based on land or water, neither the SouthCoast Wind offshore wind farm nor its OCS-DC1 would be new sources under CWA Section 306. Accordingly, NEPA review is not required in connection with EPA's proposed issuance of an NPDES permit to the Facility.

That said, BOEM *is* preparing a final environmental impact statement (EIS) under NEPA to support *its* review and potential approval of SouthCoast Wind's September 2023 Construction and

Operations Plan (COP) for the Facility.[10] EPA (and various other agencies) have assisted and cooperated with BOEM during its development of the Final EIS as well as its earlier Draft EIS. *See* BOEM's Draft EIS for the SouthCoast Wind Farm Project on the Northeast Atlantic Outer Continental Shelf.[11] *See also* 40 CFR § 1501.8. The Draft EIS includes detailed discussion of the proposed project and alternatives to it and their potential environmental effects. Many of the diverse aspects of the project are discussed in the Draft EIS, including its pollutant discharges and cooling water withdrawals. In contrast, this Fact Sheet primarily focuses on aspects of the proposed Facility regulated by the NPDES permit and the basis of the proposed permit conditions.

3.0 Description of Facility

3.1 Location and Type of Facility

SouthCoast Wind (formally Mayflower Wind) is proposing to install and operate an offshore wind farm that will include at least one dedicated, stationary offshore converter station (OCS-DC1). The Facility will be located on the outer continental shelf in BOEM Renewable Lease Area OCS-A 0521. The lease area is situated in federal waters (defined as waters seaward of the three-nautical mile (nm) territorial sea and extending out to 200 nm from the baseline from which the territorial sea is measured)[12] approximately 30 miles (26 nautical miles (nm)) south of Martha's Vineyard and 23 miles (20 nm) south of Nantucket, Massachusetts. A location map is provided in Figure 1.

Wind turbines generate high voltage alternating current (AC) power, which is the type of current used in homes in the U.S. However, AC power does not travel as efficiently as direct current (DC) power through underwater cables over long distances. Converting electricity from AC to DC for long-range bulk transmission from offshore wind farms would reduce power losses. *See* Middleton and Barnhart 2022. The SouthCoast Wind offshore wind project is proposing to use the OCS-DC1 to collect the high voltage AC power generated by the wind turbine generators, convert it to high voltage direct current (HVDC) for transmission, and then transport the power to onshore electrical infrastructure in Massachusetts, at either Falmouth or Somerset (at Brayton Point), via the Falmouth and Brayton Point export cable corridors.

Therefore, the OCS-DC1 will house equipment for converting lower AC voltage to higher DC voltage and for high-voltage power transmission. The main equipment to convert the power generated by wind turbines includes switch gear, transformers, power conditioning and control equipment, HVDC valves and insulated-gate bipolar transistors, monitoring and supervisory control and data acquisition systems, and auxiliary equipment. COP, Vo. 1, pp. 3-30, 3-36. The OCS-DC1 will also be

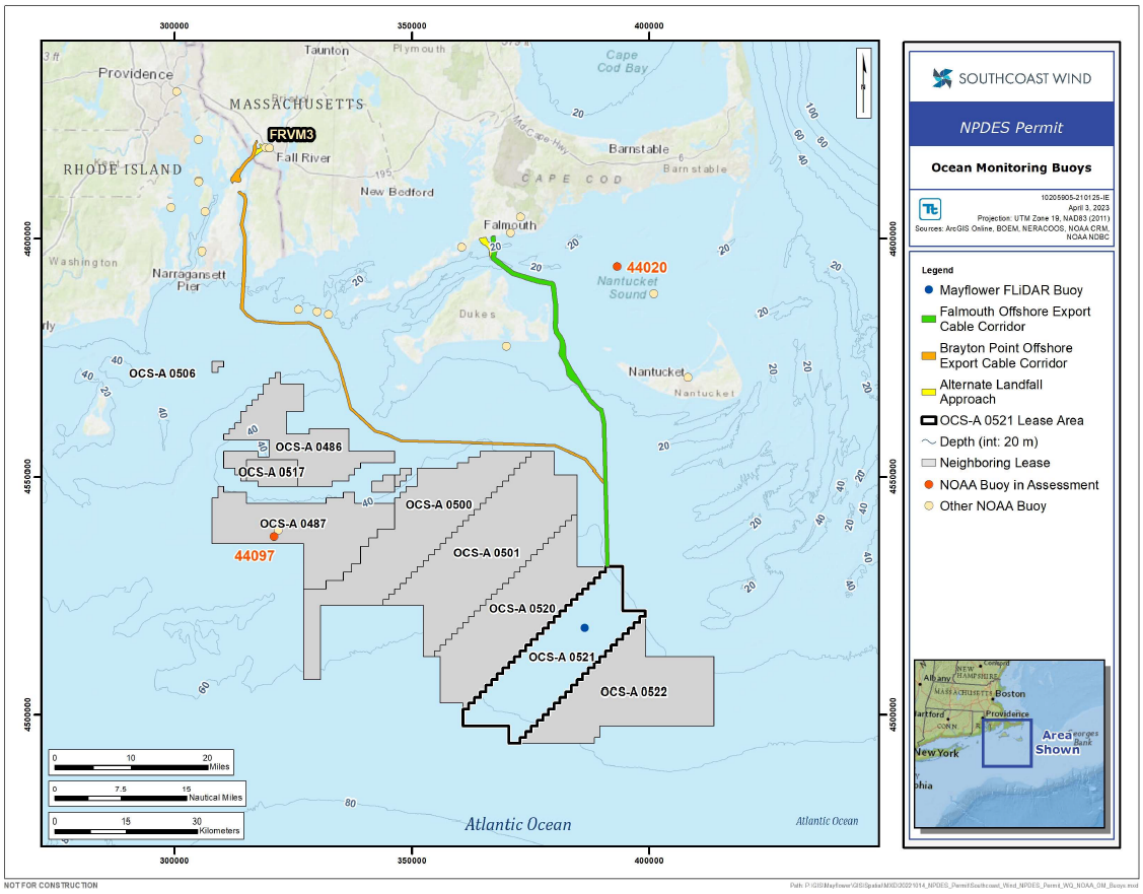
[10] COP can be found at https://www.boem.gov/renewable-energy/state-activities/southcoast-wind-formerly-mayflower-wind

[11] BOEM announced the availability of the Draft EIS on February 17, 2023. The Draft EIS and supporting documents, including the COP, are available at https://www.boem.gov/renewable-energy/state-activities/southcoast-wind-formerly-mayflower-wind#tabs-2046.

[12] The federal government and the adjacent state have concurrent jurisdiction over waters within or landward of the territorial sea, whereas only the federal government has jurisdiction over waters seaward of the territorial sea (i.e., federal waters).

equipped with emergency power generation, fire and safety equipment, first aid and lifesaving equipment, lighting, an offshore crane, and communications equipment.

Figure 1: SouthCoast Wind Location Map (**from NPDES Application, p. 12**).



Significantly, from the perspective of NPDES permitting, converting power from AC to DC generates heat and requires the systems to be cooled when operating. Therefore, to cool the power components, the proposed OCS-DC1 includes a heat exchanger. SouthCoast Wind is proposing to withdraw ocean water through a subsurface intake to use as its cooling medium and then to discharge the heated NCCW back to the ocean. In other words, the permit applicant proposes to operate the OCS-D1 with an "open-loop" cooling system.

The proposed OCS-DC1 will be centrally located in the northern part of the lease area. Inter-array cables placed under the seafloor will be used to transfer electrical energy from the wind turbine generators (WTGs) to the offshore converter station platform. The OCS-DC1 platform proposed design is a piled jacket offshore platform with topside dimensions ranging from 115– 230 feet (ft) wide by 197 – 328 ft long and having a height of between 161 – 292 ft above mean lower low water (MLLW) level. COP, Vol. 1, p. 3-30. The Applicant expects construction of the OCS-DC1 to begin no earlier than 2026 and for the Facility to be commissioned and operational by 2030. COP, Vol. 1, p. 3-9. The proposed operational life span of the Facility is 35 years. *Id.*, p. 3-83. *See also* Draft EIS.

3.2 Location and Types of Cooling Water Withdrawals and Pollutant Discharges

The Draft Permit proposes to authorize discharges of NCCW to the Atlantic Ocean via the OCS-DC1's Outfall 001 (alternately referred to as the "discharge caisson"). The Permittee proposed that Outfall 001 be located at Latitude 40° 48' 18.16" (40.805045 N), Longitude -70° 19' 29.41" (-70.324838 W) in the Atlantic Ocean. The OCS-DC1 will withdraw seawater for non-contact cooling of heat produced in the conversion of electricity from AC to DC. The waste heat will then be discharged as thermal effluent to the Atlantic Ocean. The effluent will also contain sodium hypochlorite (i.e., bleach), which will be used to prevent biological growth in the cooling system. Both the heat and the sodium hypochlorite are pollutants under CWA § 502(6).

As a result of consultation by EPA with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries), the Draft Permit proposes a requirement that Outfall 001 and the cooling water intake structure be located in waters at or greater than 50 meters in depth, to the southwest of the location proposed by the Permittee, to avoid adverse impact to essential fish habitat. *See* Section 5.2.4 for further explanation, including Figure 11.

The Facility's proposed NCCW system includes three separate vertical intake pipes (caissons), each with its own: intake screen (located at the bell mouth opening of the intake); inline pump strainer (located within the intake pipe prior to the pump); submerged seawater lift pump; pump flowline filter; and plate heat exchanger (also called a plate-and-frame heat exchanger). The in-line seawater lift pump strainer will have a typical outer screen size of 0.375 inches (9.5 millimeters), intended to protect the pump impeller from debris in the water column. The strainers are retractable on the seawater lift pump for cleaning.

Each of the pump flowline filters, located at deck level 1 of the OCS-DC1 platform, are also dedicated filters (with a typical mesh size of 250 micrometers (µm)) intended to protect the heat exchange equipment and ensure reliable operation of the cooling system. The filter is provided with an automated backwash cleaning system to the discharge caisson. No chemicals are involved in the cleaning cycles. Each pump flowline filter system will automatically backwash based on pressure differential measured over the screen (increased pressure may be caused by the buildup of debris, including entrained organisms, on the screen), but the backwash can be manually activated as well. Backwashes will use approximately 630 gallons per minute (gpm), for 30 seconds per cycle, resulting in a total flow of 315 gallons per backwash cycle, with the effluent flow directed to the discharge caisson. *See* SouthCoast Wind Responses to EPA Comments, attached to email dated March 25, 2024. Total backwash flow is intermittent, with maximum flow ranging between approximately 0.41 MGD (SouthCoast Wind Responses to EPA Comments, as table attached to email dated December 5, 2023) and 0.63 MGD (SouthCoast Wind, Seawater system – Hypochlorite generators / Caissons Memo, August 23, 2024 (SouthCoast August 23 Memo).

After absorbing heat from the freshwater circulation system within the heat exchangers, the once-through, non-contact seawater used for cooling will be discharged through a single discharge caisson (Outfall 001). The seawater filters will automatically backwash to the discharge caisson as well. A more detailed description of the NCCW intake system can be found in Section 5.2.2 of this Fact Sheet.

The Permittee is proposing to use a system that will generate sodium hypochlorite (NaOCl) by seawater electrolysis (also known as an electrochlorination system). Doses between 1 part per million (ppm) and 4 ppm of hypochlorite will be injected continuously into the suction side of the intake pumps to prevent marine growth in the seawater system. A site flow schematic is provided in Appendix A.

As indicated, the heat exchange system will be comprised of three parallel but separate plate-and-frame heat exchangers. The NCCW will exchange heat with the closed-circuit, cooling medium coolant loop. Outfall 001 will be a single 36" (0.91 m) diameter vertical-shaft discharge pipe (caisson) with the terminal outlet located approximately 42.7 ft (13 m) below sea level and 108.9 ft (33.2 m) above the seafloor, set perpendicular to the seafloor, located within the jacketed-based foundation structure, and within a 20-meter radius from the center of the platform coordinates. Outfall 001 will discharge heated and chlorinated effluent from the heat exchange systems, and periodic, pressure-based backwash from the inline seawater filters. The maximum discharge temperature is not expected to exceed 83.3°F (28.5°C). See NPDES Permit App, Comment Response Matrix, including Proposed Intake Flow Table, August 5, 2024. The location and depth of the discharge caisson ensures sufficient distance is maintained between the CWIS caissons and the discharge caisson so that the heated discharge will not be drawn into and negatively affect the cooling water system.

The OCS-DC1 will also discharge from the platform (i.e., top deck) stormwater run-off that has not been in contact with any equipment or industrial material. This stormwater does not fall under any of the categories required to obtain a NPDES permit at 40 CFR § 122.26(a)(1). However, stormwater exposed to industrial activities – which in this case would be from "[d]rains that have the potential to be contaminated with oil (i.e., rainwater falling into the drip trays under outdoor-containing equipment)," such as "transformer radiators, bunded areas, … laydown areas where hazardous substances are handled," and the "crane hydraulic package" – are directed to a "hazardous drain header." SouthCoast Wind Responses to EPA Comments, as table attached to email dated December 5, 2023. *See also* SouthCoast August 23 Memo, p. 14/14.

From the hazardous drain header, stormwater will then be directed through a passive gravity oil/water separator (OWS),[13] equipped with at least two analyzers or oil content monitors (OCMs) to identify the presence of oil in the outlet water.[14] If either analyzer detects oil above 5 ppm, the stormwater flow from the hazardous drain header will be directed to a closed drain tank (or bunker

[13] These devices use gravity to separate lower-density oils from water, resulting in an oil phase above the oil/water interface and a heavier particulate phase on the bottom of the separator. The sizing of an OWS is based upon the flow rate, density of oil to be separated, desired percent removal of oil, and the operating temperature range. To ensure proper operation of OWSs such that the oil and contaminated water do not pass through to the receiving water, it is important that the flow through the separator be maintained at or below the maximum design flow rate of the equipment. State-of-the-art OWSs have automatic alarms and closure or diversion devices that can be activated when the oil storage or flow capacity of the OWS has been reached.

[14] According to SouthCoast Wind, "[t]he oil analyser technology will utilize Fluorescence spectrometry where the analyser will detect the specific types of oils present on the facility. The Flourescence (sic) spectrometry work by detecting the specific spectrum of light emitted petrolium (sic) when exiting using a laser." EPA NPDES Permit Application Comment Matrix, September 23, 2024.

station) and stored for further processing. If the OCMs do not detect oil above 5 ppm, stormwater treated in the OWS will be discharged through the overboard caisson. *See* SouthCoast August 23 Memo, p. 14/14. Based on logistical and safety concerns, it would be impractical to require sampling of OWS-treated wastewater during storm events. Instead, the Permittee is required to have an OCM, including an alarm, integrated into the piping system to detect whether the treated stormwater that is being discharged from the OWS to the ocean via the discharge caisson meets the 5-ppm discharge requirement. To ensure treatment equipment maintenance and compliance with the discharge requirement, the Draft Permit includes the following best management practice (BMP)-based conditions:

- The OWS must be capable of treating oil and grease to a level of 5 ppm and be maintained to continue its effectiveness, including the regular removal of accumulated oil and solids from the OWS;
- Oil-emulsifying cleaning solutions (detergents) shall not be used in areas that flow into the OWS;
- All stormwater exposed to industrial activity, that is not routed directly to the closed drain tank, must be treated through the OWS;
- Stormwater flows above the design capacity of the OWS must be directed to the closed drain tank;
- The closed drain tank must be emptied prior to all major storm events;
- The OWS must include alarms and a diversion device which prevents high flows to the OWS and the discharge of oil and grease above 5 ppm;
- The OCMs must be capable of measuring oil and grease to a level of 5 ppm and be calibrated at least annually;
- The discharge OCM must never read above 5 ppm during discharges from the OCS-DC1;
- The Permittee shall submit the design specifications of any OCM used, including detection limits and calibration schedules to EPA within one year of the effective date of the permit;
- The Permittee shall keep a record of any maintenance done to the OWS and all calibrations of the OCMs;
- The Permittee shall keep a record of any discharge events where the 5 ppm oil and grease level was exceeded, including the estimated flow volume of the event;
- The Permittee shall implement best management practices to limit, diagnose and resolve > 5 ppm discharge events as soon as possible, and shall record the steps taken to diagnose and resolve the event, including the time that elapsed from when the event began to its resolution; and
- All records must be kept for at least three years and made available to EPA upon request.

See Sections 5.3.1 and 5.3.2 for additional stormwater-related permit requirements. According to SouthCoast Wind:

> [t]he separator is sized for 30 mm/hr/m2, appropriate for hurricane storm conditions offshore. The Oil/water separator has an overflow to the closed drain tank, which is equipped with level transmitters which can be read/monitored from a remote onshore operator control room. The operations team can monitor the tank level in real time and will plan to empty it in line with the Operations and Maintenance processes and procedures. As an additional precaution, if any amount of water was in the tank, the maintenance procedures will ensure that the tank is emptied ahead of any large storms.

EPA NPDES Permit Application Comment Matrix, September 23, 2024. If EPA determines at any point during the permit term that the system will not reliably treat, or that the analyzers used will not reliably measure oil-in-water at a level of 5 ppm, EPA can modify the permit to require the storage and subsequent treatment of all stormwaters subject to industrial activity.

According to SouthCoast Wind's Schematic of Water Flow Diagram (see Appendix A), both the "converter transformer drain pits" and the "back-up diesel generator/automatic diesel cleaning unit" will be routed directly to the closed drain tank. As described above, stormwater with a detectable amount of oil (≥ 5 ppm) will also be directed to the closed drain tank. The stormwater that collects in the closed drain tank will be directed to an "offshore transfer vessel" that will transport the wastewater to shore for treatment at authorized facilities.

In addition, the Facility will be equipped with freshwater cooling system pumps/drains, as well as heating, ventilation, and air conditioning (HVAC) drains. Any wastewater entering the HVAC and freshwater cooling system pumps/drains is directed to and mixes within the air condensate tank. Wastewater is analyzed and directed to the overboard caisson, via the technical water tank, if glycol is not detected.[15] *Id*. *See* also Appendix A: Schematic of Water Flow.
Glycols including ethylene glycol, 1,2-propylene glycol, and diethylene glycol are widely used as heat transfer fluids and for deicing. There is limited data available regarding the toxicity of glycols to marine organisms. However, high glycol levels in a waterbody typically corresponded to higher BOD and COD levels, as glycols exhibit high levels of oxygen demand. Glycols do not have numeric water quality criteria, but they are oxygen demanding substances that may impact dissolved oxygen concentrations in the receiving water. The two most common types of glycols used in HVAC systems are ethylene glycol and propylene glycol, which are generally mixed with water and used to protect against freezing temperatures and damage from corrosion. Given that the Applicant expects to discharge only trace amounts of glycol at a depth of approximately 42.7 ft (13 m) below the water surface, within the dynamic environment of the ocean, so that it is likely undetectable within the

[15] SouthCoast Wind explains the risk of hydrocarbon-based leaks in the freshwater pump system is from bearings, oil lubrication tanks, and/or seals. However, the bearings "contain a grease lubricant, are secured within a lifetime bearing seal which contains any potential bearing grease leak within the bearing itself,… [t]here is no oil lubrication or oil tank within the SouthCoast Wind freshwater system pump, [and the] system design includes magnetic driven pump which contain no seals." SouthCoast Wind, EPA NPDES Response to Comment, attached to email dated October 2, 2024. Furthermore:

> …there are no possible Hydrocarbon sources during normal operations. Durning (sic) planned O&M of the system and pumps, the drip trays will be plugged, this is to prevent any grease, lubricant or any other hydrocarbon-based spills from maintenance activities from entering the tanks. Any spills during O&M will be contained within the drip trays and cleaned up fully before the plugs are removed for normal operations.

Id.

ZID, EPA does not expect any significant effects on dissolved oxygen. However, to minimize the potential discharge of glycol related to inadequate treatment, human error, and/or equipment malfunction, the Draft Permit proposes the following BMPs:

- Pumps must have a drip pan for the collection of leaks and/or spills, which must be either plugged or directed to the glycol-water contaminated drain system;
- All other freshwater system locations subject to leaks and/or spills must be either plugged or connected to the glycol-water contaminated drain system;
- All drip pans must be inspected during regular manned maintenance activities and cleaned if contaminants are present;
- A glycol analyzer shall be maintained within the condensate tank;
- If glycol is detected in the condensate tank, the entire tank contents must be drained to the closed drain tank for offshore disposal;
- There shall be no intentional discharge of glycol or wastewater containing glycol from the Facility; and
- All drains must be plugged during maintenance activities and any potential spills from maintenance activities must be cleaned before the drain route is re-opened.

Finally, SouthCoast Wind reported that "[t]here will be no grey/black water on the SouthCoast Wind offshore service platform." SouthCoast Wind Responses to EPA Comments, attached to email dated March 25, 2024. However, SouthCoast Wind does not yet have information regarding whether there will be discharges from the Facility's seawater pump seals. In some cases, the seal fluid consists of a water and glycol solution that could be discharged during the initial commissioning start-up of the pumps. *See* Sunrise Wind 2023 Fact Sheet, p.31. SouthCoast Wind is not authorized to discharge pump seal water containing glycol without notifying EPA pursuant to Part I.C.1 of the permit.

4.0 Description of Receiving Water

The Facility will discharge from the OCS-DC1, through Outfall 001 to the Atlantic Ocean. As previously indicated, the lease area is located in federal ocean waters – i.e., waters lying seaward of both the territorial sea (the three-mile band seaward of the baseline) and the contiguous zone (the nine-mile band lying seaward of the territorial sea). *See* CWA §§ 502(8), (9) and (10). More specifically, the lease area is located approximately 30 miles (26 nm) south of Martha's Vineyard and 23 miles (20 nm) south of Nantucket, Massachusetts.

Ocean depths in the vicinity of the proposed wind farm range between 121.7 ft (37.1 m) to 208.3 ft (63.5 m) in relation to MLLW level. COP, Vol. 1, p. 3-1. "Based on the water level and depth averaged current velocity data received from SouthCoast Wind at the facility location, the current speed ranges from 1.5 meters per second (m/sec) to 2 m/sec in all directions with no periods of slack tide." NPDES Application, Appendix A, p. 3. The expected average water depth at Southcoast's proposed location for the OCS-DC1 is approximately 47.3 meters (155 feet) . See NPDES Application, p. 25 and 27. However, as discussed in Section 3.2 of this Fact Sheet, the Draft Permit proposes to require that the outfall and intake locations be placed at a location with an expected average water depth at or greater than 50.0 m (164.0 ft). Velocities in the water column are stratified with the highest velocities at the surface and lower velocities near the bottom. The average surface velocity

is 0.61 fps. (0.19 mps)[16] Water temperatures vary seasonally with peak temperatures in late summer and early fall. In general, thermal stratification is present during this period with mean surface temperatures near 61.7°F (16.5°C) and mean bottom temperatures near 54.9°F (12.7°C). *See* NPDES Application, p. 11. Generally, thermal stratification is less evident during winter and spring with mean surface temperatures near 42°F (5.5°C) and mean bottom temperatures near 44°F (6.8°C). *Id*. Salinity ranges from approximately 32-34 parts per thousand (ppt). *Id*. Sediment in the vicinity of the proposed OCS-DC1 generally consists of mud and muddy sand. *See* COP, Vol. 2, Section 4.1 (Site Geology) and Appendix E (Marine Site Investigation Report). *See also* NPDES Application, pp. 19-24). In addition, glauconite sand has not been found in significant quantities that would affect planned wind turbine locations within the lease area. Genevieve Brune, BOEM, comment during SouthCoast Wind Interagency (Microsoft Teams) Meeting, July 24, 2024. Glauconite is a potassium, iron, aluminum silicate that is typically found as small, fine-grained particles in shallow marine environments (i.e., sand). Glauconite sand, also known as greensand because of its characteristically green color, "has been identified as a potential geohazard due to its susceptibility to crushing, resulting in driving resistance and premature pile installation refusal, which are significant risks to offshore wind farm development (Westgate, et al., 2022)." Bruggeman, et al. 2023.

5.0 Proposed Permit Conditions

The proposed permit conditions derived under the CWA are described below. These proposed permit conditions include, among other things, effluent limitations, CWIS requirements, and monitoring and reporting requirements. The proposed permit conditions may be found in Part I of the Draft Permit. The bases of the proposed permit conditions are discussed and explained throughout this Fact Sheet. In setting permit conditions for the Draft Permit, EPA used the maximum intake and discharge flow of 9.9 MGD and the highest estimated monthly average intake and discharge flow of 4.8 MGD, as projected by SouthCoast Wind.

5.1 Outfall 001 Effluent Limitations and Monitoring Requirements

EPA based the Draft Permit's proposed effluent limitations on federal law and regulations, information regarding the Facility's projected discharge characteristics, and data regarding ambient conditions and characteristics, all as described above.

5.1.1 Effluent Flow

The CWA authorizes EPA to set NPDES permit limits on effluent flow volumes for the OCS-DC1. The CWA also authorizes EPA to regulate the quantity of pollutants in the discharge through a restriction on the quantity of effluent discharged by the Facility. *See* CWA §§ 402(a)(1) and (2), 403(a), 301(b)(1)(C); 40 CFR §§ 122.4(a), 122.43(a), 122.44(d)(5) and (7), 125.123. Moreover, the statute and regulations authorize EPA to set permit requirements for monitoring and reporting of effluent flow volumes. CWA § 402(a)(2) and 40 CFR §§ 122.44(i), 122.48 and 125.124.

[16] This velocity is based on metocean buoy data for 3 meters below the water surface from 9/16/2020 to 1/23/2022 (though there are missing data gaps for certain dates within that period).

Besides intermittent stormwater flow and extremely low volumes of HVAC and freshwater cooling system pumps/drains flows discussed above, essentially all of the flow through the discharge caission (Outfall 001) can be attributed to the once-through cooling system. The cooling water system for the proposed OCS-DC1 will have three seawater lift pumps, each with a design capacity of 3,434 gpm or 4.95 MGD. The system is designed to operate with one or two pumps running simultaneously, while the third pump provides redundancy and will be kept on stand-by.[17] The application states that the expected maximum design intake flow (DIF) of the non-contact cooling water system is 9.9 MGD.[18] The maximum intake flow in this case is equal to the expected maximum discharge flow.

SouthCoast Wind analyzed the historical performance of a similar sized wind-powered electric generating facility (1200 MW) to estimate the average seawater intake flows from OCS-DC1 using variable speed drives (VSD's).[19] *See* SouthCoast August 23 Memo, p. 11/14. Based on 30 years of monthly average capacity data for the example facility, SouthCoast Wind estimated expected average monthly cooling water flow through OCS-DC1 over 30 years. The highest average monthly cooling water flow (755 m3/h (4.8 MGD)) was recorded for October of year 18. EPA determined that this flow is appropriate to use as the permitted average monthly discharge flow from the OCS-DC1 in the Draft Permit. Therefore, the Draft Permit proposes a maximum discharge flow of 9.9 MGD and an average monthly flow limit of 4.8 MGD. As discussed in Section 5.2.3 below, the Draft Permit also proposes a maximum through-screen velocity of 0.5 fps, which must be monitored and reported in the monthly DMR.

5.1.2 pH

The hydrogen-ion concentration in an aqueous solution is represented by the pH using a logarithmic scale of 0 to 14 standard units (S.U.). Solutions with pH 7.0 S.U. are neutral, while those with pH less than 7.0 S.U. are acidic and those with pH greater than 7.0 S.U. are basic. Discharges with pH values markedly different from the receiving water pH can have a detrimental effect on the environment. Not only can sudden pH changes kill aquatic life, but pH can also affect the toxicity of other pollutants in the water.

In open ocean environments with substantial water depth, a discharge should not change the receiving water pH by more than 0.2 S.U. outside of the naturally occurring variation or cause the pH to be outside of the range of 6.5 to 8.5 S.U. *See* EPA 1986 Quality Criteria for Water ("Gold Book"), p. 233.[20] As the Facility's discharge will be primarily comprised of once-through cooling water, EPA does not expect the pH of the effluent to be altered by more than 0.2 S.U. from the pH of the influent. Because the OCS-DC1 is unmanned, EPA proposes monthly monitoring of the

[17] The stand-by or idle pump will run at 1.3 MGD (200 m3/h) during slow start ups and during the winter to prevent stagnant water from freezing.
[18] The effluent flow limit is determined by the influent flow volume to be drawn into the Facility by the CWISs.
[19] There are multiple types of variable speed drives (VSDs), including variable frequency drives (VFDs). Common VSD's and VFD's are both used to vary the speed of a motor, but they do so in different ways. For this permitting context, EPA is considering VSD's and VFD's as interchangeable.
[20] Gold Book available at https://www.epa.gov/sites/default/files/2018-10/documents/quality-criteria-water-1986.pdf.

ambient pH (representative of the natural range) and effluent pH during commissioning to demonstrate that the pH of the effluent remains within the expected range of 6.5 to 8.5 S.U., and that the change in pH is not more than 0.2 S.U. outside of the naturally occurring variation. EPA proposes this monitoring in the Draft Permit provided that during commissioning operation of the heat exchangers (including intake and discharge flow and effluent temperatures) and the electrochlorination system (including effluent total residual oxidants (TRO)) are representative of full-scale operations.

If pH monitoring performed during the commissioning period (which is expected to last no less than 12 months) demonstrates that the pH of the effluent is within the expected range of 6.5 to 8.5 standard units and any change in pH is within the range of naturally occurring variation (i.e., +/- 0.2 S.U.), then ongoing pH monitoring may not be necessary. Therefore, the Draft Permit allows SouthCoast Wind to request elimination of pH monitoring based on the results of a commissioning period monitoring effort (of a minimum of 12 months). After review of the demonstration report, EPA may grant the request to eliminate pH monitoring if it finds that the monitoring results support that result.

5.1.3 Temperature

Section 502(6) of the Clean Water Act defines heat, among other things, as a "pollutant." *See* 33 U.S.C. § 1362(6). Water temperature affects the metabolic and reproductive activities of aquatic organisms and can determine which fish and macroinvertebrate species can survive or thrive in a water body. Certain cold-blooded species cannot regulate their body temperature through physiological means, so their body temperatures reflect the temperatures of the water they inhabit. In addition, rapid changes (increases or decreases) in ambient water temperature can directly affect aquatic life, particularly fish. Ambient water temperature can also indirectly affect aquatic life by influencing other water quality parameters, such as dissolved oxygen,[21] given that the solubility of oxygen decreases as water temperature increases.

> The impact of raised water temperatures on living organisms is most frequently seen in the lowered dissolved oxygen saturation level of warmer water since dissolved oxygen levels are often a limiting factor for organism survival (Mel'nichenko et al. 2008). Further, temperature affects the speed of egg development and growth of offspring (Walkuska and Wilczek 2009).

Draft EIS, p. 3.5.5-41. EPA's current national recommended water quality criteria table indicates that temperature effects on aquatic life are species dependent and refers to the Gold Book.[22] To ensure protection of marine life from adverse thermal effects, the Gold Book (p. 280) recommends (i) that discharges not cause a maximum increase of greater than 1°C (1.8°F) in the weekly average temperature during all seasons of the year, provided the summer maxima are not exceeded, and (ii)

[21] "The amount of DO [dissolved oxygen] in water determines the amount of oxygen that is available for aquatic life to use. Temperature strongly influences DO content, which is further influenced by local biological processes. For a marine system to maintain a healthy environment, DO concentrations should be above 5 mg/L; lower levels may affect sensitive organisms (USEPA 2000)." Draft EIS, p. 3.4.2-1.

[22] National Recommended Water Quality Criteria Table available at https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table.

that discharges not alter the daily temperature cycles characteristic of the water body in either magnitude or frequency. These Gold Book temperature recommendations are chronic-based criteria (as opposed to acute) and are also referred to as the Criterion Continuous Concentration (CCC).

SouthCoast Wind provided an assessment of the thermal impacts on the receiving water of heated effluent from the OCS-DC1. *See* NPDES Application, pp. 13-19. In this assessment, SouthCoast Wind summarizes the results of thermal modeling based on a projected maximum daily effluent temperature of 86°F (30°C).[23] The analysis used a temperature differential of 1°C (1.8°F) to determine the extent of the thermal plume, which is consistent with EPA's Gold Book.

For the thermal plume analysis, SouthCoast Wind used 1) the Cornell Mixing Zone Expert System (CORMIX) to model dilution of the heated discharge, 2) "site-specific metocean data provided by SouthCoast Wind to identify and calculate the velocity, temperature, and salinity model input parameters for the CORMIX mixing zone model," and 3) data outputs from the Hybrid Coordinate Ocean Model (HYCOM) "to help support defining the ambient condition and hydrodynamic characteristics for each season." NPDES Application, Appendix A, p. 3. The thermal plume was evaluated seasonally (i.e., fall, winter, spring, summer) for the highest temperature deltas between ambient and the thermal effluent (i.e., lowest ambient temperatures), which occurs during winter (39.6°F/4.2°C) and spring (38.6°F/3.7°C). The model was run using the maximum effluent discharge flow of 9.9 MGD and maximum discharge water temperature of 86°F (30°C) for each of the four seasonal scenarios.

The depth of the discharge outfall location is 42.7 ft (13 m) below the surface or 108.9 ft (33.2 m) above the seafloor.[24] Considering that the metocean surface temperatures were generally lower than the HYCOM simulated temperatures at the depth near the outfall, the more conservative surface temperatures were used in the CORMIX analysis, resulting in higher temperature deltas. "HYCOM outputs were used to determine the depth-averaged current speeds on the days when the maximum seasonal temperature delta occurred." NPDES Application, Appendix A, p. 4. Table 1 provides the results of each CORMIX scenario, including the dimensions of the plume when the temperature differential reaches 1.8°F (1°C).

[23] The complete thermal modeling analysis is provided in Appendix A of the NPDES Application: Thermal Plume Modeling, Tetra Tech Memo, SouthCoast Wind CORMIX Mixing Zone Results - revised July 2023, July 31, 2023.

[24] This depth is consistent with another converter station located off the southern coast of New England. The 2023 Fact Sheet for the Sunrise Wind NPDES Permit (MA0004940) explains that:

> Based on the analysis of the CORMIX modeling results, Sunrise Wind selected 12 m as the depth for locating the discharge outfall…. The Applicant rejected the 6 m (18 ft) depth for the outfall location to avoid exposure during a 100-year wave event and because in this scenario the thermal plume reached the ocean surface. The Applicant also rejected the 30 m (100 ft) depth for the outfall location because of the potential for heated effluent to be subsequently withdrawn by the cooling water intake.

Table 1: CORMIX Results for Maximum Temperature Delta Scenarios Where Temperature Delta is 1.8°F (1°C) for SouthCoast Wind (from NPDES Application, Appendix A, p 5).

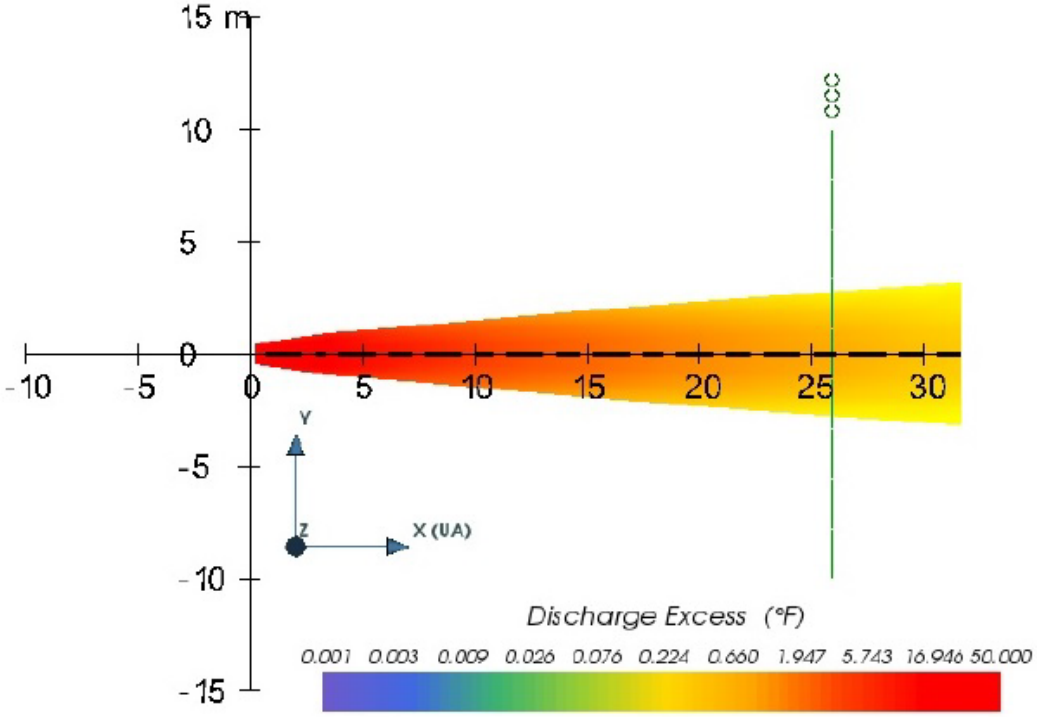
Parameter	Scenario 1: Fall	Scenario 2: Winter	Scenario 3: Spring	Scenario 4: Summer
Atlantic Ocean temperature at the edge of the plume, °F (°C)	55.9 (13.3)	41.4 (5.2)	40.4 (4.7)	53.1 (11.7)
Dilution ratio at the edge of the plume	17.8	25.8	26.3	19.7
Plume Length[1], feet (meter)	41.9 (12.8)	84.9 (25.9)	67.5 (20.6)	46.6 (14.2)
Plume Width (maximum), feet (meter)	11.8 (3.6)	11.1 (3.4)	12.8 (3.9)	28.7 (8.7)
Plume Area, ft^2 (m^2)	407.0 (37.8)	792.1 (73.6)	721.2 (67.0)	657.1 (61.0)

: Distance from the outfall

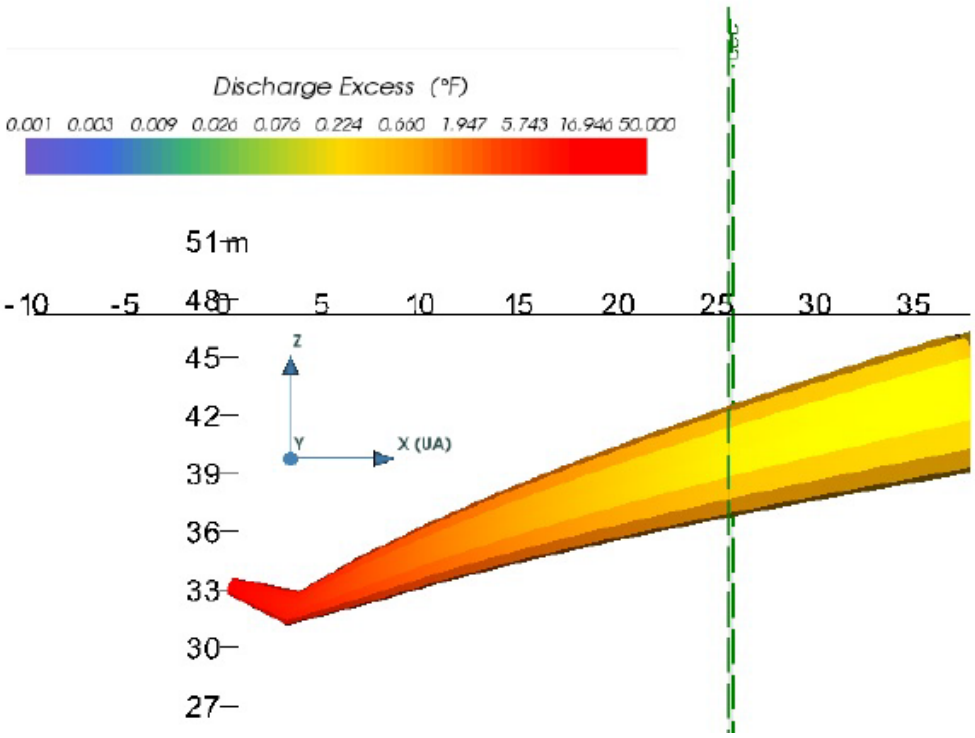
Model results suggest that the thermal plume (at a maximum discharge temperature of 86°F) is generally in the range of from 42 feet (13 m) to 85 feet (26 m) long, and between 11 feet (3.4 m) and 29 feet (8.7 m) wide, when the temperature delta is 1°C (1.8°F). The largest extent of the plume (about 792.1 ft^2 (73.6m^2)) is expected to occur during winter. Figure 2 illustrates the plan (top) and profile (side) view of the winter plume. Generally, the modeled plume is fully mixed within about 85 ft (26 m) of the outfall (not shown). The plume is slightly buoyant but becomes fully mixed within a depth of about 30 ft (9 m) of the outfall. The plume is expected to mix relatively quickly. To offer some points of comparison, the expected area of the plume under worst-case conditions is about 0.2% of the area encompassed by the foundation (including scour protection) of the OCS-DC1 (39,619 m^2 or 9.79 acres), and the length of the plume is about 1.4% of the expected distance between WTGs (1,851 m or 1.15 miles). *See* Draft EIS, p. 2-24. *See also* COP, Vol. 1, Table 3-3. Mobile organisms are expected to be able to avoid any adverse effects from the thermal plume by swimming around, above, or below the plume.

Figure 2: Model Views of Winter Thermal Plumes (from NPDES Application, p. 16).

Scenario 2, Winter: Plan View. Criterion Continuous Concentration (CCC) represents the distance from the discharge where the temperature delta fell back to within 1°C (1.8°F) of the ambient seawater temperature. Both axes are horizontal distances in meters.



Scenario 2, Winter: Profile View. Criterion Continuous Concentration (CCC) represents the distance from the discharge where the temperature delta fell back to within 1°C (1.8°F) of the ambient seawater temperature. Vertical axis is height above seafloor.



Based on the results of the CORMIX modeling, a maximum daily temperature limit of 86°F will result in a relatively small thermal plume that, under worst-case conditions during winter, will be within 1.8°F of the ambient temperature (as recommended by the Gold Book) within 85 feet (26 m) of the outfall with a total mixing area of about 792.1 ft^2 (73.6m^2). In addition, based on the projected extent of the thermal plume, the daily temperature cycles characteristic of the water body will not be altered in either magnitude or frequency. As such, the proposed thermal discharge limits are expected to protect the marine community from adverse thermal effects.

Although the CORMIX analysis was done based on a maximum discharge temperature of 86°F (30°C), SouthCoast Wind has since determined that the discharge temperature from OCS-DC1, based on the use of VFDs, will likely not exceed 83.3°F (28.5°C). *See* NPDES Permit App, Comment Response Matrix, including Proposed Intake Flow Table, August 5, 2024. This lower temperature is expected to generate a thermal plume smaller in overall area than the modeled plume discussed above that was based on the higher discharge temperature (i.e., the CORMIX analysis is considered conservative).

The Draft Permit proposes a maximum daily effluent temperature limit of 83.3°F. Temperature must be monitored using an automated meter on a continuous basis. In addition, the Draft Permit proposes that the Permittee complete an ambient thermal monitoring study to confirm that the extent and magnitude of the thermal plume is equal to or less than modeling results. *See* Appendix A of the Draft Permit.

As previously described, SouthCoast Wind analyzed the historical performance of a similar sized wind-powered electric generating facility (1200 MW) to estimate the average seawater intake flows from OCS-DC1 using variable speed drives (VSD's). *See* SouthCoast August 23 Memo, pp. 9/14 - 11/14. SouthCoast Wind used each estimated monthly average intake flow to determine expected average monthly cooling water outfall temperatures. As shown in Table 2, the expected average monthly temperature is consistently 26.4°C (79.5°F) from September through November and most of July and August. *Id*., p. 12/14. Based on this data, EPA determined that the appropriate average monthly temperature limit to include in the Draft Permit is 79.5°F (26.4°C).

Table 2: Expected Average Monthly Cooling Water Outfall Temperature

Year	Actual Cooling water outfall temp (ºC) for the weighted Average Power											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	19,0	17,3	16,0	26,4	24,8	26,4	26,4	26,4	26,4	26,4	26,4	21,0
2	19,9	17,6	17,3	26,3	26,4	26,4	26,4	26,4	26,4	26,4	26,4	22,7
3	19,7	17,0	14,1	22,0	24,0	26,4	26,4	26,4	26,4	26,4	26,4	21,9
4	18,6	18,3	17,3	26,4	23,9	23,9	26,4	25,4	26,4	26,4	26,4	21,4
5	20,0	17,3	18,3	25,0	26,4	26,4	26,4	26,4	26,4	26,4	26,4	21,5
6	18,9	16,6	17,2	23,8	26,4	26,4	26,4	26,4	26,4	26,4	26,4	21,6
7	19,6	17,1	19,2	22,1	23,1	26,4	26,4	26,4	26,4	26,4	26,4	21,1
8	20,1	17,2	19,2	26,4	24,9	26,4	25,5	26,4	26,4	26,4	26,4	21,6
9	16,3	17,2	16,3	23,9	26,4	25,7	26,4	26,4	26,4	26,4	26,4	21,0
10	19,0	16,7	17,0	23,7	24,8	26,4	26,4	26,4	26,4	26,4	26,4	23,5
11	20,3	18,1	16,5	26,1	22,9	23,1	26,4	26,4	26,4	26,4	26,4	24,7
12	20,9	17,1	19,2	26,4	24,3	25,8	26,3	26,4	26,4	26,4	26,4	22,0
13	19,2	17,0	16,9	26,4	24,0	26,4	26,4	25,9	26,4	26,4	26,4	21,7
14	19,8	17,5	16,5	25,3	26,4	26,4	26,4	26,4	26,4	26,4	26,4	21,8
15	20,3	18,8	18,8	25,2	24,5	26,4	26,4	26,4	26,4	26,4	26,4	22,1
16	18,5	15,1	17,6	23,4	26,4	23,3	26,4	23,5	26,4	26,4	26,4	24,0
17	17,6	17,8	16,8	26,4	25,3	24,5	26,4	26,4	26,4	26,4	26,4	23,7
18	17,4	18,5	19,3	23,0	25,2	25,4	26,3	26,4	26,4	26,4	26,4	23,0
19	16,8	17,1	17,0	26,4	25,2	21,6	26,4	25,9	26,4	26,4	26,4	20,3
20	19,1	15,8	15,7	21,9	25,1	24,3	25,0	26,4	26,4	26,4	26,4	22,0
21	18,7	16,7	17,0	24,0	26,4	26,4	26,4	26,4	26,4	26,4	26,4	22,1
22	19,8	16,0	18,1	24,9	26,1	24,5	26,4	24,8	26,4	26,4	26,4	21,1
23	19,4	16,5	17,3	25,0	25,9	26,4	24,7	26,4	26,4	26,4	26,4	21,4
24	18,8	18,4	18,1	25,9	24,2	26,1	26,4	26,4	26,4	26,4	26,4	22,6
25	18,6	17,4	19,4	26,1	26,3	26,4	26,4	26,4	26,4	26,4	26,4	21,2
26	21,1	19,0	18,9	25,1	25,1	26,2	25,7	26,4	26,4	26,4	26,4	20,4
27	19,3	15,9	16,8	25,0	25,6	26,4	26,4	26,4	26,4	26,4	26,4	21,7
28	17,9	14,9	19,0	26,4	26,4	26,0	26,4	26,4	26,4	26,4	26,4	22,7
29	17,4	16,7	17,6	24,6	22,8	26,4	26,2	26,4	26,4	26,4	26,4	20,7
30	18,8	17,5	18,3	24,9	26,4	22,2	26,4	26,4	26,4	26,4	26,4	24,2

5.1.4 Total Residual Oxidants

Chlorine and chlorine compounds are toxic to aquatic life. Free chlorine is directly toxic to aquatic organisms and can react with naturally occurring organic compounds in receiving waters to form toxic compounds such as trihalomethanes.

SouthCoast Wind intends to prevent biofouling of the OCS-DC1 cooling assembly by using an electrochlorination system that will use electrolysis of seawater to produce sodium hypochlorite. The chlorinated seawater will be continuously injected via a valve within the intake pipes (upstream of the saltwater lift pumps) when the pumps are operating. The chlorinated seawater will mix with raw seawater and be directed through the cooling water system, including the heat exchangers, and discharged through the outfall. The electrochlorination system will be operated continuously with a design flow of approximately 14.6 gpm per intake being utilized. *See* SouthCoast Wind Responses to EPA Comments, attached to email dated March 25, 2024.

Under typical operating conditions, SouthCoast Wind expects to use a chlorine concentration of 2 milligrams per liter (mg/L) at each intake pump, but the dosing system is capable of delivering between 1 ppm and 4 ppm. *Id.* The projected mass of chlorine discharged daily is 63.5 kilograms

(kg), assuming a typical flow of 6.81 MGD and 95 kg during a maximum discharge flow of 9.9 MGD. *See* NPDES Permit App, Comment Response Matrix, March 2023. EPA is aware of another offshore wind NPDES applicant that proposes to use a lower concentration of chlorine.[25] SouthCoast Wind will install in-line analyzers that will be used to continuously monitor the hypochlorite concentration of the discharge. These analyzers will need to be recalibrated regularly and "[a]dditional periodic sampling will be performed to confirm accuracy level when [the] platform is visited." SouthCoast Wind Responses to EPA Comments (included in Excel spreadsheet attached to email dated August 5, 2024).

EPA's National Recommended Water Quality Criteria for aquatic life in saltwater for total residual chlorine (TRC) are 7.5 micrograms per liter (µg/L) (0.0075 mg/L) (chronic) and 13 µg/L (0.013 mg/L) (acute). In this case, because the source water contains bromides (e.g., saltwater), chlorine is expressed as TRO instead of TRC. *See* 40 CFR § 423.11(a).

Considering that the electrochlorination system will be operated continuously and a system is obtainable to automatically adjust the dosage based on the concentration downstream of the heat exchangers, the Draft Permit proposes water quality-based TRO limits of 7.5 µg/L (0.0075 mg/L) as an average monthly value and 13 µg/L (0.013 mg/L) as a daily maximum value at the outfall. Compliance with these TRO limits is expected to be protective of aquatic life and is consistent with technology available that can achieve chlorine concentrations near zero.

However, currently available analytical methods cannot detect TRO at the level of the water quality criteria. In accordance with the *National Pollutant Discharge Elimination System (NPDES): Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting Rule*, in situations where no EPA-approved methods for a pollutant can achieve minimum levels low enough to assess reasonable potential or to monitor compliance with a permit limit, applicants must use the method with the lowest minimum level among the EPA-approved methods for the pollutant and it will satisfy the definition of "sufficiently sensitive." 40 CFR § 122.44(i)(1)(iv)(A)(2). *See also* 79 Fed. Reg. 49004 (August 14, 2014). As a result, EPA has set a compliance level of 30 µg/L for TRO in the Draft Permit, which is equivalent to the minimum level for the analytical method that has the lowest method detection limit of the methods approved under 40 CFR Part 136.

In addition to limiting TRO at Outfall 001, EPA considered separately monitoring and limiting TRO of the pump flowline filter backwash water, which will discharge intermittently, with maximum flow ranging between approximately 0.41 and 0.63 MGD. Considering that the backwash system discharges the same chlorinated water that flows through the seawater cooling system and mixes with the cooling water flow (maximum 9.9 MGD) in the discharge caisson, EPA determined that neither additional monitoring nor limits were necessary. EPA is, however, inviting comments on this issue.

[25] Sunrise Wind proposes to use 0.5 mg/L of chlorine with a maximum concentration of 2 mg/L when the pumps require a shock dosage (expected infrequently). *See* Sunrise Wind NPDES Application, pp. 14, 18.

5.1.5 Ocean Discharge Criteria

General Background

As explained previously in Section 2.2.1 above, point source pollutant discharges to waters of the territorial sea, the contiguous zone, or the ocean, s*ee* 33 U.S.C. §§ 1562(8), (9) and (10) (definitions), are subject to the ODC under Section 403 of the CWA. 33 U.S.C. § 1343. Consistent with CWA §§ 403(a) and (c), EPA promulgated regulations to provide guidelines for application of the ODC (the ODC Regulations). 40 CFR § 125.120. These regulations are promulgated at 40 CFR Part 125, Subpart M, and NPDES permits for discharges into the specified waters must comply with the ODC Regulations. CWA § 403(a).

Under the ODC Regulations, EPA may not issue an NPDES permit to authorize any pollutant discharge to waters of the territorial sea, the contiguous zone, or the ocean, that the Agency determines would cause "unreasonable degradation of the marine environment." 40 CFR § 125.123(b). EPA defines "unreasonable degradation of the marine environment" to mean:

- Significant adverse changes in ecosystem diversity, productivity, and stability of the biological community within the area of the discharge and surrounding biological communities;
- Threat to human health through direct exposure to pollutants or through consumption of exposed aquatic organisms; or
- Loss of esthetic, recreational, scientific, or economic values which is unreasonable in relation to the benefit derived from the discharge.

See 40 CFR § 125.121(e). For permits subject to the ODC, EPA conducts an Ocean Discharge Criteria Evaluation (ODCE) using the guidelines in 40 CFR Part 125, Subpart M, to determine the extent to which the marine environment will be degraded by the proposed discharge. *See* 40 CFR §125.122(a). *See also* CWA § 403(c).

The ODC Regulations specify the factors to be considered in determining whether a discharge will cause unreasonable degradation of the marine environment. These factors include the following:

(1) The quantities, composition and potential for bioaccumulation or persistence of the pollutants to be discharged;

(2) The potential transport of such pollutants by biological, physical or chemical processes;

(3) The composition and vulnerability of the biological communities which may be exposed to such pollutants, including the presence of unique species or communities of species, the presence of species identified as endangered or threatened pursuant to the Endangered Species Act, or the presence of those species critical to the structure or function of the ecosystem, such as those important for the food chain;

(4) The importance of the receiving water area to the surrounding biological community, including the presence of spawning sites, nursery/forage areas, migratory pathways, or areas necessary for other functions or critical stages in the life cycle of an organism;

(5) The existence of special aquatic sites including, but not limited to marine sanctuaries and refuges, parks, national and historic monuments, national seashores, wilderness areas and coral reefs;

(6) The potential impacts on human health through direct and indirect pathways;

(7) Existing or potential recreational and commercial fishing, including finfishing and shellfishing;

(8) Any applicable requirements of an approved Coastal Zone Management plan;

(9) Such other factors relating to the effects of the discharge as may be appropriate; and

(10) Marine water quality criteria developed pursuant to section 304(a)(1).

40 CFR § 125.122(a)(1) – (10).

EPA is required by CWA § 304(a)(1) to develop water quality criteria reflecting the latest scientific knowledge regarding the impact of pollutants on aquatic life, aquatic habitat, and aquatic recreation. Aquatic life criteria are designed to protect both freshwater and saltwater organisms from short-term (acute) and long-term (chronic) exposure and indicate the highest concentration of specific pollutants or pollutant parameters in water that are not expected to pose a significant risk to the majority of species in a given environment. Neither the CWA nor EPA regulations mandate compliance with EPA's recommended marine aquatic life criteria established under CWA § 304(a), but these criteria provide guidance for states and tribes to use when developing WQS and EPA considers them when applying the ODC. *See* 40 CFR § 125.122(a)(10).

When using chemical-specific numeric criteria to develop permit limitations, acute and chronic aquatic life criteria and human health criteria are used and expressed in terms of maximum allowable in-stream pollutant concentrations. In general, for NPDES permitting purposes, aquatic-life acute criteria are considered applicable to daily time periods (maximum daily limits) and aquatic-life chronic criteria are considered applicable to monthly time periods (average monthly limits). Chemical-specific human health criteria are typically based on lifetime chronic exposure and, therefore, are typically applicable to monthly average limits as well.

Based on its ODCE, EPA can include limits in NPDES permits to ensure that discharges will not result in unreasonable degradation of the marine environment, and as stated above, discharges that would cause such unreasonable degradation will not be permitted. 40 CFR §§ 125.123(a) and (b). Furthermore, if EPA has insufficient information to determine that the discharge will not result in unreasonable degradation of the marine environment, then the Agency may not issue the permit unless, among other things, it finds that such discharge will not cause irreparable harm and there are no reasonable alternatives to onsite disposal of the pollutants in question. *See* CWA § 403(c)(2); 40 CFR § 125.123(c).

Site-Specific ODCE

For its ODCE, EPA evaluated the proposed operation of SouthCoast Wind's OCS-DC1 based on information about the proposed project provided in SouthCoast Wind's NPDES Application as well as in other documents prepared by the Applicant and others for the environmental review of the

proposed project.[26] These materials and documents include, but are not limited to, the COP prepared by SouthCoast Wind and the SouthCoast Wind Offshore Wind Project Draft EIS prepared by BOEM. The information provided in these materials includes, among other things, an analysis of the chemical constituents in the OCS-DC1's discharge and the extent to which these constituents might be toxic in the marine environment, an analysis of the dilution provided at the proposed discharge location, and an evaluation of the project location, including detailed descriptions of the physical resources, biological resources, and socioeconomic resources (including commercial and recreational fisheries) in the vicinity. *See* 40 CFR §§ 122.124(a), (b), (c), (d), and (e). In this regard, BOEM and SouthCoast Wind have completed reviews of potentially affected benthic resources, finfish (including a review of possible effects on Essential Fish Habitat (EFH)), sea birds, sea turtles, and marine mammals, and they have also characterized commercial and recreational fishing in the project area.

SouthCoast Wind is proposing to discharge NCCW from the Facility's OCS-DC1. EPA evaluated the potential impacts of the proposed discharge in accordance with the guidelines in 40 CFR Part 125, Subpart M, to determine whether the discharge would cause unreasonable degradation of the marine environment.

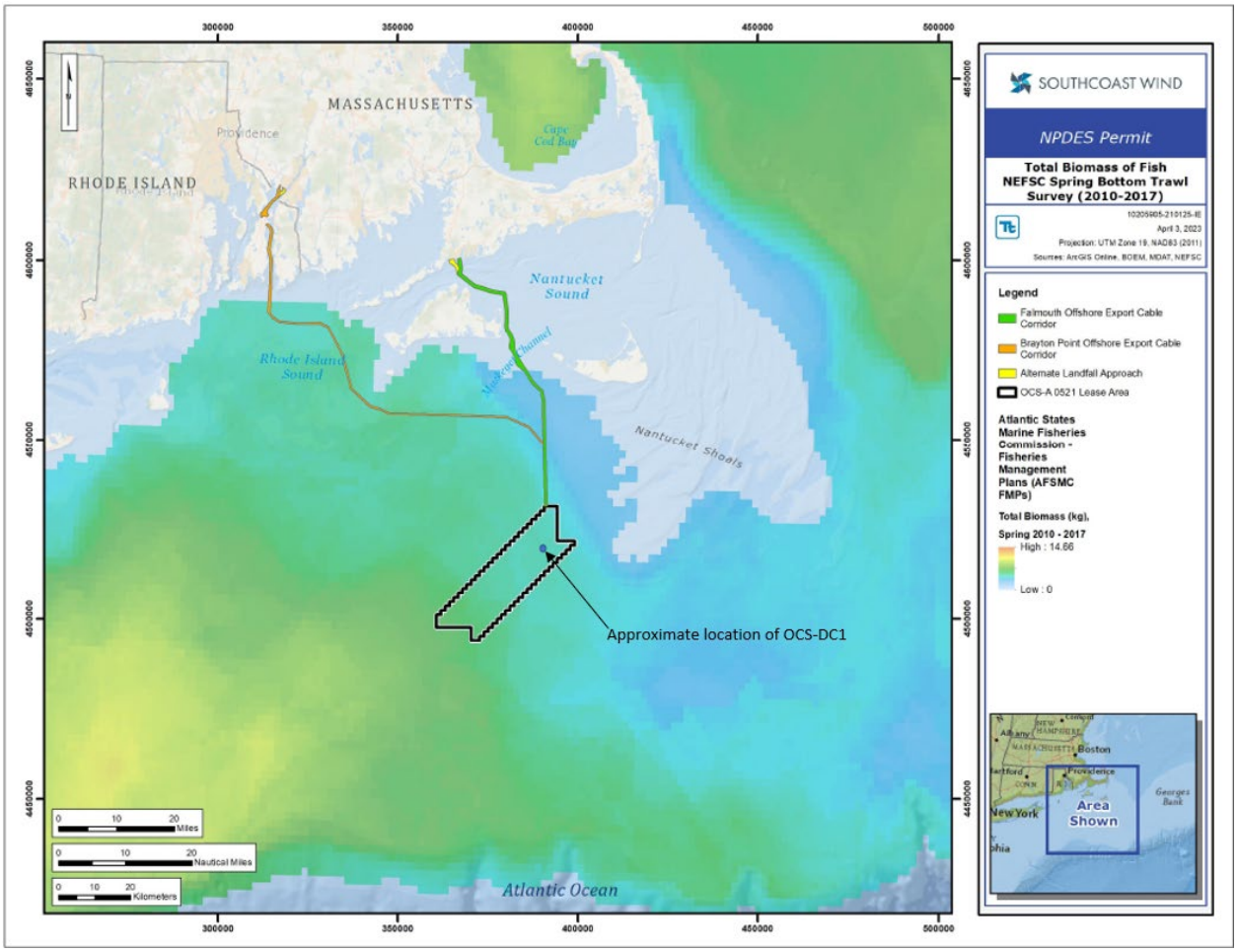
SouthCoast Wind's wind farm, including the OCS-DC1, is proposed to be located in federal waters offshore of the southern coast of Massachusetts. A review of the benthic physical and biological resources in the project area was provided in Appendix M of the Facility's COP, which states that "[t]he Lease Area is mostly homogenous with little relief" and is "considered Soft Bottom habitat with no complex features." *Id.,* p. 4-6. The area of the proposed OCS-DC1 is comprised mainly of a smooth seafloor of mud to muddy sand but also includes a mix of irregular small-scale pitting and wave generated sandy ripples (mobile bedforms). NPDES Application, Figure 10, p. 19. No boulder fields or individual boulders were mapped within the Lease Area during the High-Resolution Geophysical survey in 2019, 2020 and 2021. *Id*., pp. 19-20. The soft bottom substrate is typically habitat for organisms living on the surface (i.e., crabs, sand dollars, gastropods) or burrowing into the sediment (i.e., anemones, bivalves (e.g., clams), polychaetes, and tube-forming amphipods). Ecologically, recreationally, and/or commercially important benthic species found within the SouthCoast Wind project area include ocean quahog, Atlantic surfclam, blue mussels, razor clams, soft-shelled clams, Jonah crab and whelk. COP, Appendix M, p. 4-25. *See* 40 CFR §§ 125.122(a)(3) and (7).

A number of species listed as threatened or endangered are known to be present or may be present in the project area, including certain types of finfish, marine mammals, sea turtles, and seabirds. *See* Section 6.1 of this Fact Sheet. *See also* 40 CFR § 125.122(a)(3). The project area is important to the local biological community because it provides, without limitation, spawning habitat, migratory pathways, EFH, and areas necessary for other functions or critical stages in the life cycles of marine life in the area. *See* 40 CFR § 125.122(a)(4). "The northeastern edge of the Lease Area is located about 3.1 miles (5 kilometers) from the 30-meter isobath boundary of Nantucket Shoals," while the OCS-DC1 is intended to be located outside of a 6-mile (approximately 10-kilometer) buffer from the

[26] Relevant documents available at https://www.boem.gov/renewable-energy/state-activities/southcoast-wind-formerly-mayflower-wind.

30-meter isobath boundary of Nantucket Shoals. Draft EIS, pp. 3.5.5-56, 2-12. Figure 3 below shows the SouthCoast Wind Farm boundary in red and the approximate location of the OCS-DC1. BOEM's Draft EIS recognizes the importance of the complex habitat within Nantucket Shoals to several ecologically and/or economically valuable species, including the area's importance for Atlantic cod spawning. *See Id*., Section 3.5.

Figure 3: Location of SouthCoast Wind OCS-DC1 Relative to Nantucket Shoals (from NPDES Application, p. 46).



The Draft EIS explains as follows:

> [n]otably, the northeastern portion of the Lease Area is approximately 20 miles (32 kilometers) from the Great South Channel Habitat Management Area (GSC HMA) in Nantucket Shoals, which the New England Fishery Management Council (NEFMC) established to protect complex benthic habitats important to juvenile cod and other groundfish species from mobile bottom-tending fishing gear (NOAA 2020). The species with EFH designations in the GSC HMA, and by extension Nantucket Shoals, are the same species that have EFH designations within the Lease Area for all life stages, including Atlantic cod, Atlantic sea scallop, windowpane flounder, winter flounder, and yellowtail flounder (NEFMC 2018).

> Excluding Atlantic sea scallop, these species are designated as overfished as a result of overfishing, habitat degradation, pollution, climate change, and disease (NOAA 2021).

Draft EIS, pp. 5.5.5-56 - 57. In addition to its proximity to Nantucket Shoals, the entire area of the wind farm project is located within the area recommended by the NEFMC as a Habitat Area of Particular Concern (HAPC). Specifically, the OCS-DC1 location has been designated by NOAA Fisheries[27] as a HAPC for Summer Flounder Submerged Aquatic Vegetation (SAV).[28] NOAA Fisheries[29] has also identified this area as containing high foraging value for the endangered North Atlantic right whale, particularly during winter and spring months. *See* 40 CFR §§ 125.122(a)(3), (4) and (5). *See also* Final Southern New England Habitat Area of Particular Concern Framework (February 2024); October 27, 2022, November 18, 2022, and April 18, 2023, letters from NOAA Fisheries to BOEM. The project area is also a productive area for commercial and recreational fisheries.[30] *See* 40 CFR § 122.122(a)(6). The highest revenue commercial fisheries in the project area include summer flounder/scup/black sea bass, mackerel/squid/butterfish, small-mesh multispecies, and monkfish. The top ten species with the highest economic importance in the area (independent of combined fishery management plans) include Jonah crab, longfin squid, summer flounder, scup, silver hake, monkfish, golden tilefish, American lobster, sea scallop and skates. *See* 40 CFR § 125.122(a)(7).

The importance of key portions of the lease area to fisheries habitat prompted BOEM, in consultation with the National Marine Fisheries Service (NMFS), to include Alternative D – Nantucket Shoals in the Draft EIS. This alternative is intended to minimize impacts of the proposed project on protected species in the northeastern portion of the Lease Area by identifying that wind turbines in this area "may alter the foraging habitat associated with the physical hydrodynamic features along the western edge of Nantucket Shoals." Draft EIS, p. 2-18. Alternative D, therefore, identifies up to six WTGs that could be eliminated to reduce both potential impacts on foraging habitat and the resulting displacement of wildlife that would accompany such impacts.

The primary pollutants that will be discharged from the OCS-DC1 are heated effluent from the heat exchangers and TRO from the electrochlorination system. The Draft Permit establishes effluent limits for temperature and TRO concentration that are protective of marine life and will not cause unreasonable degradation of the marine environment in consideration of the factors at 40 CFR § 122.125(a). EPA explained in Sections 5.1.3 and 5.1.4, as summarized below, that the Draft Permit's effluent limits for these pollutants are set at levels that will meet marine water quality criteria and will ensure protection of the local habitat, including any complex habitat areas of particular importance and/or any areas of importance for recreational and commercial fishing. As a result, these limits will also protect marine life in the area.

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[27] NOAA Fisheries Habitat and Ecosystem Services Division, Greater Atlantic Regional Fisheries Office; EFH Mapper at: https://www.habitat.noaa.gov/apps/efhmapper/efhreport/

[28] Summer flounder SAV includes all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH.

[29] NOAA Fisheries Protected Resources Division, Greater Atlantic Regional Fisheries Office.

[30] A summary of commercial and recreational fisheries in the area encompassed by Atlantic offshore windfarm development, including SouthCoast Wind, was prepared by NMFS and is available at: https://www.fisheries.noaa.gov/resource/data/socioeconomic-impacts-atlantic-offshore-wind-development.

In this case, EPA considered the nationally recommended saltwater aquatic life criteria in evaluating potential impacts from the Facility and in developing appropriate permit conditions. EPA's analysis in this regard is analogous to its consideration of a pollutant discharge's "reasonable potential" to cause or contribute to an exceedance of state WQS under 40 CFR § 122.44(d)(1). *See also* CWA § 301(b)(1)(C), 33 U.S.C. § 1311(b)(1)(C). To determine if a discharge causes, or has the reasonable potential to cause or contribute to, an excursion above any WQS, EPA considers: 1) existing controls on point and non-point sources of pollution; 2) the variability of the pollutant or pollutant parameter in the effluent; 3) the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity); and 4) where appropriate, the dilution of the effluent by the receiving water. *See* 40 CFR § 122.44(d)(1)(ii). EPA's analysis using the saltwater aquatic life criteria demonstrates that the proposed discharge will not cause unreasonable degradation of the marine environment and will comply with Section 403 of the CWA and 40 CFR Part 125, Subpart M.

The maximum daily and average monthly TRO limits in the Draft Permit are set at levels that should not result in acute or chronic toxicity at the outfall prior to (or after) mixing with surrounding ocean water. EPA has fully evaluated the quantity, composition, persistence, and transport of TRO and its potential impacts on the biological community in Section 5.1.4. *See* 40 CFR §§ 125.122(a)(1), (2), (3), (4), (7), (10). The TRO concentration limits apply at the point of discharge and are conservatively set to be applied prior to any mixing. As a result, discharges of TRO should not impact the surrounding biological community, habitat areas, or species of ecological and/or economic importance. Based on the information provided, EPA concludes that the discharge, in compliance with the TRO limits in the Draft Permit, will not cause unreasonable degradation of the marine environment, and EPA has included monitoring requirements in the Draft Permit to verify that these limits are being met.

Compliance with the maximum daily thermal limit in the Draft Permit will result in minimal increases in ambient water temperature within only a relatively small mixing zone based on the thermal model provided by the Applicant. In Section 5.1.3 of this Fact Sheet, EPA evaluates the quantity, composition, persistence, and transport of heated effluent to be discharged by the OCS-DC1's cooling system, as well as its potential impacts on the biological community in the area of the discharge. *See* 40 CFR §§ 125.122(a)(1), (2), (3), (4), (7), (10).

At a maximum discharge temperature of 86°F, the model predicts that the winter plume is fully mixed within a zone of initial dilution extending laterally 85 ft (26 m) from the outfall, and rising from the opening of the outfall pipe at a depth of about 33 m (109ftm) above the seafloor to a depth of approximately 42 m (138 ft) above the seafloor because the heated plume is slightly buoyant. In comparison, the term "mixing zone" defined under the ODC (40 CFR § 125.121(c)) means "the zone extending from the sea's surface to seabed and extending laterally to a distance of 100 meters in all directions from the discharge point(s) or to the boundary of the zone of initial dilution as calculated by a plume model approved by the director, *whichever is greater*…" (emphasis added). The predicted zone of initial dilution from the SouthCoast Wind thermal model is substantially smaller than the 100 m (330 foot) mixing zone defined in the ODC and occupies only a fraction of the total water column depth rather than extending from sea surface to seafloor. The zone of initial dilution for the OCS-DC1 discharge is expected to allow sufficient passage for mobile organisms above, below, and around the plume. Finally, the model projects that the thermal plume

would result in an instantaneous temperature increase of no greater than 1°C (1.8°F) over ambient under worst-case conditions within the zone of initial dilution. Moreover, the CORMIX results are likely to be conservative relative to an observed plume because the Gold Book criterion is based on an increase in the weekly average temperature and the CORMIX projects an instantaneous value under worst-case conditions. The projected size of the zone of initial dilution also indicates that the thermal plume will not alter the amplitude or frequency of the daily temperature cycles characteristic of the waterbody. The monitoring requirements in the Draft Permit will generate data to confirm whether the predictive model accurately represented the extent of the thermal plume. Based on the information provided, EPA concludes that the discharge, in compliance with the thermal limits in the Draft Permit, will not cause unreasonable degradation of the marine environment.

The NCCW discharge does not contain pollutants with potential for bioaccumulation or persistence. As a result, there will be no unreasonable degradation due to bioaccumulation or persistence of pollutants to be discharged. *See* 40 CFR § 125.122(a)(1). In addition, the discharge of heated effluent and chlorine at the OCS-DC1 does not have the potential to impact human health through direct or indirect pathways. *See* 40 CFR § 125.122(a)(6).

The OCS-DC1 requires oils, fuels, and lubricants to support operations but, with the exception of limited leaks from the internal HVAC and freshwater cooling system pumps/drains and stormwater discharges associated with industrial activity, the Draft Permit does not authorize the discharge of these oils, fuels, or lubricants. Moreover, "[t]he Hazardous Drain Tank sizing will be designed based on a worst-case scenario which includes loss of the full oil volume of the Main Converter Transformers, plus firefighting medium and a 15% contingency as per the guidelines in DNV-ST-0145." *See* SouthCoast Wind Responses to EPA Comments, attached to email dated March 25, 2024.

Finally, EPA notes that the wind farm, and in particular the OCS-DC1, are located in federal ocean waters well outside of the coastal zone of any state. Accordingly, the OCS-DC1's discharges and water withdrawals regulated by the NPDES permit will all take place well outside the coastal zone of any state and should not affect the resources or use of the coastal zone of any state. That said, during environmental review of the overall project – which involves more than the parts of the project subject to the NPDES permit – SouthCoast Wind has been in communication with the Coastal Zone Management Programs in Massachusetts and Rhode Island to ensure compliance with any applicable requirements of the states' coastal zone management programs. *See* 40 CFR § 125.122(a)(8). *See* Section 7.0 of this Fact Sheet.

Conclusion

For the reasons described above, EPA concludes that the discharge of non-contact cooling water from the OCS-DC1, in compliance with the effluent limits and conditions of the Draft Permit, will not cause unreasonable degradation of the marine environment either through significant changes to the ecosystem or biological community within the area of the discharge, threats to human health, or loss of esthetic, recreational, scientific, or economic value. *See* 40 CFR § 125.121(e).

5.2 Cooling Water Intake Structure Requirements

Under Section 316(b) of the CWA, NPDES permits for point source dischargers that operate a CWIS must require that the location, design, construction, and capacity of the CWIS reflect the "best technology available for minimizing adverse environmental impact" (BTA). 33 U.S.C. § 1326(b). The key adverse environmental impacts of CWISs are the "entrainment," "impingement," and "entrapment" of aquatic organisms. Entrainment occurs when aquatic organisms, particularly early life stages of fish and shellfish, are drawn with the cooling water through the intake screens and into the cooling system. *See, e.g.,* 40 CFR § 125.83 (definition of entrainment). Entrained organisms are harmed by physical impacts and exposure to high water temperatures and chemicals. *See* 66 Fed. Reg. 65263. Impingement occurs when aquatic life, typically juvenile and adult fish, are pulled and potentially held against intake screens or other barriers at the entrance to a CWIS by the force of the water being drawn into the intake. *See, e.g.,* 40 CFR § 125.83 (definition of impingement). Impingement can kill, or otherwise physically harm, the affected organisms. *See* 66 Fed. Reg. 65263. In addition, CWIS operations can harm aquatic life due to "entrapment" of organisms in the intake structure. *See* 40 CFR § 125.82(j) (definition of entrapment). Entrapment occurs when larger organisms enter an intake structure through the intake screens or bars (or other device intended to block the intake) but are then unable to get back out of the intake and, as a result, are harmed or killed. *See* 79 Fed. Reg. 48327, 48355 (Aug. 15, 2014); 66 Fed. Reg. 65263 (discussing entrapment of sea turtles).

EPA is not aware of any studies that directly examine impingement mortality, entrainment, or entrapment at offshore converter stations associated with wind farms. Nevertheless, numerous studies demonstrate that offshore environments provide habitat for fish, shellfish, and other aquatic organisms that may be susceptible to impingement, and that many species present in offshore waters have early pelagic life stages that are vulnerable to entrainment. *See* 70 Fed. Reg. 71059. Not only may some aquatic organisms suffer direct harm from entrainment and impingement, but other aquatic organisms may be indirectly harmed by a CWIS entraining or impinging the organisms that they prey upon. Furthermore, as discussed below, EPA is aware of cases in which larger aquatic organisms, such as seals and sea turtles, have been harmed by entrapment in a CWIS. If seals and sea turtles could be entrapped by a specific CWIS, then entrapment by the CWIS would also be a risk for juvenile and adult fish.[31]

As explained in Section 2.3 of this Fact Sheet, EPA has determined that the proposed offshore wind farm and its OCS-DC1 are not subject to either the New Facilities Rule, the Existing Facilities Rule, or the New Offshore Oil and Gas Facilities Rule under CWA § 316(b), 40 CFR Part 125, Subparts I, J and N, respectively.[32] Instead, and consistent with 40 CFR § 125.90(b), EPA has established BTA requirements under CWA § 316(b) on a case-by-case, BPJ basis for the proposed SouthCoast Wind

[31] Under the Existing Facilities Rule, organisms entrapped by a CWIS are to be added to counts for impinged organisms. *See* 40 CFR §§ 122.21(r)(6)(i)(F), 122.21(r)(6)(ii)(B)(6) 125.9; 79 Fed. Reg. 48327, 48355, 48374 n. 94.

[32] As explained farther above, the OCS-DC1 is not a "new source" under Section 306 of the CWA but meets the definition of "new discharger" at 40 CFR § 122.2, as its construction will commence after January 17, 2002, and it will use a newly constructed CWIS. The OCS-DC1 will also be considered a "greenfield" facility because it is to be constructed at a site at which no other source is located. *See* 66 Fed. Reg. 65258.

OCS-DC1. EPA's case-by-case, BPJ determination has been informed, however, by relevant supporting analysis for, and by pertinent requirements specified in, each of these Rules.

5.2.1 Source Waterbody Characterization

SouthCoast Wind proposes to locate its wind farm in federal ocean waters off the southern coast of Massachusetts. *See* CWA § 502(10) (definition of "ocean").

A description of the benthic physical and biological resources in the vicinity of the proposed wind farm site was provided in SouthCoast Wind's NPDES Application and its COP (and Appendices M, N and O to the COP), and in BOEM's Draft EIS.[33] At the proposed site of the OCS-DC1, the benthic substrate is composed of medium to fine sand, with ripples, sand and mud. *See id*., Figure 4-2. *See also* NPDES Application, Figure 14, p. 22. No boulder fields or individual boulders were mapped within the Lease Area.[34] NPDES Application, p. 20. Soft sediment fauna is the dominant biotic subclass at the wind farm location (e.g., burrowing polychaetes, amphipods, sand shrimp, sand dollars, and sea stars). Ecologically and/or economically important benthic species in soft bottom habitat include Atlantic sea scallop, Jonah crab, ocean quahog, and Atlantic surfclam. *See* COP Appendix M, Table 4-2.

The presence of life stages of finfish and invertebrates that may be impacted by impingement, entrainment, and entrapment at the CWIS is well documented in this area. *See* NPDES Application, Section 4. Finfish in the wind farm area include pelagic, demersal, and highly migratory species. Recent seasonal trawl surveys in the vicinity of the offshore wind lease area, including adjacent lease areas, observed 81 taxa in the warm season and 71 in the cold season. *See* Guida et al. 2017, pp. 3-18, 19, 20. Catches were dominated by Atlantic herring, skates, and flounders during the cold season, and by butterfish, longfin squid, skates, hakes, scup, and spiny dogfish in the warm season. *See id.* As discussed in Sections 5.2.4 and 6 of this Fact Sheet, numerous finfish species, including their early life stages that could be subject to entrainment, will potentially be present in the vicinity of the OCS-DC1. EFH has been designated for a number of these species. *See id. See also* COP, Appendix N. The entire area encompassed by the wind farm project is located within the area recommended by the New England Fishery Management Council as a Habitat Area of Particular Concern (HAPC) for cod spawning and complex habitats. *See* February 2024 Final Southern New England Habitat Area of Particular Concern Framework. This HAPC, including Nantucket Shoals and the area surrounding it, has been observed to support Atlantic cod spawning and has high foraging value for the endangered North Atlantic right whale, particularly during winter and spring months. *See* Letters from NOAA Fisheries to BOEM dated October 27, 2022, November 18, 2022, and April 18, 2023. *See also* Zemeckis et al. 2014.

EPA also notes that benthic and pelagic biological resources in the area of the wind farm and the OCS-DC1 may change over time as the habitat changes with the introduction of the foundations for

[33] Relevant documents available at https://www.boem.gov/renewable-energy/state-activities/southcoast-wind-formerly-mayflower-wind.

[34] Higher complexity habitat (cobble and/or boulders) does not occur in the lease area but can be found in the northern export cable corridor. Generally, hard bottom habitat is ecologically important and can serve as nursery habitat for lobster, feeding grounds for Atlantic cod and black sea bass, and spawning habitat for longfin squid.

the WTGs and OCS-DC1 and their associated scour protection measures.[35] WTG structures have been observed to act as artificial reefs, introducing new, complex hard substrate habitat on the seafloor in the vicinity of the wind farm. Thus, the SouthCoast Wind project could create beneficial new habitat for Atlantic cod, lobster, black sea bass and the egg and larval stages of ocean pout. *See* COP, Vol. 2, p. 6-161. *See also* Langhamer 2012; Glarou et al. 2020; Degraer et al. 2020.[36] In addition, ongoing changes in ocean temperature associated with climate change may also result in changes to the biological and benthic resources of the project area. As ocean temperatures increase, benthic and pelagic species may shift their ranges northward, altering the diversity and distribution of species in the vicinity of the OCS-DC1. *See* Walsh et al. 2015, Staudinger et al. 2019.

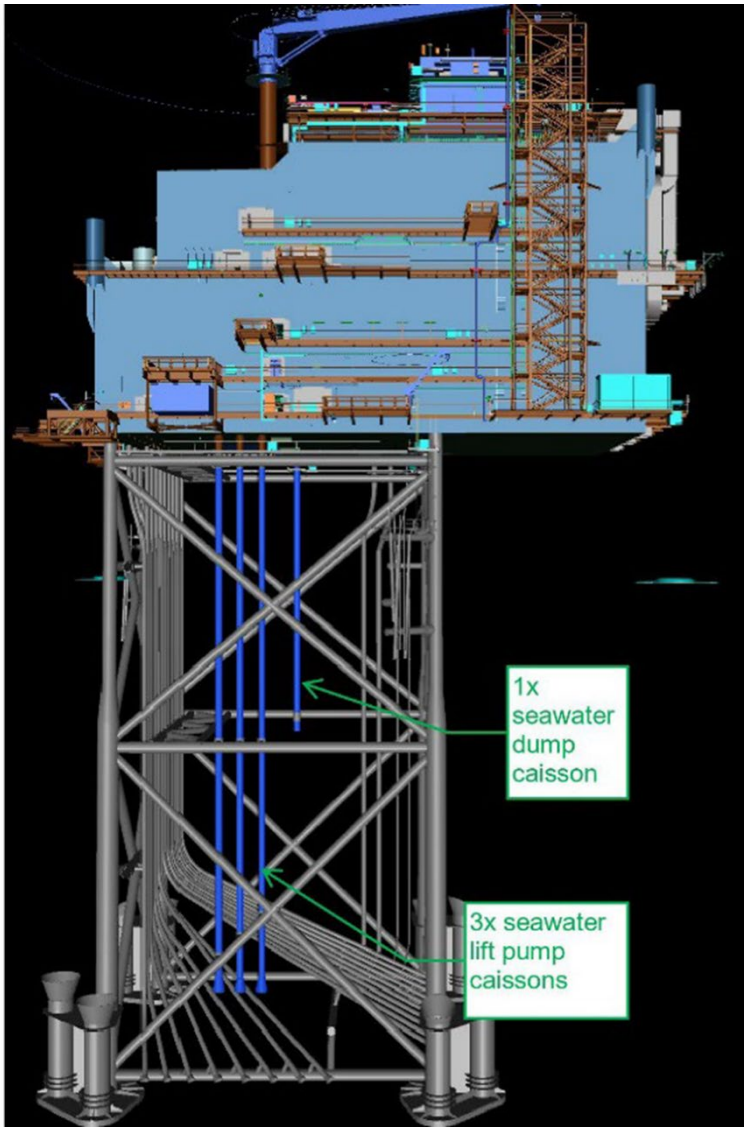
5.2.2 Intake Description

As described farther above, the proposed OCS-DC1 will have three cooling water intake pipes. Each of the three intake caissons are approximately 3.3 feet (1 meter) from each other, with the first caisson located approximately 91.9 feet (28 meters) from the center of the platform coordinates. *See* Figure 4, below.

[35] Scour protection is a measure used to prevent the erosion of seabed sediment around foundations of offshore wind turbines. *See* Glarou et al. 2020. Different types of scour protection are available with crushed rock being the most common solution. The final decision on the type and amount of scour protection to be implemented for this project will be made after design of the foundation structure based on additional site-specific data, agency coordination, and public comment. *See* COP, Vol. 1, Section 3.3.1.8.

[36] In addition to having beneficial effects on finfish and invertebrates, *see* COP, Vol. 2, pp. 6-198, 6-215, artificial reefs may also have beneficial effects for marine mammals, *see id.*, pp. 6-243, 254, and sea turtles, *see id.*, p. 6-280.

Figure 4: Engineering Drawing of OCS-DC1 CWISs (from NPDES Application, p. 31).

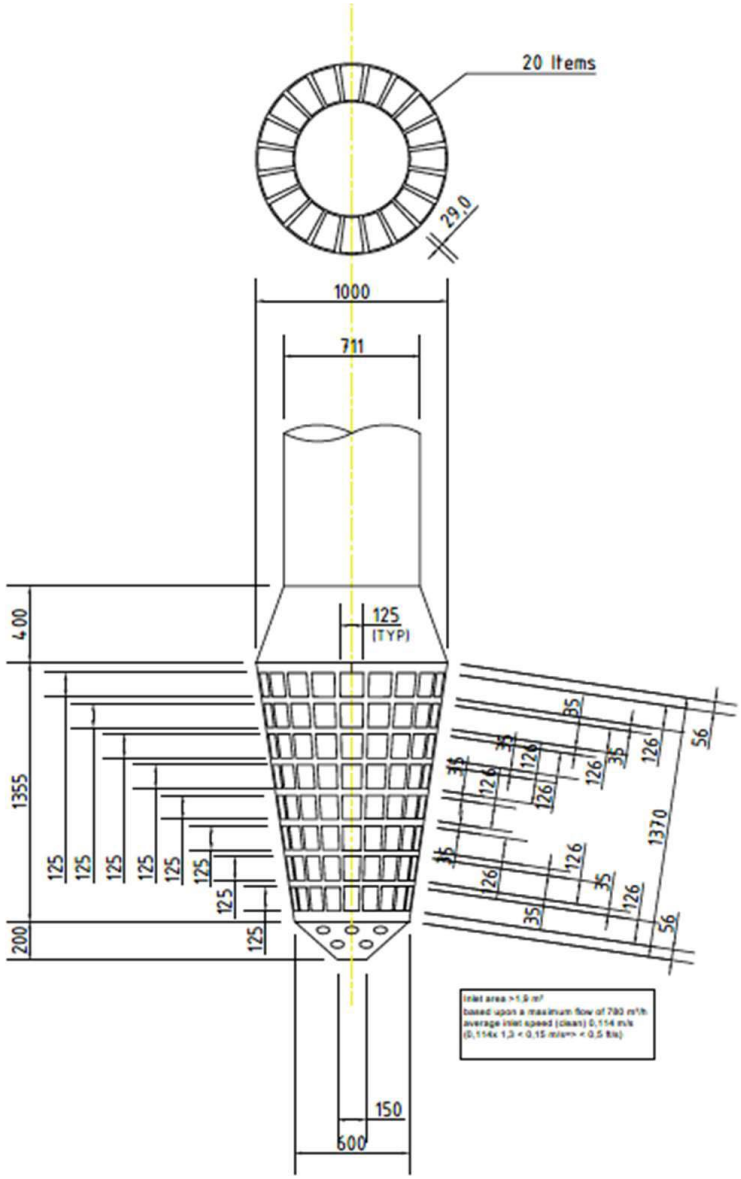


SouthCoast Wind initially proposed that the openings of the three cooling water intake pipes would be located approximately 81 ft (24.7 m) above the seafloor, and approximately 74 ft (22.6 m) below the ocean surface at MLLW. However, as explained in more detail in Section 5.2.4, below, EPA has determined that locating the intake at a particular depth is a component of BTA for minimizing the adverse environmental impacts of the Facility's CWIS. Consistent with this determination, the Draft Permit requires that the depth of each intake shall be between 10 to 20 meters ((approximately 32.8 to 65.6 feet) above the pre-construction seafloor grade, presuming the converter station can be relocated to the 50 m depth contour/isobath, as discussed in Section 5.2.4 below.

The Applicant has proposed that each of the three vertical-shaft intake caissons will have a diameter of 28 inches (0.7 m), with flared/bell-mouth openings (5.67 ft (1.73 m) diameter and 25.21 ft^2 (2.34m^2) area). The Applicant originally proposed fitting each intake opening with three

approximately 20-mm-wide (0.8 inch) stainless steel bars, thereby leaving approximately 18 inches between the bars. However, after discussions with EPA regarding the possible entrapment of juvenile and adult life stages of fish and other marine wildlife (e.g., seals, federally listed sea turtles), SouthCoast Wind proposed a new intake screen design that relies on a gridwork of many smaller openings, rather than a series of parallel bars. *See* Figure 5, below. EPA concurs with the Applicant's assessment that the newly designed intake screen should prevent adult fish and other larger marine organisms (e.g., seals, endangered sea turtles) from entering the intake while also allowing the Facility to meet intake through-screen velocity requirements (i.e., the TSV limit of ≤ 0.5 fps).

Figure 5: SouthCoast Wind Bellmouth Intake Screen Design (dimensions in millimeters)



Reducing the area of open space at the intake screen using the Applicant's new intake screen design is a component of BTA for minimizing adverse environmental impacts of the Facility's CWIS and is discussed in more detail in Section 5.2.4.

As previously described, each intake pipe will contain a retractable inline pump strainer located within the intake pipe after the initial intake screen but prior to the pump, a dedicated seawater lift pump equipped with a variable frequency drive, and then a dedicated filter (250 µm mesh size), to protect the equipment upstream of the pump and provide reliable operation of the cooling system. Each filter system will automatically backwash, based on pressure differential measured at the filter (which can indicate a buildup of biofouling, debris, or entrained organisms), but the backwash can be manually activated as well. Backwashes will use approximately 630 gallons per minute (gpm), for 30 seconds per cycle, resulting in a total flow of 315 gallons per backwash cycle, with the effluent flow directed to the discharge caisson. *See* SouthCoast Wind Responses to EPA Comments, attached to email dated March 25, 2024. Total backwash flow is intermittent, with maximum volumes ranging between approximately 0.41 MGD (SouthCoast Wind Responses to EPA Comments, as table attached to email dated December 5, 2023) and 0.63 MGD (SouthCoast August 23 Memo).

Each of the cooling water intake structures is connected to separate, dedicated heat exchange units (i.e., there is no combined or shared manifold upstream of the pumps or the filters). A flow schematic is provided in Appendix A and an Engineering Drawing of the CWIS is provided in Figure 4. The Applicant has indicated that during normal operating conditions, two of the three seawater intake pumps will operate at any one time, with the third pump on standby or idle, except that the idle pump will run at 1.3 MGD (200 m^3/h) during the winter to prevent stagnant water in the intake from freezing. The total maximum daily flow will not exceed 9.9 MGD with the addition of the idle pump flow.

According to the Applicant, the total DIF of the OCS-DC1 is 9.9 MGD. The Applicant explains that although each seawater lift pump will have a theoretical nameplate flow capacity of 900m3/h (i.e., 11.4 MGD with two pumps operating), each pump will be "limited to a flow of 780 m3/h by setting a physical limitation on the frequency control of the VFD of the pump motor or by use of a flow control valve to ensure the pump is not capable of operating above the DIF of 780 m3/h." SouthCoast Wind Responses to EPA Comments (responses provided in table attached to email dated December 5, 2023). A flow of 780 m3/h equates to 3434 gpm or 4.95 MGD. Therefore, with two pumps running, the total DIF will be 9.9 MGD. The Applicant has also indicated that the total average monthly intake flow will likely be 4.8 MGD.

After the heat exchangers, a relatively small portion (< 1% of flow) will be diverted to the electrochlorination system. As previously discussed, the electrochlorination system uses electrolysis of seawater to produce sodium hypochlorite, which is injected into the intake pipes (near the suction level of the lift pumps when operating) to reduce biofouling. The chlorinated water combines with the seawater in the intake pipe and proceeds through the heat exchange system to the outfall. *See* Appendix A.

5.2.3 BTA for Minimizing Impingement Mortality

In the immediate area of a CWIS, the velocity of water entering the intake exerts a direct physical force against which aquatic organisms must act to avoid being drawn into the cooling system or impinged against intake screens. Reducing the rate of flow of cooling water (or the intake velocity) reduces impingement because a low enough intake velocity will allow motile organisms to swim away and avoid becoming trapped against the intake screens. *See* 66 Fed. Reg. 65274. The through-screen design intake velocity (TSV) is calculated based on the design intake flow of the cooling water intake system.[37]

To satisfy CWA § 316(b)'s requirement that the location, design, construction, and capacity of CWISs reflect the BTA for minimizing adverse environmental impacts – in this case, adverse environmental impacts from impingement – EPA has promulgated regulations setting a maximum TSV limit of 0.5 fps as a critical technology-based requirement for new facilities, existing facilities, and new offshore oil and gas facilities. *See* 40 CFR § 125.84(c)(1); 40 CFR § 125.94(c)(2) and (3), and 40 CFR § 125.134(b)(2). Maintaining a maximum TSV of 0.5 fps or less is well-supported by existing literature as an appropriately protective measure to minimize impingement at CWISs.[38]

As discussed in Section 2.3 of this Fact Sheet, EPA has determined that CWIS requirements under the BTA standard should be set for an offshore converter station like SouthCoast Wind's OCS-DC1 on a case-by-case, BPJ basis, rather than based on the direct application of EPA standards for other types of facilities. Nevertheless, EPA's BPJ assessment for SouthCoast Wind has been informed by EPA's consistent incorporation of the 0.5 fps maximum TSV limit in its national standards for new facilities, new offshore oil and gas extraction facilities, and existing facilities. *See* 40 CFR §§ 125.84(b)(2), 125.134(b)(2), and 125.94(c)(2) and (3). EPA's BPJ assessment has also been informed by the technical analyses underlying EPA's adoption of the 0.5 fps standard in its regulations. *See*, *e.g.,* 79 Fed. Reg. at 4833766; 66 Fed. Reg. at 65274, 65302.

Turning to the specific equipment proposed for SouthCoast Wind's OCS-DC1, each of the three seawater pumps will withdraw a maximum of 4.95 MGD of seawater for cooling. In its NPDES permit application, SouthCoast Wind identified a design intake flow of 9.9 MGD based on simultaneous operation of two pumps (4.95 MGD x 2 = 9.9 MGD). *See* NPDES Application, p. 28. In recent discussions with EPA, the Applicant committed to having a CWIS design with an intake screen

[37] "*Design intake velocity* means the value assigned (during the design of a cooling water intake structure) to the average speed at which intake water passes through the open area of the intake screen (or other device) against which organisms might be impinged or through which they might be entrained." 40 CFR § 125.83. "*Design intake flow* means the value assigned (during the facility's design) to the total volume of water withdrawn from a source water body over a specific period of time." *Id.*

[38] EPA's evaluation of intake velocity to establish CWIS requirements under the New Facilities Rule suggested, based on swim speed and endurance, that most fish could endure a velocity threshold of 1.0 fps. EPA applied a safety factor of two to this threshold to derive an intake velocity limit of 0.5 fps and determined that a safety factor is appropriate to ensure protection when screens become partly occluded by debris and/or biofouling during operation (thus increasing the velocity through portions of the screens that remain open). *See* 66 Fed. Reg. 65274 and 65302. Data compiled from fish swim speed studies suggest that an intake velocity of 0.5 fps would protect 96 percent of tested species. *Id*. *See also* 79 Fed. Reg. at 48337 and DCN 2–028A, EPRI's "Technical Evaluation of the Utility of Intake Approach Velocity as an Indicator of Potential Adverse Environmental Impact Under Clean Water Act 316(b)."

located at the entrance of the bell mouth opening of each intake caisson. *See* Figure 5, above (depiction of OCS-DC1 intake screens). SouthCoast Wind has initiated a study to verify (and will provide supporting calculations as necessary) that the maximum intake flow rate or TSV will be ≤ 0.5 fps (with a maximum 33% occlusion margin). *See* SouthCoast August 23 Memo. EPA will not issue a final NPDES permit without reviewing the final proposed CWIS design and dimensions of the intake structure and verifying that the TSV, at maximum flow and assuming 33% occlusion, will be no more than 0.5 fps. EPA is highlighting this point because the Applicant has indicated that it could potentially change the currently specified configuration of the intake, *see* Figures 4 and 5, above, prior to issuance of the final NPDES permit.

EPA determined that a component of the BTA for minimizing impingement is to ensure that the TSV at each intake screen is maintained at ≤ 0.5 fps. Higher through-screen velocities caused by fouling or clogging can result in a decrease in the effectiveness of the screens for minimizing impingement and could potentially increase entrainment by enlarging the HZI. For this reason, as an additional technology-based step to minimize adverse environmental impacts, the Draft Permit proposes to require that the intake screen be constructed with anti-fouling alloys and/or coatings that will inhibit the amount of biological growth. Considering that the addition of chlorine will occur upstream of the intake entrance, using anti-fouling alloys and/or coatings to discourage growth on intake screens is considered by EPA to be a component of the BTA for minimizing impingement by helping the Facility to maintain compliance with the 0.5 fps TSV requirement. In this regard, EPA points out that a variety of materials, coatings, and treatments to reduce biofouling have been well known to EPA and industry for many years. *See* EPA Technical Development Document for the Final Regulations Addressing Cooling Water Intake Structures for New Facilities (TDD), EPA-821-R-01-036, November 2001.

In addition, based on the probability that there will be some degree of periodic occlusion of the intake due to debris and biofouling, ongoing assessment of the intake structure's TSV is necessary and will be required by the NPDES permit on a BPJ basis. *See* 40 CFR § 125.87(b) (intake velocity monitoring); 66 Fed. Reg. at 65320-21. *See also* CWA §§ 308(a) and 402(a)(2); 40 CFR § 122.48. Therefore, the Draft Permit also requires monitoring and reporting of the TSV to verify that it does not exceed 0.5 fps. *See* Section 5.2.5 of this Fact Sheet for information regarding the required TSV monitoring.

5.2.4 BTA for Minimizing Entrainment and Entrapment

Potential for Entrainment

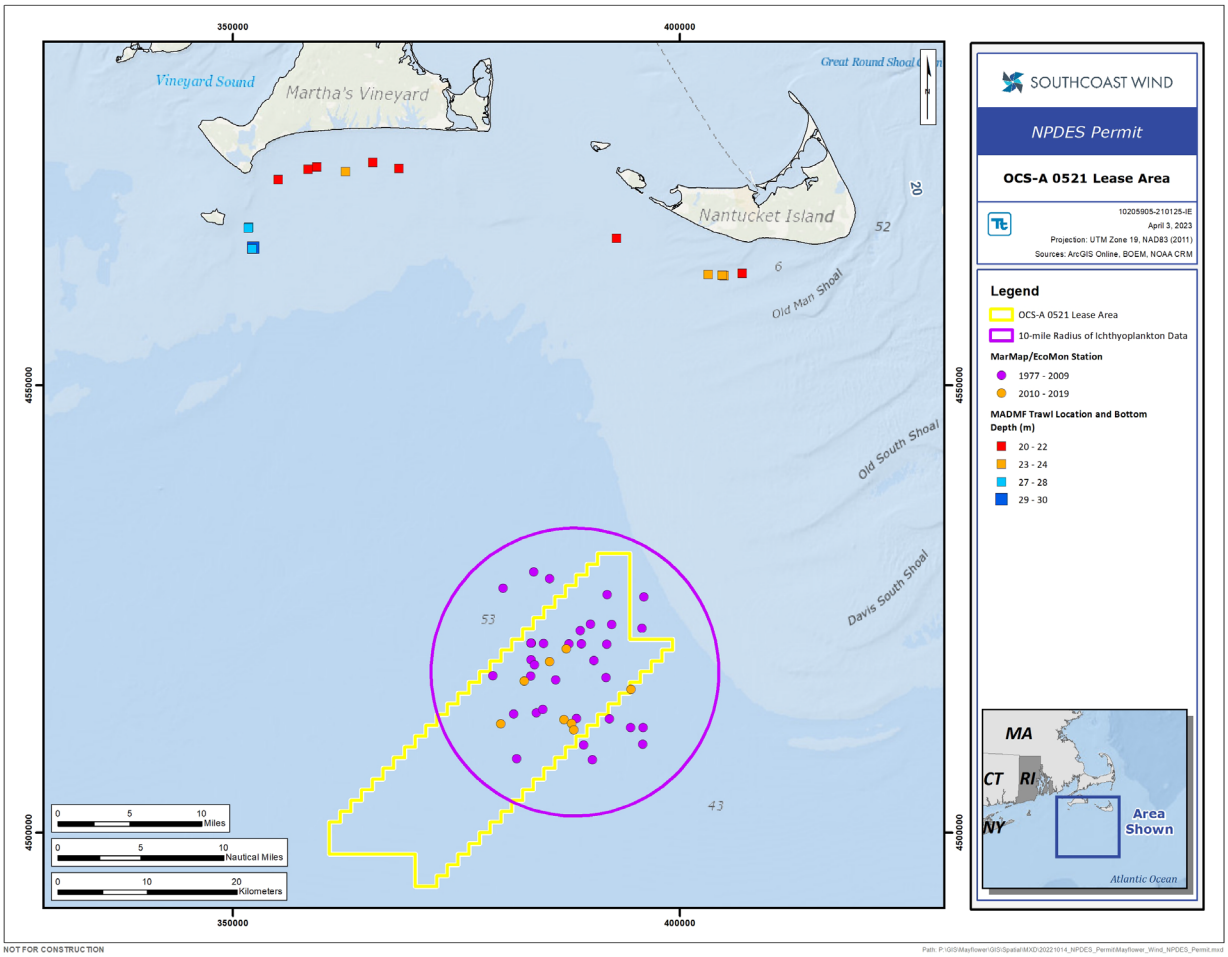
In its COP, SouthCoast Wind identifies 44 species of fish and invertebrates with designated Essential Fish Habitat (EFH) in the vicinity of the wind farm lease area. *See* COP, Appendix N, Tables 4-1 and 4-2. Most of these finfish species have early life stages (i.e., eggs and/or larvae) present that may be subject to entrainment. To estimate entrainment at the OCS-DC1, SouthCoast Wind used ichthyoplankton data collected by NOAA's Marine Resource Monitoring, Assessment, and Prediction (MARMAP) program and NOAA's Ecosystem Monitoring (EcoMon) program, which conducted ichthyoplankton tows between North Carolina and Nova Scotia during the years 1977 through

2019.[39] NPDES Application, p. 36. The database includes densities only for larval life stages (i.e., not for eggs or post-larval life stages).

SouthCoast Wind used data from stations within 10 miles (16 kilometers (km)) of the proposed OCS-DC1, shown in Figure 6 (SouthCoast Wind Farm boundary shown in yellow), which includes 43 unique stations. "Over the course of the 42-year time frame 30 unique fish taxa were identified and when combined, had a larval mean annual density of 603.3 larvae/100 m^3." *Id*. Over the course of the most recent 10 years of data (2010-2019), which includes 8 unique stations, 17 unique fish taxa were identified with a total larval density of 1,274.9 larvae/100m^3, even though samples were not collected during months likely to include spring spawning fish species. For both the 10-year and 42-year data sets, over 80% of the fish collected could not be identified or were not selected for identification but were categorized as "class Pisces." Taxa representing more than 1% of the overall larvae density for each data set includes Atlantic herring, hakes, sand lances, and summer flounder for the 42-year time frame and hakes, summer flounder, and silver hake for the most recent 10-year time frame. *Id*., p. 37.

[39] The MARMAP program collected zooplankton and ichthyoplankton abundance data on the U.S. Northeast continental shelf extending between North Carolina and Nova Scotia during the years 1977 through 1987. The EcoMon program continued MARMAP from 1992 to present, including the herring-sand lance survey (1988-1994) and Georges Bank Global Ocean Ecosystems Dynamics survey (GLOBEC 1995-1999). SouthCoast Wind used ichthyoplankton density data from these four surveys, from 1997 through 2019, which were obtained from the NOAA National Centers for Environmental Information (NCEI) electronic database.

Figure 6: MARMAP/EcoMon ichthyoplankton bongo tows and MA DMF trawl locations (with associated bottom depths) Considered by SouthCoast Wind for Entrainment Analysis (from NPDES Application, p. 38).



SouthCoast Wind also considered recent data from bi-annual (spring and fall) inshore trawl surveys in state waters, specifically data for Martha's Vineyard and Nantucket (2018, 2019, 2021) from the Massachusetts Division of Marine Fisheries (MA DMF) and for all state waters (2021) from the Rhode Island Department of Environmental Management (RI DEM). "Both [state] data sets include sites of similar depth (approx. 164 ft [50 m]) in a reasonable proximity to the SouthCoast Wind intake site and the relative abundance data is therefore likely to represent the species composition for adult fish and invertebrates selected by the trawl gear in the area." (Figure 6) *Id.*, p. 41. For both data sets, the most abundant species identified was scup (Stenotomus chrysops). Totals of 64 and 46 species were identified in RI DEM's and MA DMF's data, respectively.

Using the NOAA Fisheries EFH Mapper (EFH Mapper), SouthCoast Wind identified 18 species of fish whose eggs and/or larvae occur, and have designated EFH, in the vicinity of the proposed site of the

OCS-DC1. *See id*., Table 11, p. 44. EPA also accessed the EFH Mapper data[40] for the proposed site location (Latitude 40.805045 N; Longitude –70.324838 W, Appendix B) and identified 12 fish species whose eggs and/or larvae occur and have designated EFH. While it is not known why there is a discrepancy between the two EFH results, the analysis does confirm that EFH early life stages are expected in the vicinity of the site.[41]

SouthCoast Wind also lists 17 species from the MARMAP/EcoMon ichthyoplankton and MA DMF trawl survey results that spawn in proximity to OCS-DC1. Nine of these trawl species are also identified as EFH species (a subset of the 18 EFH species listed above). This data supports the fact that early life stages are present, which are the most susceptible to entrainment. *See id*., p. 51.

SouthCoast Wind used EcoMon plankton data from 1977–2019 to estimate annual entrainment abundance based on the minimum, mean, and maximum larval densities in the designated study area (within 10 miles (16 km) of the OCS-DC1).[42] Assuming a daily intake flow of 9.9 MGD, SouthCoast Wind estimates that a range of from 8.3 million to 174.4 million larvae will be entrained each year, with a mean estimate of 83.2 million. "Based on monthly mean larval densities and excluding unidentified fish (68.4 million), the taxa with the highest estimated larval entrainment annually were hakes (3.9 million), Atlantic herring (3.9 million), sand lances (3.3 million), summer flounder (1.3 million) and silver hake (0.5 million…)." *Id*., p. 52.[43] SouthCoast Wind also estimated that the CWIS would entrain only 85,353 Atlantic cod larvae annually (about 0.1% of the total entrainment). *Id*., p. 55.

SouthCoast Wind did not, however, evaluate entrainment of *Calanus finmarchicus*, which is a species of copepod that is important to the foraging base of the endangered North Atlantic right whale (*Eubalaena glacialis*). Instead, the Applicant determined that the loss of *Calanus* spp. and other zooplankton by means of the OCS-DC1 would have a negligible impact by comparing the relative withdrawal volumes of Northeast Gateway (56 MGD) and SouthCoast Wind's proposed OCS-DC1 (9.9 MGD). This comparison is misleading, however. The Northeast Gateway facility is

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[40] https://www.habitat.noaa.gov/apps/efhmapper/?page=page_3. New England and Mid-Atlantic Fishery Management Councils, September 26, 2024.

[41] Further, EPA notes that in Appendix B, the only life stage present for Atlantic cod is "adult." NOAA Fisheries informed EPA, however, that this area has been documented as a spawning site for cod, thus indicating that Atlantic cod eggs and larvae are expected in this area (Personal communication between J. Nagle, EPA and G. DiPreta, September 26, 2024). The EFH Mapper does not list the cod early life stages at this time, but NOAA Fisheries informed EPA that the New England Fisheries Management Council is in the process of updating the information in the Northeast Multispecies Fishery Management Plan and that, once issued, Atlantic cod eggs and larvae will be included.

[42] The MARMAP and EcoMon data used for this analysis only quantified larval density. The NPDES Application does not include an estimate of eggs to be entrained at the OCS-DC1.

[43] SouthCoast Wind identifies several major assumptions and uncertainties concerning the entrainment estimates, including the following:

> These larval entrainment estimates assume the 1977–2019 time series is representative of the current and future species composition. However, the species composition cannot be fully-differentiated, since the majority of individuals in the applicable dataset were not identified beyond 'unidentified fish larvae'. Also, species diversity may be underestimated within the raw annual entrainment of all fish and life stages because publicly available EcoMon data set excludes all fish eggs and larvae of less common fish taxa (although some proportion of that abundance is accounted for in the 'unidentified fish larvae' category).

NPDES Application, p. 53.

required to use a closed-cycle cooling system during a significant part of its operations specifically because of concerns about adverse environmental impacts from cooling water withdrawals. Indeed, the Northeast Gateway facility is only allowed to operate at withdrawal rates of up to 56 MGD during a fraction of a year (specifically, less than a third of the year). *See* NPDES Permit No. MA0040266 (Northeast Gateway Energy Bridge) (Dec. 23, 2014), Part I.A.1. *See also* EPA Fact Sheet for NPDES Permit No. MA0040266, (Northeast Gateway Energy Bridge) (Dec. 23, 2014), pp. 25-32. Furthermore, the Northeast Gateway facility is located in a different geographic area, *see id.* at pp. 3-4, well to the north of the block of lease areas that includes the SouthCoast Wind area. Therefore, in EPA's view, it is important to evaluate the possible effects of the OCS-DC1 entraining copepods that are a food source for endangered North Atlantic right whales and nothing about the Northeast Gateway permit contradicts this view. In addition, EPA notes that beyond the CWIS associated with SouthCoast Wind's current OCS-CD1, and another CWIS associated with the relatively nearby Sunrise Wind wind farm, additional offshore converter stations with CWISs may be proposed for the same general area by SouthCoast Wind and other project proponents. Based on present plans, there may be as many as eight converter stations off the southern coast of New England that withdraw water for cooling. Therefore, the cumulative effects of siting multiple cooling water intake structures in relatively close proximity to each other will be considered by EPA (and other agencies) as future permits are evaluated.

In addition, SouthCoast Wind claims that copepods entrained through the CWIS are not removed from the forage base and are still available prey for the North Atlantic right whale and other species. The Applicant states as follows in its permit application:

> [o]nce dead, the copepod carcass becomes less dense as it decomposes, retaining its buoyancy before slowly falling to the sea floor (NSF 2011). Within the Great South Channel off New England, a large dense patch of copepods was investigated (Wishner et al. 1988), where an area of accumulated copepod exoskeletons and partially decomposed copepods was attributed to predation of right whales feeding on an adjacent live patch of copepods. In the York River estuary, Virginia, copepod carcasses were analyzed to determine how long they remained suspended in the water column before sinking to the sea floor (Elliot et al. 2011). Turbulent mixing kept carcasses suspended in the water column as microbial decomposition reduced the dry weight of the carcasses within the first eight hours after death. Presumably, if copepods from a prey patch overlapping with the CWIS remain floating in the water column following entrainment through the CWIS and discharge back to the source water, they may still be available as North Atlantic right whale prey consumed within the live patch of copepods.

NPDES Application, p. 67. EPA has evaluated SouthCoast Wind's suggestion that copepods entrained through the CWIS may be returned to the water column and still serve as available prey for the North Atlantic right whale and other species. First, EPA does not dispute that the dead, decaying carcasses of the entrained copepods may indeed be injected back into the water column and be available for consumption by filter feeding or non-discriminate predators. However, it is essential to note that the health and nutrition of copepod predators (including the North Atlantic right whale) are related not only to quantity of copepods in the water column, but also the *quality* of the prey. In this case, the quality is related to how much energy is available to the predator through

consumption of the prey. McKinstry, et al. noted than an individual live copepod's energy transfer to the next trophic level when consumed is correlated to the amount of lipid contained in the organism. A dead copepod, especially one that has been entrained by a cooling water pump, subjected to large changes in temperature, as well as shear pump forces, and injected back into the water column, is likely to begin hemorrhaging its lipid level almost immediately. This will certainly reduce the energy available to the predator that consumes it. Depending on how long the decaying copepods remain in the water column, it is likely that within a matter of hours or days, only bacteria-ridden exoskeletons will remain with a small fraction of useable energy, if any, available to a potential predator. *See* G.C.H.Harding.

In addition, it is well understood that during the "spring bloom" in the western North Atlantic, live copepods feed on the phytoplankton abundance and direct this energy toward overall copepod growth, gonad development and egg production. *See* Jónasdóttir, S.H., et al. This notable increase in copepod biomass is taken advantage of by predators, including the North Atlantic right whale, and is an important component of ecosystem. Obviously, dead copepods are unable to increase their biomass and directly add to the overall prey available to predators. Based on this evaluation and without an analysis to the contrary submitted by the applicant, EPA cannot support any finding that dead entrained copepods are comparable to live copepods when assessing the energy, nutritional value and increased biomass available to predators, including the North Atlantic right whale.

As previously described, operation of the OCS-DC1 at the proposed location with cooling water withdrawn at a rate of 9.9 MGD may result in annual larval entrainment in the range of 8.3 million to 174.4 million, with a mean estimate of 83.2 million, based on monthly mean larval densities observed by EcoMon within 10 miles (16 km) during 1977-2019. These values are possibly indicative of the high biological productivity of the area. Moreover, EPA notes that these values are virtually certain to underestimate total entrainment because data was only available to estimate larval density and no estimate of the entrainment of eggs is provided. Including eggs in the estimation of annual entrainment would increase the overall impact. Eggs typically occur at higher densities than larvae and annual entrainment could be expected to increase by a factor of two or more.[44] The relative proportion of eggs in the overall entrainment totals at the OCS-DC1's three intakes, however, is less certain, in part because the eggs of most offshore species are buoyant (Sundby and Kristiansen 2015). Therefore, it is possible that the location of the intake (if the depth is at least 30 meters (98.4 ft) from the surface) may help to reduce and minimize entrainment of eggs as well as larvae. Site-specific biological monitoring at the intake, as proposed in the Draft Permit, is necessary to quantify the densities of eggs and larvae entrained by the OCS-DC1 and to compare these levels to EPA's estimates of annual entrainment based on the EcoMon larval density data presented above.

[44] EPA was unable to find an estimate of egg density in the geographic area of the windfarm. However, egg densities were available from biological monitoring for an offshore liquified natural gas facility in the Gulf of Maine. EPA reviewed estimates of eggs and larvae at this location and found that the density of eggs is typically 1.5 to 3 times higher than larvae during the same sampling period and can be as much as 5 to 15 times higher than larval densities. *See* Northeast Gateway Biological Monitoring Reports 2008 through 2019.

Potential for Entrapment

In addition to the entrainment of eggs and larvae, the OCS-DC1's CWISs could potentially entrap juvenile and adult finfish, sea turtles, and marine mammals, depending on its design. As previously mentioned, SouthCoast Wind initially proposed to fit each intake opening with three approximately 20-mm-wide (0.8 inches) stainless steel bars, thereby leaving approximately 18 inches of open space between the bars. An intake design with three such widely spaced bars across the intake opening,[45] however, could allow even relatively large aquatic organisms to enter the intake where they could become entrapped by the CWIS.

EPA met with representatives from SouthCoast Wind on June 3, 2024, to discuss design features proposed for the OCS-DC1 CWISs. At this meeting, EPA expressed its concern that the widely spaced "crash bars" would allow marine life to enter the intake structure. *See* Notes from June 3, 2024, meeting between SouthCoast Wind and EPA. Furthermore, EPA noted that since the diameter of the intake pipe is significantly less than the diameter of the intake entrance, the intake velocity will rapidly increase as water is pulled toward the lift pump. Therefore, to survive, aquatic life entering the intakes would need to turn around and swim back out through the bars against the increased intake current. Once they enter the intake, the extent to which aquatic organisms will be able to escape the CWIS is uncertain.

EPA was particularly concerned about this because it is aware of situations in which an intake with widely spaced bars allowed not only fish but also larger organisms to enter the cooling water intake structure and become entrapped. Seabrook Nuclear Power Station in Seabrook, NH (Seabrook), operates an offshore intake located at 42 feet below mean sea level. The intake's vertical trash bars (equivalent to SouthCoast's initially proposed crash bars) were originally designed with 16-inch spacing, but the facility found that seals entered the intake, possibly in pursuit of prey, and were unable to get back out before being killed. *See* 64 Fed. Reg. 28114-115 (May 29, 1999) (NOAA's incidental take regulations for Seabrook under the Marine Mammal Protection Act). The Station subsequently upgraded the vertical trash bars to employ steel bars spaced 5 inches apart at the offshore velocity cap to physically block larger organisms, including seals, from entering the intake. *See* North Atlantic Energy Service Corporation (i.e., Seabrook Station) 2001 Fact Sheet, p. 38; Clean Water Act Section 316(b) Compliance Submittal Phase I: 40 CFR 122.21(r)(2)-(8), Seabrook Nuclear Power Station NH0020338, July 2018, p. 3-3. *See also* 67 Fed. Reg. 70180 (Nov. 21, 2002) (NOAA revised regulations for Seabrook). While seals were an issue at Seabrook, entrapment of sea turtles was a problem at another power plant. *See* 66 Fed. Reg. 65263. Obviously, if seals and sea turtles could enter an intake and be entrapped, then the same problem could occur with fish.

The COP, Vol 2 (Section 6.8.1.1; Table 6-63), indicates that harbor porpoise (*Phocoena phocoena*)

[45] The preamble to the New Facilities Rule explains that through-screen intake velocity is one of the key factors affecting the extent to which fish and other aquatic life are impinged on a cooling water intake screen. 66 Fed. Reg. 65274. The regulations applicable to CWISs for new facilities under Section 316(b) define design intake velocity as "the average speed at which intake water passes through the open area of the intake screen (or other device) against which organisms might be impinged or through which they might be entrained." 40 CFR § 125.83. These requirements specify that the through-screen intake velocity must be no greater than 0.5 fps. 40 CFR §§ 125.84(b)(2), 125.84(c)(1). In other words, the TSV applies at, and must be calculated based on the diameter of the pipe at, the screen or other device against which organisms might be impinged or through which they might be entrained.

and seals (*Phocidae*) are groups of marine mammals already present in the offshore wind project area year-round and the area of the OCS-DC1. Sea turtles listed under the federal ESA may also be present in the project area. *See id*., Section 6.9. Furthermore, although the habitat in the vicinity of the OCS-DC1 is currently dominated by sand and soft sediment fauna, the wind turbines and OCS-DC1, and the scour associated with each installation, will alter the habitat in a way that may attract more fish and larger predators, including seals, to the area. Therefore, for a CWIS equipped only with relatively widely spaced bars at the mouth of the intake, EPA would have significant concerns about the potential for juvenile and adult fish as well as larger organisms (e.g., seals, harbor porpoise, and sea turtles) to enter the intake and become entrapped.

In response to EPA's concern, SouthCoast Wind subsequently submitted a new preliminary intake design. Figure 5, above, shows the new design for the screen to be located at the opening of each CWIS. The design includes approximately 157 slots or openings, each 5 X 5 inches (125 X 125 mm), resulting in an open area available for flow when the screen is clean equal to 27ft^2 (2.5m^2). *See* SouthCoast August 23 Memo, p. 8/14. Even at 33% occlusion, with only 17ft^2 (1.6m^2) open area available for flow, the Applicant has indicated that the TSV is still expected to be below 0.5 fps when the pump is operating at maximum capacity. Though Figure 5 shows the preliminary design, SouthCoast Wind notes that "[t]he currently shown number of slots, bell mouth diameter and number of slot rows is not representative for the final design. This is to be optimised in detailed design." *Id*.

Based on its BPJ, EPA proposes, as a component of the BTA for the Southcoast Wind OCS-DC1, that the Permittee install the intake screen design specified in the SouthCoast August 23 Memo at the mouth of the intake with maximum open spaces of 5 inches. *See* Figure 5, above. EPA recognizes that the Applicant has indicated that the number of screen slots, the number of slot rows, and the bell mouth diameter could be changed during "final design," but the openings in the screen may not be larger than the five-inch by five-inch area shown in the diagram reproduced in Figure 5, above. In addition, the Draft Permit clarifies that the TSV of 0.5 fps must be met at the open area of the intake screen or other device against which organisms might be impinged or through which they might be entrained or entrapped.

Best Technology Available to Minimize Entrainment

A. Variable Frequency Drives

SouthCoast Wind initially proposed installing variable frequency drives (VFDs) and running the pumps at two speeds (200 m3/h and 780 m3/h) without modulating control between the flows. SouthCoast Wind Responses to EPA Comments, attached to email dated March 25, 2024. Operating in this manner was preferred because the "[u]se of a VFD for modulating flow control adds additional control loops which can fail and is therefore not deemed to contribute to a reliable cooling system for the facility as well as the environment." *Id*. However, as EPA explained, the Facility would be withdrawing larger volumes of water than required to control the temperature differential of the cooling system. *See* Notes from June 3, 2024, meeting between SouthCoast Wind and EPA. EPA explained further that operating VFDs at maximum flow (instead of adjusting flow based on ambient temperature and electricity demand) is not aligned with EPA's consideration of

VFDs as a 'Best Technology Available' to minimize entrainment impacts. *Id*. Furthermore, using VFDs to optimize flow for minimizing entrainment was shown to be feasible for the nearby Sunrise Wind facility.

More recently, SouthCoast Wind has committed to using pumps with VFDs to "reduce intake flow to only the amount required to meet cooling water needs as driven by seasonal changes in water temperature and electrical demand, based on seasonal/monthly temperature variation of ambient seawater." SouthCoast Wind Responses to EPA Comments (included in Excel spreadsheet attached to email dated August 5, 2024). The entrainment impacts of CWISs are closely linked to the amount of water passing through the intake structure. Since the eggs and larvae of some aquatic species are free-floating or weak swimmers, early life stages may be drawn into the CWIS along with the flow of cooling water. *See* 66 Fed. Reg. 65277. The estimated maximum daily design flow of the Facility is 9.9 MGD and the predicted monthly average intake flow based on projected operations using VFDs is 4.8 MGD. *See* Section 5.1.1 above.

EPA assessed the effectiveness of the proposed technology for minimizing entrainment (i.e., VFDs) by comparing estimated entrainment at maximum design intake flow (9.9 MGD) to the estimated entrainment at average monthly intake flows (because using VFDs will enable the OCS-DC1 to reduce its water withdrawals when the maximum flows are not needed). EPA conducted this comparison using SouthCoast Wind's estimates based on all finfish species that are expected to be present in the larval stage in the area delineated by the Applicant (within 10 miles of the converter station). Compared to the annual mean estimate of larval entrainment using SouthCoast Wind's design intake flow of 9.9 MGD, the use of VFDs to achieve projected actual intake flows will result in an estimated 48% reduction in entrainment in the vicinity of the wind farm boundary.

As a component of BTA, the Draft Permit requires that the Permittee "operate the seawater lift pumps with VFDs to withdraw the minimum amount of water actually needed to address cooling water needs based on seasonal water temperature and electrical demand." This requirement, along with monthly average and daily maximum flow limitations, directly addresses NOAA Fisheries' EFH Conservation Recommendation (CR) that:

> [t]he converter station CWIS should be required to use one dedicated intake pump or dual pump operation at reduced capacity equipped with a variable frequency drive (VFD) to minimize water withdrawals and reduce the extent of entrainment of eggs and larvae.

NOAA Fisheries EFH Conservation Recommendations for the SouthCoast Wind Offshore Wind Energy Project, Lease Are OCS-A-0521, September 23, 2024, EFH CR #11.

B. Design Intake Flow

In oceans, near-shore coastal waters are typically the most biologically productive areas. The euphotic zone (zone in which light is available for photosynthesis) typically does not extend beyond the first 100 meters (328 feet) of depth. Therefore, inshore waters are generally more productive

due to photosynthetic activity and due to the input from estuaries and runoff of nutrients from land.[46]

As stated above, the entrainment impacts of CWISs are closely linked to the amount of water passing through the intake structure, because the eggs and larvae of some aquatic species are free-floating or weak swimmers and may be drawn with the flow of cooling water into an intake structure. *See* 66 Fed. Reg. 65277. Volumetric intake flow limits are one way to protect aquatic life because limiting withdrawals of water can result in commensurate reductions in entrainment. *See id*. In addition, the New Facilities Rule establishes capacity-based *proportional* intake flow limitations for certain waterbodies, including rivers and streams, lakes and reservoirs, and estuaries and tidal rivers, as one component of BTA to minimize adverse environmental impacts from CWISs. 40 CFR §§ 125.84(b)(3), (c)(2), and (d)(2). *See also* 40 CFR §§ 125.134(b)(3) and (c)(2). In other words, limiting flow based on the proportion of a water body that is being withdrawn by a facility can be a way of limiting the effect of entrainment on aquatic life in that water body. EPA has not established proportional flow requirements for offshore, open ocean CWISs in any of the regulations it has promulgated under CWA § 316(b) but quantifying the approximate proportional flow can nevertheless be useful as a possible way of evaluating the potential adverse environmental impacts of the proposed intake in this case-by-case, BPJ determination.

The Applicant completed an analysis to define the hydraulic zone of influence (HZI) of the intake to support an evaluation of the proportional flow of the intake. *See* NPDES Application, pp. 79-81. SouthCoast Wind used the intake design specifications for the CWIS (total volumetric flowrate into the pipe (18.4 cubic feet per second (cfs) or 9.9 MGD) and distance from the seafloor to the intake (78 feet or 23.7 meters)[47]) and depth-averaged ambient current speeds to develop an ambient flow field for determining the HZI.[48] Depth-averaged ambient current speeds were calculated for depths ranging from the approximate depth of the intake opening (25 meters (82 feet) from the water surface) to 45 meters (148 feet) from the water surface. On June 1, 2021, the depth-averaged current speed was 0.046 m/s (0.154 fps). *See* SouthCoast Wind, HZI model input Excel spreadsheets, July 2023. SouthCoast Wind defined the HZI as the area in which the influence of the intake exceeds 10% of the ambient current. The maximum HZI (depicted in red in Figure 7) was modeled during the summer and extends radially from the intake for a distance of 8.5 feet (2.6 meters) and to a depth of 5 feet (1.5 meters) above the ocean floor. *See* Table 3. In other words, organisms within this 227-square-foot (21 m^2) area around the intake will experience a 10% increase in current as compared to the estimated minimum current.

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[46] EPA's 2006 Technical Development Document for the Final Section 316(b) Phase III Rule, p. 8-25.

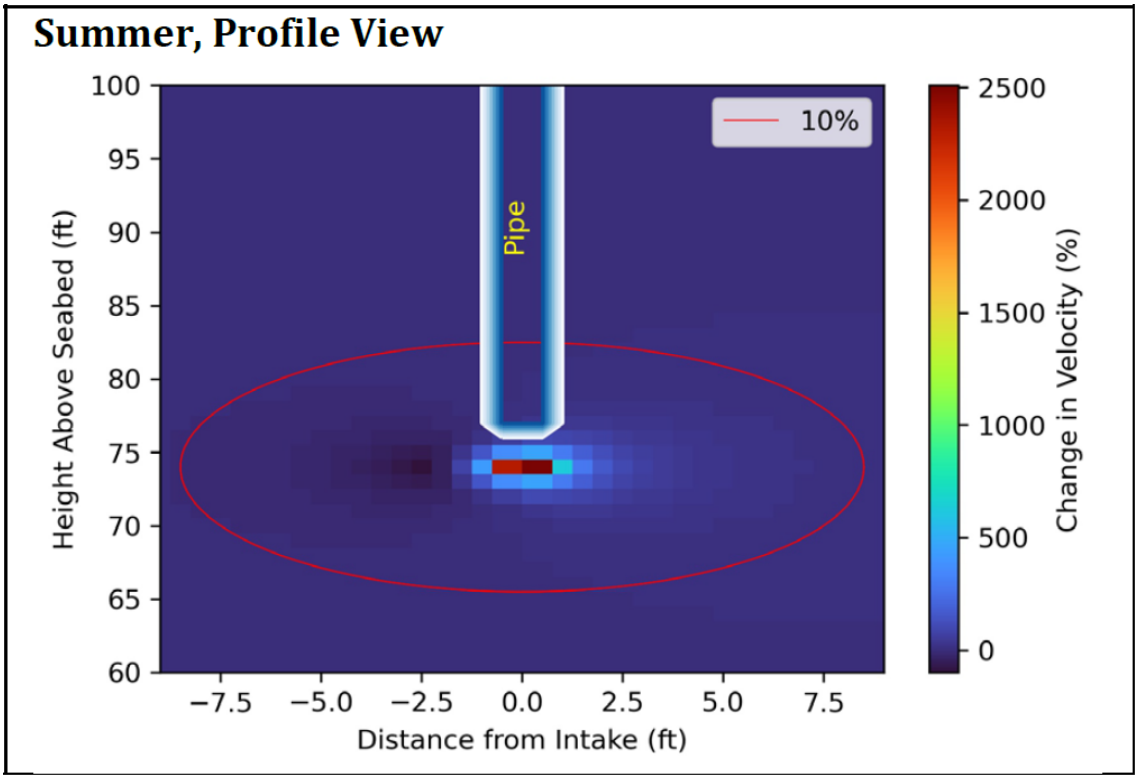
[47] Although the NPDES Application specifies that the intakes were originally proposed to be located at a depth of approximately 81 ft (24.7 m) above the seafloor, which is approximately 74 ft (22.6 m) below the surface at MLLW, the Excel data input tables used to model the HZI show that 78 feet (23.7 meters) above the seafloor was used in the analysis.

[48] The CWIS is designed with three intake pipes located in close proximity to each other. Each intake pipe is served by its own seawater lift pump. Only two intake pipe/seawater pump units will operate at any given time, with the third available as a backup if needed and operated at low flows during the winter to prevent stagnant water in the intake from freezing and during pump startups. Due to the close proximity of the intake pipes, this analysis evaluated the three pipes as a single line sink with a maximum flow rate of 9.9 MGD. Depth-averaged current "speeds were at depths from 82-148 feet from the surface (depth where the intake pipe was placed till the bottom of the seabed)." SouthCoast Wind Responses to EPA Comments (included in Excel spreadsheet attached to email dated August 5, 2024).

Table 3: Extent of Hydraulic Zone of Influence (from NPDES Application p. 80).

Scenario Category	Season	Radial Distance from intake (feet)	Depth from intake (feet)	Minimum depth above bottom (feet)	Area (feet²)
Maximum DIF (9.9 MGD)	Fall	8.0	5	73	201
	Winter	4.0	2	76	50
	Spring	5.5	3	75	95
	Summer	8.5	5	73	227

Figure 7: Summer, Profile View of the Intake Hydraulic Zone of Influence (from NPDES Application, p. 81).



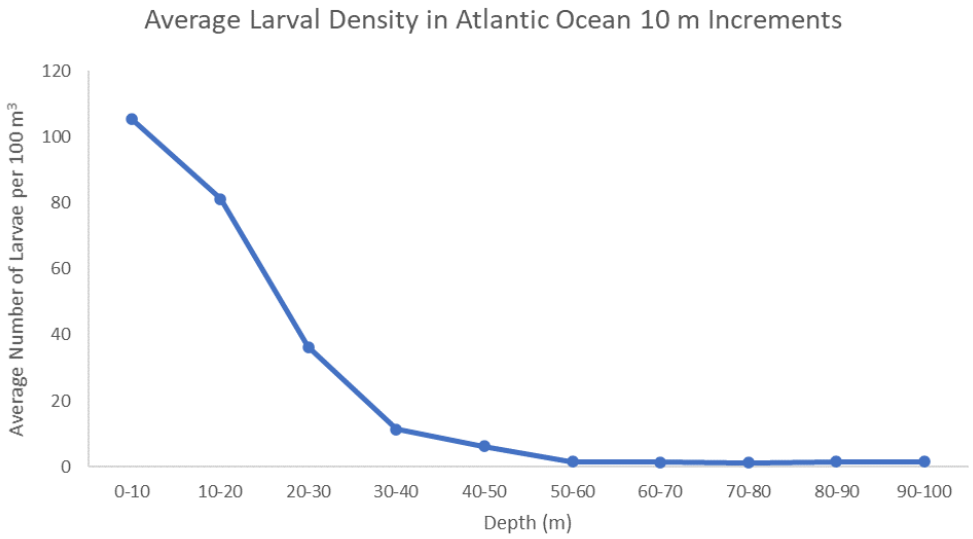
The analysis provided by the Applicant indicates that the HZI of the intake does not extend more than 8.5 ft from the intake. Marine organisms would have to pass through this relatively small area to be exposed to the influence of the intake and potentially impinged or entrained.

C. Intake Location

Locating an intake structure in an area within a waterbody where densities of entrainable life stages are lower can help to minimize entrainment. *See* 65 Fed. Reg. 49084. The relative density of entrainable organisms varies with water column depth. For example, in the Gulf of Mexico, EPA observed that, on average, ichthyoplankton densities are highest at shallower sampling stations and

lowest at sampling stations in the deepest regions. *See* 2006 Phase III Rule; 70 Fed. Reg. 71059. Moreover, like the Gulf of Mexico, larval densities in the offshore environment of the Atlantic Ocean also decrease rapidly with descent to deeper waters, as shown in Figure 8.[49] The entrainment estimates presented above nevertheless conservatively assume that larval densities are consistent throughout the water column. SouthCoast Wind's analysis conservatively estimated (i.e., most likely overestimated) entrainment at the intakes based on larval densities in ichthyoplankton tows caught over all sampled depths, including locations nearer to the surface likely to have greater densities of marine life.

Figure 8: Average Larval Densities in the Atlantic Ocean in 10 m Depth Intervals



In other words, based on existing data, increasing the depth of the intake relative to the total water depth, while also keeping it far enough above the seafloor to avoid impacting benthic organisms, will help to minimize entrainment of larvae (and also potentially of eggs) because fewer organisms will be exposed to the intake than would be if the intake was located closer to the surface (or near the seafloor). SouthCoast Wind initially proposed that the depth of withdrawal at the OCS-DC1 would be 22.6 m (approximately 74 ft) below MLLW. NPDES Application, p. 27 and 78.

At this depth, entrainment would be expected to be lower than if the intake was located higher in the water column (i.e., in the first 20 meters). Still, the average larval density at a depth of 20-30 meters (the intake is proposed at a depth of 22.6 meters) is about one-third higher than the density of larvae per 100 m^3 for the next 10-meter deeper increment of 30-40 meters. Therefore, to minimize entrainment, EPA evaluated the feasibility of extending the intake at least 7.4 meters deeper into the water column (i.e., to a depth of at least 30 meters). Specifically, EPA considered

[49] Average densities based on EcoMon data from Atlantic Ocean samples collected in an area that encompasses all the southern New England offshore wind lease areas and extends south to the continental shelf. *See* Sunrise Wind's November 2021 NPDES Application, p. 26. Graph developed by D. Gaito, EPA, for Sunrise Wind 2023 Fact Sheet, MA0004940.

whether such an extension of the intake would be technologically and economically feasible and concluded that it would be.[50] In this regard, EPA notes that the nearby Sunrise Wind facility is planning to install a converter station with cooling water intakes whose openings are at a depth of 35 meters. SouthCoast Wind has agreed that the intake depth could be extended to a depth of 30 meters. EPA NPDES Permit Application Comment Matrix, September 23, 2024.

Therefore, EPA has determined that in order to reflect the BTA for minimizing entrainment at the OCS-DC1 under CWA § 316(b), the location of the intakes should be at a depth no less than 30 meters (i.e., an additional 7.4 meters deeper than the proposed 22.6-meter depth) below the MLLW. Considering the total water depth from MLLW to seabed floor is approximately 47.3 meters (155 feet)[51] at the current proposed location of the OCS-DC1, placing the intakes at 17.3 meters above pre-construction seafloor grade equates to a depth of 30 meters below MLLW. However, if the converter station is relocated, as proposed in the Draft Permit and discussed in Section 5.2.4 of this Fact Sheet, to at least the 50 m depth contour/isobath, placing the intakes at 20 meters above pre-construction seafloor grade equates to a depth of 30 meters below MLLW. Therefore, the Draft Permit requires the CWIS to be located at a depth between 10 to 20 meters (approximately 32.8 to 65.6 feet) above pre-construction seafloor grade (presuming the relocation is feasible).

At the same time, numerous studies, including sampling in the vicinity of the OCS-DC1, demonstrate that early life stages of aquatic life have been collected at depths of 100 m or less, including at the expected depth of the intake. In addition, the existing fine sand or sand/mud benthic habitat in the vicinity of the OCS-DC1 will likely be transformed into higher complexity habitat by introduction of the foundation structures and associated scour protection of the WTGs and OCS-DC1. This, in turn, will likely increase the diversity and density of the biological community in the project area similarly to the way that artificial reefs affect the marine environment. *See* 71 Fed. Reg. 35014. *See also* Langhamer 2012; Glarou et al. 2020; Degraer et al. 2020. Post-construction ichthyoplankton monitoring is warranted to accurately characterize the entrainment impacts of the OCS-DC1 and to track potential changes in the densities of early life stages at the intake over time. *See* Fact Sheet, Sections 2.4.1 and 5.2.5 (discussing monitoring requirements).

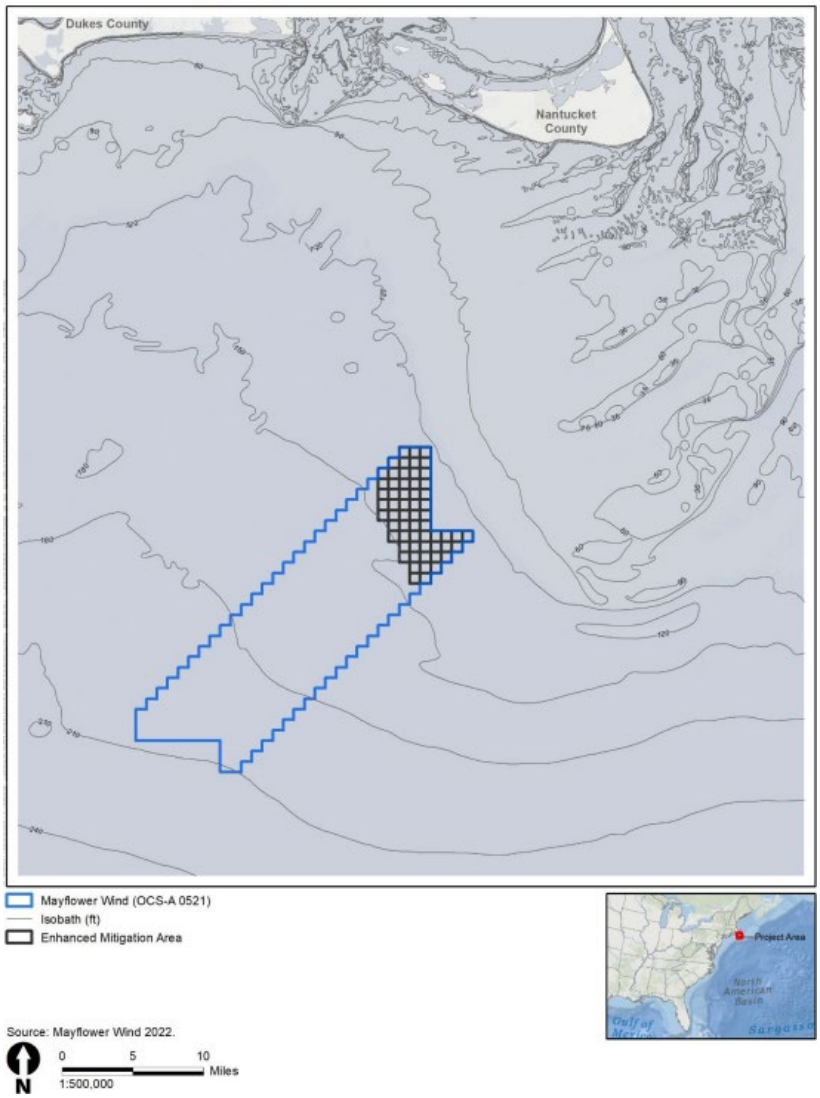
In addition to considering the depth of the intakes, EPA also considered their relative distance from Nantucket Shoals, which is an important foraging area for endangered North Atlantic right whales and other cetacean species (e.g., harbour porpoises, sperm whales, humpback whales, minke

[50] Intake pumps can be installed that will be powerful enough to withdraw the needed cooling water from a depth of 30 meters and moving the opening of the intake to a location 7.4 meters deeper should not create any unmanageable operations and maintenance issues. Also, since the converter station has not yet been built, such a change will not require existing facilities to be retrofitted. It is also obvious that extending the intake pipes would not change the process employed or technology used (i.e., cooling water withdrawal using seawater lift pumps), and no adverse water quality or non-water quality environmental impacts that would be associated with extending the intake pipes. EPA acknowledges that there could be a cost attributed to extending the intake pipes and that cost could vary depending on what phases of planning, design and fabrication have already been completed. Even so, EPA concludes that the cost of extending the intake pipes by a mere 7.4 meters would be relatively modest compared to the benefits of entraining one-third less larvae (as well as fewer eggs) and to the overall costs and revenues of the project.

[51] The sum of 22.6 m (74 ft), which was the initial proposed depth of withdrawal, below the water surface and 24.7 m (81 ft), which was the corresponding intake depth above the seafloor, equals a total water column depth of 47.3 (155 ft) at MLLW where the Applicant proposed to locate the converter station. *See* NPDES Application, p. 25 and 27.

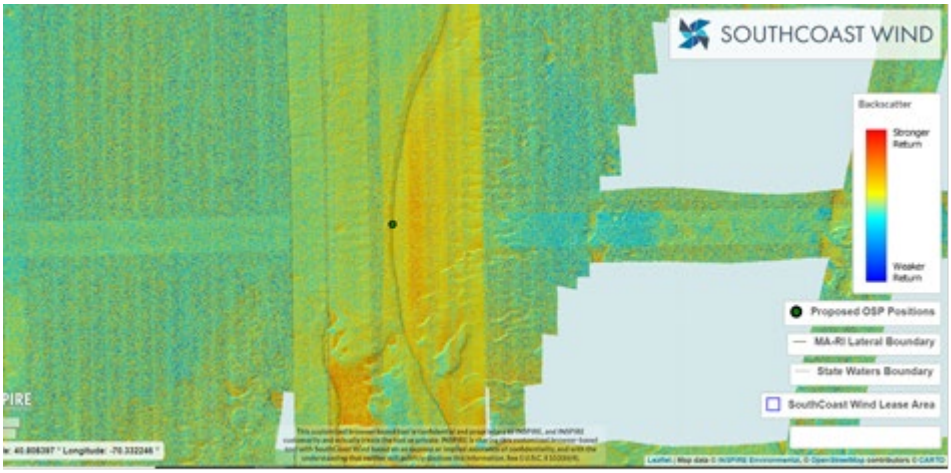
whales, sei whales, fin whales). “Nantucket Shoals supports dense aggregations of zooplankton such as gammarid shrimp and copepods, which in turn, support higher trop[h]ic levels of wildlife.” Draft EIS, p. G-49. In consultation with SouthCoast Wind, BOEM delineated an Enhanced Mitigation Area as shown in Figure 9 where it proposed that certain activities be restricted, such as pile driving during certain months of the year, and where a real-time North Atlantic right whale detection and vessel-strike reporting system could be implemented. BOEM also proposed to preclude open-loop cooling systems from the Enhanced Mitigation Area in order to minimize potential impacts on zooplankton from impingement and entrainment caused by the OCS-DC1. *See* Draft EIS, p. 3.5.5-60. EPA has determined that the benefits of this measure – i.e., not locating any open-loop cooling system CWISs within the Enhanced Mitigation Area – warrant that it be included as a component of the BTA for minimizing entrainment impacts. Making this a BTA requirement of the NPDES permit would not add any feasibility or cost concerns in this case because SouthCoast Wind’s current proposal already locates the OCS-DC1 outside of the Enhanced Mitigation Area.

Figure 9: SouthCoast Wind Enhanced Mitigation Area (from Draft EIS, Figure G-1, p. G-54).



In addition to locating the intakes outside the Enhanced Mitigation Area, in its EFH consultation letter, NOAA Fisheries recommends that the converter station be located in deeper water to the south and away from a benthic ridge feature found along the 45 m isobath, which spans the northern part of the lease area west of Nantucket Shoals. See NOAA Fisheries EFH Conservation Recommendations for the SouthCoast Wind Offshore Wind Energy Project, Lease Are OCS-A-0521, September 23, 2024, EFH CR #9. Figure 10 clearly shows the benthic ridge feature as evidenced by medium to high backscatter returns, coinciding with the proposed converter station location.

Figure 10: Backscatter data for SouthCoast Wind Lease Area Showing Benthic Ridge Intersecting Proposed OCS-CD1 Location



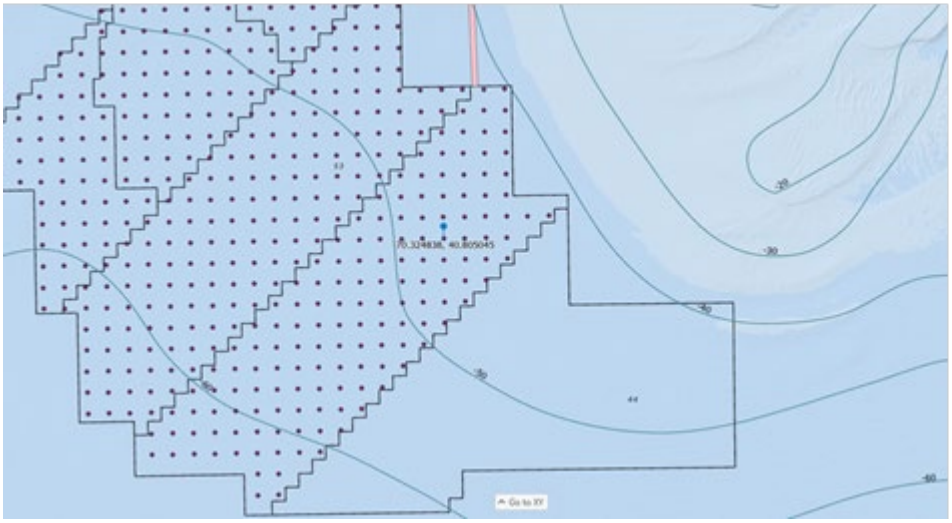
According to NOAA Fisheries, this benthic ridge, with associated biogenic habitat, is indicative of an active frontal region, which provides highly productive foraging habitat and attracts high trophic federally managed species.

> The estimated location of this front varies from the 50 m isobath to inshore of the 30 m isobath (Ullman and Cornillon 2001; Wilkin 2006). Density data from plankton surveys (1977-2017) conducted by NOAA NEFSC (Northeast Fisheries Science Center) Ecosystem Monitoring (EcoMon) survey, show that the front and its associated productivity, aggregates amphipods (a food source for several federally managed fish species) along the 40 m isobath off Nantucket Shoals, which overlaps with the northern end of the lease area (White and Veit 2020).

Id., p.2. NOAA Fisheries is concerned that the currently proposed location of the converter station "risks greater adverse impacts from entrainment of early life stages (eggs and larvae) as well as forage base (e.g. zooplankton, biogenic habitats) that serve as important components of EFH for federally managed species." Id., p. 17. NOAA Fisheries also states that this area is important Atlantic cod spawning habitat. To reduce adverse impacts to 1) Atlantic cod spawning activity, 2) existing biogenic habitat, and 3) marine life from the entrainment of eggs and larvae, which are likely present in higher concentrations at this location due to the Nantucket Shoals tidal front, NOAA

Fisheries recommends that the open-loop cooling water intake system of the OCS-DC1 be relocated to a site in water of closer to 50 m or greater depths. Figure 11 shows the SouthCoast Wind Lease Area, each WTG location, the converter station location (blue pin) and the labeled depth contours in meters. The 50 m depth contour/isobath overlaps the lease area south of the proposed converter station. The distance needed to relocate the OCS-DC1 close to 50 m depth or greater would be approximately 2.9 – 3.5 miles (or 2.5 – 3 nm).

Figure 11: SouthCoast Wind Lease Area Showing Proposed OCS-DC1 Location in Relation to the 50 m Contour/Isobath (from Marine Cadastre)



EPA has considered this information and determined that the benefits of this measure – i.e., relocating any open-loop cooling system CWISs away from the benthic ridge feature found along the 45 m isobath – warrant that it be included as a component of the BTA for minimizing entrainment impacts. EPA will however consider any information provided during the public comment period that provides information, including detailed engineering and/or cost information, demonstrating that the converter station cannot or should not be relocated. If ultimately, EPA determines, for the Final Permit, that the converter station cannot be relocated to a location closer to the 50 m isobath or greater, the Final Permit will include additional monitoring for Atlantic cod early life stages (i.e., eggs, larvae, and juvenile stages (less than 25 mm)) to be conducted twice per month from December through April.[52]

[52] Given the proximity of the OCS-DC1 to areas of known cod spawning activity, the potential for adverse environmental impacts to early life stages of Atlantic cod, the current status of the Southern New England (SNE) Atlantic cod population, and the limited sampling of early life stages during peak spawning periods for Atlantic cod, EPA determined that additional monitoring for Atlantic cod eggs and larvae would be warranted to quantify the density of early life stages and assess potential entrainment impacts from the CWIS, if the converter station cannot be relocated as described above. In that case, EPA would want to ensure that data is collected at a frequency that enables an analysis of the representative impacts of entrainment on early life stages of Atlantic cod but with consideration also given to the significant resources necessary to conduct ichthyoplankton monitoring at the unmanned, offshore station. The monitoring frequency proposed is consistent with requirements in the Sunrise Wind NPDES permit. See https://www3.epa.gov/region1/npdes/permits/2024/finalma0004940permit-2024.pdf

Alternative Entrainment Technologies

In its application, SouthCoast Wind evaluated but rejected several alternative technologies for minimizing entrainment by the OCS-DC1, including various types of passive intake screens (e.g., wedgewire screens and aquatic filter barriers), alternative water sources, sub-sea heat exchange, and closed-cycle cooling (water or air).[53]

A. Passive Intake Screening Systems

In some cases, passive physical screening systems, such as wedgewire screens or aquatic filter barriers (also known as marine life exclusion systems), can be designed with a mesh size small enough (e.g., 0.5 mm) to prevent entrainment of early life stages of aquatic organisms. Organisms blocked by such screens could, however, be harmed by impingement against the screens unless the systems are also engineered to allow the organisms to be swept past the screens by water currents. Passive infiltration and porous intakes are another type of passive screening system and are designed to withdraw cooling water filtered through the substrate, which prevents passage of aquatic organisms, including early life stages, into the cooling system.

In any event, SouthCoast Wind concluded that passive screens would be infeasible for the OCS-DC1's CWISs because marine biofouling of the screens presents a maintenance concern that could not be overcome at an unmanned offshore platform. *See* NPDES Application, p. 75. Screen clogging and biofouling could significantly undermine the performance of the screens by increasing the through screen velocity. From its review, EPA concurs that conditions at a depth of 30 meters (98.4 feet) below the surface would likely make maintenance of physical screens difficult and could add additional challenges to the design of the OCS-DC1. Nevertheless, EPA also concludes that insufficient information exists at this time to demonstrate whether passive screens would be feasible or effective for minimizing entrainment at the OCS-DC1. EPA therefore invites comment on this group of technologies.

B. Alternative Water Source/Water Reuse

The OCS-DC1 intakes will not be located in reasonable proximity to alternative water sources such as groundwater, grey water, a publicly owned treatment works, a desalination facility, or a source of potable water. Therefore, replacing the Facility's seawater withdrawals for cooling with water from alternative water sources is not currently an available technology to minimize entrainment.

C. Subsea Heat Exchange

Subsea heat exchange is a type of closed-loop cooling. For this technology, a subsea heat exchanger is located directly on the seafloor or integrated into the jacketed platform structure, and it

[53] SouthCoast Wind also presented several alternative technologies for minimizing impingement mortality, including physical and behavioral barriers and collection/diversion systems. *See* NPDES Application, pp. 74-75. As explained above, however, the proposed design through-screen velocity of 0.5 fps is the BTA requirement specified in the Draft Permit for minimizing impingement mortality because it allows the majority of finfish species that encounter the intake to avoid impingement. The additional use of VFDs to limit cooling water flows to levels needed to meet demand will result in an actual intake velocity lower than 0.5 fps.

exchanges heat directly with the ocean water, relying on the natural convection of ocean currents to circulate the source water past the system. This closed-loop technology would eliminate the intake and discharge of cooling water at the OCS-DC1 and provide cost savings for the Facility because there would be no need for seawater lift pumps or electrochlorination.[54] SouthCoast Wind's evaluation concluded, however, that subsea heat exchangers are not available for the OCS-DC1:

> based on existing supplier and engineering capabilities for HVDC converter stations of this type. Additionally, subsea heat exchange systems are typically located directly on the seafloor and would create space conflicts with the inter-array cables and submarine export cables approaching the offshore substation as well as the need for separate vessel work area during installation and decommissioning.

NPDES Application, p. 73. BOEM's 2022 review of available cooling technologies for offshore wind suggests that subsea heat exchange is a developing technology currently being studied for this sector. *See* Middleton and Barnhardt 2022, pp. 4-5. EPA has learned of two companies offering subsea cooling technology for offshore wind HVDC applications: Future Technology's (Norway) Future Subsea Controllable Cooler (FSCC®) and Bronswerk Heat Transfer's (Netherlands) Subsea Cooler. According to Future Technology's website, the FSCC system is made from materials that resist corrosion and fouling, reducing maintenance, which is only expected to be needed every five years. Furthermore, this system can be either freestanding on the seabed or integrated into the jacketed platform structure.

At this time, however, there is insufficient information to support EPA requiring the use of a subsea heat exchanger for OCS-DC1, because 1) EPA is not aware of any existing offshore wind facility that uses or is planning to use this technology, and 2) design, procurement, and scheduling is so far along in the process for OCS-DC1 that a change in technology at this point in time would likely be cost prohibitive. EPA acknowledges that this may change in the future, however, and invites comment on the availability of this technology for full-scale, commercial deployment for OCS-DC2.

D. Closed-cycle Cooling

Under CWA § 316(b), a CWIS's "capacity," as well as its location, construction, and design, must reflect the BTA for minimizing adverse environmental impacts (such as entrainment and impingement mortality). Capacity in this sense refers to the volume of water being withdrawn by a CWIS. Reducing the volume of water withdrawn by the CWIS is considered to reduce entrainment by the same proportion that the flow is reduced. In other words, a 95 percent reduction in the volume of water withdrawn achieves a 95 percent reduction in entrainment. Therefore, intake capacity reductions are among the most effective means of reducing entrainment, especially for facilities located in biologically productive environments. *See* 66 Fed. Reg. 65273. Accordingly, using VFDs to reduce water withdrawal volumes to match what is needed based on seasonal changes in

[54] The subsea heat exchange technology is functionally similar to keel cooling, which is a common cooling water technology on vessels. EPA's review of this technology during rulemaking for new offshore oil and gas extraction facilities indicated that keel cooling is not limited to mobile vessels and could potentially be used for cooling water systems of stationary offshore oil and gas extraction facilities. *See* Technical Development Document for the Final Section 316(b) Phase III Rule p. 8-34.

water temperature and electrical demand would also reduce entrainment by enabling the Facility to modulate water withdrawal pumping rates so that, in essence, the capacity of the Facility's CWIS would be reduced whenever possible.[55]

Apart from VFDs, one of the most effective technological measures for reducing a facility's intake capacity (or water withdrawal volumes) is to use a closed-cycle cooling (CCC) system (another type of closed-loop cooling system in addition to the subsea cooling system discussed above). "Wet" closed-cycle cooling systems reduce cooling water withdrawals by transferring waste heat to the atmosphere so that most of the cooling water can be recycled and reused by the system rather than constantly needing to take more water from the source waterbody to replace the water already used for cooling. Alternatively, "dry" cooling towers forego the use of cooling water entirely and use fans to transfer heat to the atmosphere and cool the system's cooling medium. An air-cooled system neither withdraws water from a source waterbody for cooling nor discharges heated effluent back to the source waterbody as a means of disposing of waste heat. *See*, *e.g.*, Technical Development Document for the Final Regulations Addressing Cooling Water Intake Structures for New Facilities, pp. 2-2 and 4-1. (Since the waste heat is transferred to the atmosphere instead of to the source water, closed-cycle cooling systems also have the benefit of reducing thermal discharges.)

According to SouthCoast Wind, using closed-cycle cooling would "require large cooling tower equipment or extensive fan arrays." NPDES Application, p. 73. The Applicant references the 2022 white paper prepared for BOEM which suggests that platform size, water weight, and cost limit the feasibility of closed-cycle cooling for offshore wind facilities. *See* Middleton and Barnhardt 2022, p. 3. SouthCoast's NPDES permit application states that:

> [g]iven the high cooling loads and critical nature of the reliability of the CWIS for unmanned operations, closed-cycle cooling system (cooling tower, or air cooled), or closed-loop cooling system (subsea cooled heat exchangers) are not available technologies for this type of unmanned offshore facilities, based on existing supplier and engineering capabilities for HVDC converter stations of this type (Middleton and Barnhart 2022).

NPDES Application, p. 73. According to BOEM's review, offshore platforms to house the number of fans required and the weight of the seawater for cooling would be prohibitive from a space and cost perspective. *See Id*. Neither SouthCoast Wind nor BOEM, however, provided a specific estimate of the cost of closed-cycle cooling towers or air-cooling systems for HVDC converter stations generally or for OCS-DC1 specifically.

Although BOEM's independent market research completed in 2022 (Middleton and Barnhart 2022), concluded that closed-cycle cooling systems had not been implemented for any offshore wind HVDC converter stations to date, subsequent research has shown new developments. Specifically, closed-loop air coolers have progressed to the point of commercial availability and reliability, as evidenced by TenneT's platforms that are being installed in the German sector of the North Sea. In fact, the German government passed regulations in 2020 requiring closed-loop cooling for all offshore converter platforms. *See*

[55] Reducing flow will also reduce impingement impacts to some extent.

https://www.bsh.de/DE/THEMEN/Offshore/Flaechenvoruntersuchung/_Anlagen/Downloads/AJ2021_1WindSeeV_EN.html, Section 10. *See also* https://www.bsh.de/EN/TOPICS/Offshore/Offshore_site_investigations/Procedure/_Anlagen/Downloads/N-06-06_N-06-07_3rd-WindSeeV_EN.pdf, Section 11. In addition, up to 14 of TenneT's next generation 2GW converter platforms, having standardized topside design roof-mounted air-coolers, are planned for the Dutch sector of the North Sea.

EPA raised these developments in discussions with the Applicant and while SouthCoast expressed its willingness to investigate this technology for future facilities, it explained that the design and schedule for SouthCoast's OCS-DC1 is too far advanced to revise the current converter station design to utilize a closed-loop cooling system at this time. The Applicant further explained that the design of offshore electric service platforms involves the integration of many different systems and subsystems so that incorporating a closed-loop cooling system at this stage of project development would likely require a new platform design. Furthermore, according to the Applicant, supply chain requirements and limitations, as well as the limited availability of vessels capable of installing offshore wind facilities, result in the need to schedule equipment procurement and installation far in advance. As a result, the Applicant indicated that requiring a redesign of the platform could result in extensive project delays at great cost to the developers. SouthCoast also stated that such a shift in design approach would not be cost-effective and could well be cost-prohibitive and cause termination of the project. In addition, the Applicant stated that it might not even be technically feasible to retrofit a closed-loop cooling system into a larger platform originally designed for an open-loop, once-through seawater system. In addition, the OCS-DC1 is designed to be an unmanned platform and it is presently unclear whether the closed-loop systems that are being, or have been, designed in Europe are only for manned facilities and, if so, whether there are reasons that closed-loop cooling cannot be used on an unmanned platform.

Despite the legitimate questions and concerns raised above, EPA indicated to SouthCoast that it is not convinced that closed-loop cooling could not turn out to be an available technology for an unmanned offshore converter station in the future. In response, the Applicant indicated to EPA its willingness to evaluate the viability of closed-loop cooling for OCS-DC2, even though it would not be viable for OCS-DC1 given the advanced state of the development of that project. *See* Notes from June 3, 2024, meeting between SouthCoast Wind and EPA. EPA appreciates SouthCoast's willingness in this regard and looks forward to further considering closed-loop systems in the future.

In sum, EPA finds that closed-cycle cooling is not the BTA for this Facility (i.e., OCS-DC1) on a case-by-case, BPJ basis, because it would be infeasible for the OCS-DC1 at this time given the status of the project's development and the uncertainties around the compatibility of closed-loop cooling with the proposed type of offshore converter station. That said, EPA is aware of examples of closed-cycle cooling proposed for similar types of offshore applications (e.g., manned offshore converter stations). As a result, EPA will continue to evaluate closed-loop cooling and notes that it could potentially be found on a case-specific, BPJ basis to be the BTA for future converter stations.

NOAA Fisheries has recommended that:

> [t]he converter station CWIS should be retrofitted with a closed-cycle cooling system when the technology is made commercially viable. If a closed loop system is deemed infeasible at

> the time of construction, the feasibility of upgrading the proposed CWIS with a closed-cycle cooling system and/or incorporating best available technologies should be evaluated every five years upon re-application of the National Pollutant Discharge Elimination System (NPDES) permit for operation of the converter station. This should be included as a condition of Construction and Operation Plan (COP) approval and the NPDES permit.

NOAA Fisheries EFH Conservation Recommendations for the SouthCoast Wind Offshore Wind Energy Project, Lease Are OCS-A-0521, September 23, 2024, EFH CR #10. In response to this CR, EPA notes that it must revisit its determination of BTA for each permit reissuance, including the feasibility of retrofitting new technologies. *See* 40 CFR § 125.98(a). While EPA's analysis indicates that closed loop cooling is not available for the OCS-DC1 project at this time, EPA will consider the feasibility of alternative, closed-loop technologies at the SouthCoast Wind OCS-DC1 in the future. Although EPA will not propose a specific condition to the Draft Permit requiring closed-cycle cooling if and when it becomes "commercially viable" – commercial viability is not a regulatory standard or test under CWA § 316(b) – EPA will reassess the BTA during the next permit reissuance pursuant to 40 CFR § 125.98(a). Reassessment of BTA during reissuance will involve analyzing the feasibility of all alternative technologies, including retrofitting closed-loop cooling. Any future BTA determinations will consider all the factors required under CWA § 316(b) and any applicable regulations. To ensure EPA has the information needed to assess closed-cycle cooling for the next permit reissuance, and since it has been identified as one of the most effective technologies to minimize impacts from entrainment and impingement through reductions in intake capacity, EPA is including a Draft Permit requirement that the Permittee must submit a closed-cycle cooling feasibility study. The study must provide engineering and cost information regarding the option of retrofitting the OCS-DC1 with closed-cycle or closed-loop cooling and must be submitted to EPA with the next permit application (i.e., 6 months before permit expiration).

Determination of Best Technology Available to Minimize Entrainment

The entrainment of eggs and larvae is an adverse environmental impact associated with the operation of the OCS-DC1. As previously discussed, the OCS-DC1 may result in annual larval entrainment in the range of 8.3 million to 174.4 million, with a mean estimate of 83.2 million, based on monthly mean larval densities observed by EcoMon data within a 10-mile (16 km) radius of the converter station during 1977-2019. Still, this value likely underestimates total entrainment because no data estimating the entrainment of eggs was provided.

Entrapment of marine organisms could be another potential adverse environmental impact associated with the operation of the OCS-DC1. SouthCoast Wind's initial proposal included widely-spaced intake bars at the intake entrances, which would not have prevented many types of marine life from entering the intake structure, becoming entrapped, and causing mortality. After discussing these concerns with EPA, SouthCoast Wind has proposed a new intake screen design with smaller openings that should prevent entrapment of larger marine organisms. *See* Figure 5, above.

The adverse effects of entrainment and entrapment by SouthCoast Wind's intake structures can be minimized by the installation of existing, feasible cooling water intake technologies and the implementation of practicable operational measures. As previously explained, the determination of BTA requirements under CWA § 316(b) for the OCS-DC1 is based on EPA's site specific, best

professional judgement, informed by existing EPA regulations applicable to other types of facilities but not the OCS-DC1. In this regard, EPA evaluated and considered the requirements in the New Facilities Rule, the New Offshore Oil and Gas Facilities Rule, and the Existing Facilities Rule. EPA has determined that several components are needed to satisfy CWA § 316(b)'s requirement that the design, location, construction and capacity of cooling water intake structures reflect the BTA for minimizing entrainment (including entrapment).

Based on review of the availability of alternative cooling water technologies demonstrated for offshore wind HVDC transformer platforms, EPA determined that the BTA for minimizing entrainment/entrapment by the OCS-DC1's CWIS includes 1) the use of VFDs to enable the Facility to limit its withdrawal of ocean water to only the volume of water needed for cooling based on seasonal water temperature and electrical demand, 2) the intake screen design proposed in the SouthCoast August 23 Memo, *see* Figure 5, above, which has maximum openings of no greater than 5 inches to prevent larger marine organisms, including adult fish, marine mammals (e.g., seals), and certain federally listed species (e.g., endangered sea turtles) from entering the intakes and being harmed, 3) constructing the intake screens with biofouling-retardant materials to minimize biofouling and thereby minimize TSV; 4) locating the intake openings at a depth of at least 30 meters below MLLW (98.4 feet) to minimize entrainment of marine organisms in the water column, while also locating the intake openings at least 10 meters (32.8 feet) above the seafloor to minimize entrainment and impingement of benthic organisms, 5) locating the intake outside the Enhanced Mitigation Area to avoid or minimize the entrainment of prey for the endangered North Atlantic right whale; and 6) relocating the OCS-DC1 intakes in water at least 50 meters deep, to the southwest of the intake location proposed by the Permittee, as shown in Figure 11 above, to avoid adverse impacts on EFH consistent with NOAA Fisheries EFH CR # 9.

While SouthCoast Wind could comply with CWA § 316(b)'s BTA requirement by installing closed-loop or closed-cycle cooling technology, EPA is not presently mandating this technology in the Draft Permit because of the reasons discussed above. Going forward, EPA will further evaluate the cost and feasibility of closed-loop cooling for application at future offshore electrical converter stations associated with offshore wind electrical generating facilities.

5.2.5 CWIS Requirements

In making this case-by-case, BPJ determination, EPA considered the projected adverse environmental effects from the proposed operation of the CWIS, and options for the location, design, construction, and capacity of the CWIS. EPA also considered the BTA standards established in EPA § 316(b) rulemakings, recognizing that those standards do not directly apply to the Facility. *See* 40 CFR §§ 125.84(c), 125.94(c), and 125.134(b). To minimize the adverse environmental impact associated with the operation of the OCS-DC1's CWIS, the Draft Permit proposes that the Permittee be required to:

- design, construct, and operate the CWISs with design through-screen intake velocity of no greater than 0.5 feet per second, measured at the intake screen against which organisms might be impinged or through which they might be entrained;
- install the intake screen design specified in the SouthCoast August 23 Memo, *see* Figure 5,

above, at the mouth of the intake, with openings no greater than five-inches by five-inches so that larger organisms will be prevented from entering the intake, and construct the screens out of anti-fouling alloys and/or materials that have been treated with anti-fouling coatings to minimize biological growth;

- operate the seawater lift pumps with VFDs to withdraw the minimum amount of water actually needed to address cooling water needs based on seasonal water temperature and electrical demand;
- operate the VFDs to maintain a maximum total CWIS intake flow of 9.9 MGD and an average CWIS monthly intake flow of 4.8 MGD in accordance with the flow limits described in Section 5.1.1;
- locate the CWISs outside the Enhanced Mitigation Area as defined by BOEM's Final EIS;
- locate the CWIS in waters at or greater than 50 meters in depth, away from the above-discussed benthic ridge feature, to avoid adverse impact on EFH, consistent with NOAA Fisheries EFH CR # 9; and
- locate the CWISs' intake openings at a depth between 10 to 20 meters (32.8 to 65.6 feet) above pre-construction seafloor grade.

Furthermore, the Draft Permit includes a requirement that any change in the design or capacity of the CWISs, unless specified by this permit, must be approved in advance and in writing by the EPA.

Monitoring Related to Impingement and Entrainment

In addition to the BTA requirements, EPA is requiring biological monitoring in the Draft Permit. Monitoring is needed to better determine the magnitude of environmental impacts associated with the OCS-DC1's CWISs, the effectiveness of BTA measures, and whether additional changes to the Facility's CWA §316(b) related permit requirements would be warranted in the future, either in a reissued or modified permit.

Biological monitoring data will be used to assess the presence, absence, and life stage of marine organisms that could potentially be impinged or entrained during operation of the CWIS. Site-specific monitoring over the course of the permit term is required to determine whether the representative species list assembled at the time of the NPDES Application remains representative of the water body after the CWIS begins operation and will provide site-specific data to better characterize potential impingement and entrainment impacts by the CWIS.

NOAA Fisheries has recommended that:

> Ichthyoplankton and zooplankton monitoring at the converter station (and associated CWIS) should be required for the life of the project. All data and results from the ichthyoplankton and thermal monitoring should be made available to NMFS HESD at NMFS.GAR.HESDoffshorewind@noaa.gov.

NOAA Fisheries EFH Conservation Recommendations for the SouthCoast Wind Offshore Wind Energy Project, Lease Are OCS-A-0521, September 23, 2024, EFH CR #12. Furthermore, NOAA recommends that the monitoring plan be provided to the NMFS Habitat and Ecosystems Services

Division (HESD) "for review and comment prior to finalizing requirements of the NPDES permit to determine if increased sampling frequency and/or additional recommendations are necessary." *Id.*, EFH CR #13.

Attachment A of the Draft Permit outlines both the biological (ichthyoplankton and zooplankton) and thermal monitoring plan that SouthCoast Wind is expected to follow during the permit term. The Draft Permit, including Attachment A is being made available for 30-day public comment period, during which all interested parties, including NMFS and SouthCoast Wind may submit comments regarding the proposed requirements.

Monitoring at the converter station (and associated CWIS) must be reconsidered and re-proposed with each permit reissuance. The Clean Water Act limits the length of NPDES permits to five years and NPDES permit terms and requirements may not exceed five years. When the Applicant reapplies for reissuance, EPA will review the results of the biological monitoring to determine if any changes will be proposed for the renewed permit, including monitoring frequency. Considering that EPA solicits comments from all interested parties with each permit renewal, NMFS will have the opportunity to comment on any monitoring plan proposed for the next permit reissuance.

Data and results from the biological and thermal monitoring under the NPDES Permit is public record and can be made available to NMFS. To manage the transfer of information more efficiently, the Draft Permit includes a requirement that the Permittee also submit electronic copies of the monitoring report and provide the corresponding data in .csv or .xlsx format to National Marine Fisheries Service at NMFS.GAR.HESDoffshorewind@noaa.gov." See Part I.C.3.c of the Draft Permit.

As a surrogate for actual impingement monitoring at the intake screens, continuous monitoring of the through-screen velocity at point of entry through the screen is needed to confirm compliance with the permit limitation of 0.5 fps under all conditions. Such monitoring would also be used to indicate whether any fouling or obstructions at the intake are resulting in exceedances of 0.5 fps. Indeed, the TSV limit of 0.5 fps is the key permit limit for ensuring that adverse environmental impacts from impingement are minimized.

SouthCoast Wind has notified EPA that "[c]ontinuously monitoring of the inlet velocity at the bell mouth is not likely to be feasible or practicable." Nearby Sunrise Wind similarly asserted that maintaining a sensor in its CWIS to continuously monitor the TSV would be infeasible because the sensors would be subject to biofouling, which would affect their accuracy. In the case of Sunrise Wind, EPA agreed that maintaining and calibrating a sensor on an intake located more than 100 feet below the ocean surface at an offshore, unmanned platform without a mechanism to prevent fouling on the sensor could present substantial difficulties. Therefore, instead of a direct measurement of TSV, Sunrise Wind requested that it be permitted to use a calculated value, based on the measured instantaneous actual intake flow and pump differential. In commenting on its Draft NPDES Permit, Sunrise Wind proposed a method of calculating intake velocity based on pump speed, intake flow and head loss by programming the CWIS's Integrated Control and Monitoring System (ICMS) to alert operators if the calculated value is more than 10% over the expected value. Sunrise Wind's comment about this method describes in detail how the TSV would be monitored. *See* 2024 Response to Comments for NPDES Permit # MA0004940, Sunrise Wind LLC at

https://www3.epa.gov/region1/npdes/permits/2024/finalma0004940permit-2024.pdf.

EPA agreed to Sunrise Wind's proposal and maintains that using a calculated measurement of TSV can make sense in certain circumstances to ensure that the TSV permit limit is met. Regulations applicable to cooling water intake structures for new facilities allow permittees to calculate TSV based on indirect measurement (e.g., monitoring head loss across the screens) to ensure that the facility is continually maintained and operated to minimize adverse environmental impact. *See* 40 CFR § 125.87(b); 66 Fed. Reg. 65274-5. Although the OCS-DC1 is not subject to these regulatory requirements, EPA's BPJ assessment of this issue has been informed by them. EPA invited SouthCoast Wind to review the method proposed by Sunrise Wind to calculate intake velocity using the pump differential and intake flow, along with EPA's response, and to communicate whether this method would be practicable for SouthCoast Wind. SouthCoast responded, however, that there is no need to apply this method because it believes that the TSV will remain below 0.5 fps even if there is 33% occlusion and the pumps are operating at maximum capacity. EPA appreciates that SouthCoast Wind indicates that it has designed an effective intake system for minimizing impingement that the company believes will maintain TSVs ≤ 0.5 fps, yet the company acknowledged during the August 28, 2024, meeting with EPA that when the cooling system is operational, the SouthCoast Wind O&M team will need to study and optimize the system to meet permit limits. *See* Notes from August 28, 2024, meeting between SouthCoast Wind and EPA. Thus, SouthCoast Wind has not yet finalized the design parameters for its cooling water intake system. In any event, EPA's permit must require compliance monitoring to ensure that permit conditions, including the TSV limit of ≤ 0.5 fps, are being met.

Again, as stated many times above, EPA is basing the Draft Permit's CWIS requirements on a BPJ application of CWA § 316(b) and is not directly applying EPA's Rules for New Facilities, New Offshore Oil and Gas Facilities, or Existing Facilities. That said, EPA's BPJ is informed by relevant aspects of these Rules. In this regard, EPA notes that the New Facilities Rule requires TSV monitoring "during initial facility startup, and thereafter, at the frequency specified in your NPDES permit, but no less than once per quarter." 40 CFR § 125.87(b). Maintaining ongoing TSV monitoring makes particular sense given that issues like biofouling could develop over time and cause changes to the TSV at the Facility.

Therefore, the Draft Permit proposes that the Permittee must calculate TSV at the point of entry through the screen or other exclusionary device based on intake flow and pump speed and report the maximum calculated through-screen velocity in the monthly discharge monitoring report. Any calculation of TSV based on the pump curve and head loss must be representative of the TSV at the point where the cooling water flows through the intake screen and account for the screen's blockage of the otherwise total open area of the intake opening. Moreover, TSV must be calculated in real-time based on measured values of pump speed and flow and the maximum daily and average monthly values reported on the monthly Discharge Monitoring Report.

In response to any exceedance of the 0.5 fps TSV limit, the Draft Permit requires that the Permittee implement best management practices to limit, diagnose and resolve the issue as soon as possible. At a minimum, the Permittee must, to the maximum extent practicable, restore the TSV to a level at or below 0.5 fps. The Draft Permit also requires that for any month in which there is an exceedance

of the 0.5 fps TSV limit, the Permittee must attach an extra report to the monthly discharge monitoring report for that period which describes the event, the steps taken to diagnose and resolve the issue, and the time elapsed from the exceedance to its resolution (i.e., when the TSV returns to ≤ 0.5 fps). A suggested format for this report is included as Figure 12. The Permittee may elect to use this suggested format or devise its own for purposes of reporting the occurrences of alarms indicating the through-screen velocity has exceeded 0.5 fps.

Figure 12: Suggested Format for Reporting Excursions of Through-Screen Velocity

Date and Time of Occurrence	***Maximum TSV (fps)***	***Description of the Event***	***Steps Taken to Diagnose and Resolve the Issue***	***Date and Time Resolved***

The Draft Permit also requires ichthyoplankton and zooplankton monitoring which will involve sampling of organisms as close to the cooling water intake as possible, within reason based on logistical and safety considerations, to better characterize the number of organisms being drawn into the CWIS and entrained by the cooling water system. EPA has established a BTA for the OCS-DC1 that includes certain CWIS design requirements, particular CWIS location requirements, and flow limits based on withdrawing only the volume of the water needed based on ambient temperature and electricity demand. Biological (ichthyoplankton and zooplankton) monitoring will enable EPA to evaluate the BTA for minimizing entrainment for future permit reissuance based on site-specific, up to date data. This monitoring will improve the estimates of the impacts of entrainment by providing data, including estimates of the entrainment of eggs, which are currently lacking, and a comparison of ichthyoplankton abundance at the intake location as compared to the full water column. Moreover, because ambient water and biological conditions might change over time, biological monitoring is necessary to identify those species affected by the CWIS once operations have begun. 66 Fed. Reg. 49100. For example, as discussed above, the foundations and associated scour protection at the OCS-DC1 and each of the WTGs will transform the benthic structure of the project area and introduce complex hard substrate, providing new habitat. This new habitat, in turn, is expected possibly to attract a different assemblage of aquatic life, which may alter the presence and abundance of early life stages at the OCS-DC1. In addition, changing water temperatures associated with climate change could also lead to shifts in the assemblage of marine organisms in the area of the Facility, which could alter the species being entrained. Ichthyoplankton monitoring over the permit term will also provide valuable information about any changes in the densities of early life stages in the vicinity of the OCS-DC1 over time. Zooplankton monitoring over the permit term will also provide valuable information about the potential entrainment of by the

OCS-DC1 of this key food source for many marine fish species as well as the endangered North Atlantic right whale.

The monitoring requirements proposed in the Draft Permit, and discussed above, are authorized by Sections 308 and 402(a)(2) of the CWA. *See also* 40 CFR §§ 122.48, 125.87 and 125.88. The Permittee may seek a modification of the monitoring program either when the permit is reissued or, consistent with 40 CFR § 122.62, during the term of the permit based on changes in physical or biological conditions in the vicinity of the CWIS. *See* 40 CFR § 122.62(a)(2).

5.3 Special Conditions

5.3.1 Best Management Practices

Best management practices (BMPs) may be expressly incorporated into a permit on a case-by-case basis to control or abate the discharge of pollutants when: 1) authorized under section 304(e) of the CWA for the control of toxic pollutants and hazardous substances from ancillary industrial activities; 2) authorized under CWA § 402(p) for the control of storm water discharges; 3) numeric effluent limitations are infeasible; or 4) the BMPs are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. *See* 40 CFR § 122.44(k).

Prohibition on Use and Discharge of PFAS

As explained at https://www.epa.gov/pfas, per- and poly-fluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been in use since the 1940s. PFAS are found in a wide array of consumer and industrial products and have been released extensively into the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. One common characteristic of concern of PFAS is that many of these chemicals break down very slowly and can build up in people, animals, and the environment over time. Exposure to some PFAS above certain levels may increase risk of adverse health effects. Current research has shown that people can be exposed to PFAS by several pathways, including by eating certain foods that may contain PFAS, such as fish. There are also observed effects of certain PFAS substances on the survival, growth, and reproduction of aquatic organisms. *See* https://www.epa.gov/wqc/aquatic-life-criteria-perfluorooctane-sulfonate-pfos#how.

The use of PFAS in applications such as firefighting foams started in the mid-1950s. Aqueous Film Forming Foam (AFFF) is a fire suppressant foam used to fight fires started by oil, gasoline, or other flammable liquids. Many AFFF formulations contain PFAS. The Draft Permit prohibits the use and storage of PFAS containing firefighting foams at the OCS-DC1, based on BPJ because PFAS-free AFFF is commercially available. *See* https://www.epa.ie/publications/monitoring--assessment/waste/65203287-PFOA-EPA-Factsheet-Final.pdf. Considering the OCS-DC1 requires oils, fuels, bearing grease and lubricants to support operations and that there are a variety of PFAS-free products available, the Draft Permit also prohibits the use and storage of any other PFAS containing material.

Stormwater

In this case, pollutants may be present because they are generated during Facility operations, and this could result in significant amounts of these pollutants reaching waters of the United States via discharges of stormwater. To address this issue, the Draft Permit requires the selection, design, installation, and implementation of control measures for stormwater associated with Facility operations. The Draft Permit requires the Permittee to implement and continually evaluate the Facility's structural controls (e.g., treatment systems, containment areas, holding tanks), and non-structural controls (operational procedures, site inspections, and operator training). Proper implementation of BMPs will minimize the potential discharge of pollutants related to inadequate treatment, human error, and/or equipment malfunction. The non-numeric limitations are consistent with the limitations specified in Part 2.1.2 of EPA's *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (2021 MSGP), effective March 1, 2021.[56] Non-numeric limitations include the following:

- Minimize exposure of operating and material storage areas to stormwater discharges;
- Design good housekeeping measures to maintain areas that are potential sources of pollutants;
- Implement preventative maintenance programs to avoid leaks, spills, and other releases of pollutants that could be exposed to stormwater that is discharged to receiving waters;
- Implement spill prevention and response procedures to ensure effective response to spills and leaks if or when they occur. The Permittee shall report immediately the appearance of a sheen of any size attributable to the discharge from the OCS-DC1 to the appropriate U.S. Coast Guard Officer in accordance with Section 311 of the Clean Water Act (CWA);
- Utilize runoff management practices to divert, reuse, contain, or otherwise reduce stormwater runoff;
- Develop proper handling procedures for salt or materials containing chlorides that are used for snow and ice control, if applicable;
- Conduct employee training to ensure personnel understand the requirements of this Permit; and
- Evaluate for the presence of non-stormwater discharges. Any non-stormwater discharges not explicitly authorized in the Final Permit or covered by another NPDES permit must be eliminated.

In addition to the general limitations described above, the Draft Permit also includes BMPs based on EPA's 2021 MSGP and EPA's RGP. BMP requirements include:

- Comply with the control measure requirements in Part 2.1 and 2.1.1 of the 2021 MSGP in order to identify pollutant sources and select, design, install and maintain the pollution control technology necessary to meet the applicable requirements in this Permit that ensure dilution is not used as a form of treatment;
- Annually inspect the OCS-DC1 in accordance with the inspection requirements in Part 3.1 of

[56] The 2021 MSGP is currently available at: https://www.epa.gov/npdes/stormwater-discharges-industrial-activities-epas-2021-msgp.

the 2021 MSGP and take the appropriate corrective actions as set forth in Part 5.1 of the 2021 MSGP;
- Pump out accumulated oil and solids from the OWS on a regular basis and do not use oil-emulsifying cleaning solutions (detergents) in areas that flow into the OWS; and
- Document the measures and methods used to control flow through the treatment system to ensure that the design flow of the treatment system is not exceeded.

These non-numeric effluent limitations support, and are equally enforceable as, the numeric effluent limitations included in the Draft Permit. The purpose of these requirements is to reduce or eliminate the discharge of pollutants to waters of the United States. They have been selected on a case-by-case basis based on those appropriate for this specific Facility. *See* CWA §§ 304(e) and 402(a)(1) and 40 CFR § 122.44(k). These requirements will also ensure that discharges from the Facility will meet State WQSs pursuant to CWA § 301(b)(1)(C) and 40 CFR § 122.44(d)(1). Unless otherwise stated, the Permittee may select, design, install, implement and maintain BMPs as the Permittee deems appropriate to meet the permit requirements. The selection, design, installation, implementation, and maintenance of control measures must be in accordance with good engineering practices and manufacturer's specifications.

5.3.2 Stormwater Pollution Prevention Plan

The 2021 MSGP establishes a process whereby the operator of the industrial facility evaluates potential pollutant sources at the site and selects and implements appropriate measures designed to prevent or control the discharge of pollutants in stormwater runoff. *Id*. This Draft Permit contains general BMPs for stormwater associated with the converter platform operation. In addition to BMPs, the Draft Permit also contains requirements for the Permittee to develop, implement, and maintain a SWPPP for stormwater discharges associated with the converter platform operation. These requirements are consistent with EPA's MSGP effective March 1, 2021. The Draft Permit specifies that the SWPPP must contain the elements listed in Parts 6.2.1 through 6.2.5 of the 2021 MSGP and briefly described below:

- Stormwater pollution prevention team;
- Site description;
- Drainage area site map;
- Summary of potential pollutant sources;
- Description of all stormwater control measures; and
- Schedules and procedures pertaining to implementation of stormwater control measures, inspections and assessments, and monitoring.

The development and implementation of the SWPPP is an enforceable element of the permit. The Draft Permit directs the Permittee to incorporate BMPs, as described above, directly into the SWPPP, which serves to document the selection, design and installation of control measures selected to meet the permit effluent limitations. The goal of the SWPPP is to reduce or prevent the discharge of pollutants to waters of the United States either directly or indirectly through stormwater runoff.

The Draft Permit requires the Permittee within one year of the effective date of the permit to certify that the SWPPP has been prepared, meets the requirements of the permit, and documents the control measures, including BMPs, that have been implemented to reduce or eliminate the discharge of pollutants from stormwater associated with the OCS-DC1 operation. The Permittee must also certify at least annually that the Facility has complied with the BMPs described in the SWPPP, including inspections, maintenance, and training activities. The Permittee is required to amend and update the SWPPP if any change occurs at the Facility affecting the SWPPP, such as changes in the design, construction, operation, or maintenance of the Facility. The SWPPP must be provided to EPA upon request and all SWPPP records must be maintained for at least three years.

5.3.3 Discharges of Chemicals and Additives

Chemicals and additives include, but are not limited to, algaecides/biocides, antifoams, coagulants, corrosion/scale inhibitors/coatings, disinfectants, flocculants, neutralizing agents, oxidants, oxygen scavengers, pH conditioners, and surfactants. The Draft Permit allows the discharge of only those chemicals and additives specifically disclosed by the Permittee to EPA. The following chemicals and additives were disclosed to EPA:

- **chlorine**

However, EPA recognizes that chemicals and additives in use at a Facility may change during the term of the permit. As a result, the Draft Permit includes a provision that requires the Permittee to notify EPA in writing of the planned discharge of a new chemical or additive. Such notification allows for EPA review of the change. The Draft Permit specifies that for each chemical or additive, the Permittee must submit the following information, at a minimum, in writing to EPA:

- Product name, chemical formula, general description, and manufacturer of the chemical/additive.
- Purpose or use of the chemical/additive.
- Safety Data Sheet (SDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive.
- The frequency (e.g., hourly, daily), magnitude (e.g., maximum application concentration), duration (e.g., hours, days), and method of application for the chemical/additive.
- If available, the vendor's reported aquatic toxicity (i.e., NOAEL and/or LC_{50} in percent for aquatic organism(s)) for the chemical/additive.

The Permittee must also provide an explanation that demonstrates that the discharge of such chemical or additive: 1) will not add any pollutants in concentrations that exceed any permit effluent limitation; and 2) will not add any pollutants that would justify the application of permit conditions different from, or in addition to, those currently in this permit.

Assuming these requirements are met, discharges of a new chemical or additive is authorized under the permit upon notification to EPA unless otherwise notified by EPA.

6.0 Federal Permitting Requirements

6.1 Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA), grants authority and imposes requirements on Federal agencies regarding species of fish, wildlife, or plants that have been federally listed as endangered or threatened (listed species), and regarding habitat of such species that has been designated as critical (critical habitat).

Section 7(a)(2) of the ESA requires every federal agency, in consultation with and with the assistance of the Secretaries of Interior and/or Commerce, to ensure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of their critical habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for birds and terrestrial and freshwater organisms, while the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) administers Section 7 consultations for marine organisms (including marine mammals and reptiles), as well as for anadromous fish.

The federal action being considered in this case is EPA's proposed issuance of an NPDES permit for the SouthCoast Wind OCS-DC1. As the federal agency charged with issuing a permit to authorize the Facility's pollutant discharges and cooling water withdrawals, EPA generally assesses potential impacts of such permit issuance on federally listed species and their critical habitat and initiates consultation with regard to that permit issuance to the extent required under Section 7(a)(2) of the ESA. However, in this case, as explained below, BOEM is the lead federal agency and has initiated Section 7 consultations with USFWS and NOAA for the federal actions needed to authorize the entire SouthCoast Wind Farm project, including the NPDES permit for the OCS-DC1. Protected species which are expected to overlap with the Action Area of the OCS-DC1 are listed in Table 4 and described in detail in the Draft EIS and in the SouthCoast Wind COP, Vol 2.

Table 4. Federally listed ESA Species Expected to Overlap with the OCS-DC1 Action Area.

Name	Federal Agency with ESA Jurisdiction	Status
Black-capped Petrel *Pterodroma hasitata*	USFWS	Endangered
Roseate tern *Sterna dougallii*	USFWS	Endangered
Atlantic sturgeon *Acipenser oxyrinchus oxyrinchus*	NOAA Fisheries	Threatened/Endangered[57]
Shortnose sturgeon *Acipenser brevirostrum*	NOAA Fisheries	Endangered

[57] Depending on the Distinct Population Segment (DPS).

Leatherback Sea Turtle *Dermochelys coriacea*	NOAA Fisheries	Endangered
Loggerhead Sea Turtle *Caretta caretta*	NOAA Fisheries	Threatened
Kemp's Ridley Sea Turtle *Lepidochelys kempii*	NOAA Fisheries	Endangered
Green Sea Turtle *Cheloria mydas*	NOAA Fisheries	Threatened
North Atlantic Right Whale *Eubalaena glacialis*	NOAA Fisheries	Endangered
Fin Whale *Balaenoptera physalus*	NOAA Fisheries	Endangered
Sei Whale *Balaenoptera borealis*	NOAA Fisheries	Endangered
Sperm Whale *Physeter catodon*	NOAA Fisheries	Endangered

Federal agencies issuing permits and licenses for the SouthCoast Wind project are currently engaged in ESA Section 7 consultations with both NOAA Fisheries and USFWS. These consultations will address the effects of all activities proposed for the construction, operation, maintenance, and decommissioning of the SouthCoast Wind Farm and Export Cable projects on protected species in the Action Area, including impacts from the OCS-DC1's water withdrawals and pollutant discharges, as authorized by this Draft Permit. BOEM is delegated responsibility for overseeing offshore renewable energy development in Federal waters (30 CFR 585) and is the lead agency for fulfilling the interagency consultations under Section 7 of the ESA. *See* 50 CFR § 402.07. EPA is a cooperating agency with BOEM on these consultations.

BOEM has initiated the Section 7 consultation with USFWS for the SouthCoast Wind Farm and SouthCoast Wind Export Cables, and on March 9, 2023, BOEM submitted a biological assessment (BA) to USFWS in connection with the consultation. *See* Mayflower Wind Project Biological Assessment For the United States Fish and Wildlife Service, March 2023 (USFWS BA). USFWS determined that the consultation package was complete on March 30, 2023. The consultation concluded on September 1, 2023. The USFWS BA identifies all federally listed species managed by the USFWS that occur in the lease area and in other areas of the project (e.g., near-shore facilities or facilities in areas associated with the export cable). Table 4 of this document only lists a subset of protected species whose presence overlaps with the much smaller OCS-DC1 Action Area. *See* USFWS BA, p. 23 and Table 4. BOEM's assessment indicates that impacts from the offshore components of the proposed action on federally listed bird species include increased noise associated with construction and pile driving noise, lighting, collision with structures, land disturbance, aircraft traffic, cable emplacement/maintenance and discharge of wastes. Although turbidity caused by cable-laying activities could potentially affect sand lance, a prey species of roseate terns, BOEM determined that "because turbidity impacts would be temporary and last only a few hours, and because few, if any, roseate terns are expected to be in the offshore Action Area, potential effects on prey resources that relate to cable emplacement and maintenance are

extremely unlikely to occur….” *Id*., p. 91.

BOEM also concluded that the effects of the proposed action **may affect,** but are **not likely to adversely affect** the northern long-eared bat, tricolored bat, monarch butterfly, sandplain gerardia, *rufa* red knot or piping plover. However, the proposed action is **likely to adversely affect** the roseate tern based on Stochastic Collision Risk Assessment for Movement (SCRAM) modeling data, which “suggests that fatalities of roseate terns due to collision with WTGs is possible, depending on the airgap from the lower tip of the WTG blade and the water….” Id., p. 103.

BOEM also submitted a draft biological assessment (Draft BA) to NMFS, informally known as NOAA Fisheries,[58] on October 21, 2022. *See* email from B. Hooker, BOEM, to M. Pentony, NOAA. In a memorandum to BOEM dated December 22, 2022, NOAA Fisheries summarized the findings from its review of the Draft BA and explained that it had determined that the Draft BA required substantial revision before initiation of the ESA Section 7 consultation. BOEM submitted revised Draft BAs on March 6, 2023, and a responsive version on August 28, 2023.
Another Draft BA was sent on February 2, 2024, and NMFS responded to it on April 28, 2024. On May 21, 2024, BOEM sent an updated version, to which NMFS responded on May 30, 2024. BOEM responded with another version on June 4, 2024. On June 10, 2024, after following up with BOEM, NOAA Fisheries agreed that BOEM had submitted all the information necessary to initiate consultation in the June 2024, Revised BA. ESA consultation with NOAA is expected to conclude on November 6, 2024. *See* https://www.permits.performance.gov/permitting-project/fast-41-covered-projects/southcoast-wind-energy-llc-southcoast-wind

In the June 2024 SouthCoast Wind Project Biological Assessment for the National Marine Fisheries Service (NMFS BA), BOEM concludes that the direct effects of the operation of the OCS-DC1 on federally listed species will be insignificant and/or discountable because the life stages present in the Action Area are not expected to be at risk for impingement or entrainment. *See* NMFS BA, Section 5.5.10. For this reason, BOEM concludes that operation of the OCS-DC1 **may affect,** but is **not likely to adversely affect**, ESA-listed species. *See id*. In addition, BOEM also concluded that indirect impacts would be insignificant because entrainment would likely impact a small portion of the prey population for listed species and, as a result, the operation of the OCS-DC1 may affect, but is not likely to adversely affect, ESA-listed species. *See id*, Section 5.5.10.2.

Assuming compliance with the conditions proposed in the Draft Permit for minimizing adverse environmental impacts from impingement and entrainment, and to control pollutant discharges consistent with the Ocean Discharge Criteria under Section 403 of the CWA, EPA agrees that listed species may be affected by operation of the OCS-DC1 but are not likely to be adversely affected. EPA will not issue an NPDES permit for this Facility until Section 7 consultation is complete and has concluded that EPA’s NPDES permit for the SouthCoast Wind OCS-DC1 is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat. *See* 40 CFR § 122.49(c). EPA may also include conditions in the NPDES permit that are

[58] The National Marine Fisheries Service (NMFS), also called NOAA Fisheries, is a federal agency with NOAA, and is responsible for the stewardship of the nation's ocean resources and their habitat.

recommended by USFWS or NOAA Fisheries to the extent needed to comply with the ESA and carry out the provisions of 40 CFR § 122.49(c). *See* 40 CFR § 124.59(b).

Re-initiation of consultation under the ESA is required and shall be requested by EPA or by USFWS/NOAA Fisheries where discretionary federal involvement or control over the action has been retained or is authorized by law and if: 1) new information reveals that the action may affect listed species or critical habitat in a manner or to an extent not previously considered in the analysis; 2) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the previous analysis; 3) a new species is listed or critical habitat designated that may be affected by the identified action; or 4) there is any incidental taking of a listed species that is not covered by an incidental take statement.

6.2 Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1801, *et seq*., EPA is required to consult with NOAA Fisheries if proposed actions that EPA funds, permits, or undertakes, "may adversely impact any essential fish habitat." *See* 16 U.S.C. § 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as: "waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." *See* 16 U.S.C. § 1802(10). "Adverse impact" means any impact that reduces the quality and/or quantity of EFH. 50 CFR § 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

EFH is only designated for fish species for which federal Fisheries Management Plans exist. *See* 16 U.S.C. § 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999. A list of species and life stages with designated EFH at the current proposed location of the OCS-DC1 (40.805045 N, -70.324838 W) is included in Appendix B to this Fact Sheet. BOEM, as the lead agency for the environmental review of the project under NEPA, has initiated an EFH consultation with NOAA Fisheries on behalf of all the federal agencies issuing licenses or permits for the windfarm, including for EPA with regard to the NPDES permit. BOEM submitted its EFH Assessment to NOAA Fisheries on October 21, 2022, and received comments from NOAA on its Assessment on December 20, 2022. BOEM provided a revised EFH Assessment for EPA's review on March 6, 2023. An updated version was sent to NOAA on February 2, 2024. NOAA provided comments to BOEM on June 4, 2024, and BOEM responded with another version on June 14, 2024. NOAA Fisheries determined that the EFH assessment was complete on June 24, 2024, and issued EFH conservation recommendations on September 23, 2024. [NOAA Fisheries EFH Conservation Recommendations for the SouthCoast Wind Offshore Wind Energy Project, Lease Are OCS-A-0521, September 23, 2024] EPA has incorporated, as appropriate, limits and conditions consistent with the NOAA Fisheries recommendations resulting from the assessment where applicable to the Draft Permit.

Should unanticipated adverse impacts to EFH be detected as a result of the operation of the Facility under the NPDES permit, or if new information emerges that changes the basis for the conservation

recommendations previously issued by NOAA Fisheries, the NOAA Fisheries Habitat Division will be contacted and the EFH consultation will be reinitiated. *See* 50 CFR § 600.920(l).

7.0 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA), 16 U.S.C. 1451, *et seq.*, and its implementing regulations (15 CFR Part 930) require that an applicant for a federal permit to authorize an activity affecting the coastal zone of a state with an approved Coastal Zone Management Program (CZMP) must provide a certification to the permitting agency (with a copy to the state coastal zone management agency) indicating that the permitted activity will be consistent with the enforceable policies of the state CZMP. *See* 16 U.S.C. § 1456(c)(3)(A). In such a case, EPA may not issue the NPDES permit until the state agency that administers the state's CZMP concurs with the permit applicant's certification, state concurrence has been conclusively presumed, *see id.*, or the Secretary of Commerce overrides the state nonconcurrence. *See id. See also* 40 CFR § 122.49(d); 15 CFR §§ 930.62(a) and (c), 930.63(a).

In the present case, however, the SouthCoast Wind offshore wind farm, and the OCS-DC1 in particular, will be located well outside the coastal zone of any state. Accordingly, the OCS-DC1's discharges and water withdrawals regulated by the NPDES permit will all take place well outside the coastal zone of any state and should not directly or indirectly affect the resources or use of the coastal zone of any state.

That said, during environmental review of the project, SouthCoast Wind has been in communication with the CZMPs in Massachusetts and Rhode Island to ensure compliance with any applicable requirements of the states' coastal zone management programs. *See* 40 CFR § 125.122(a)(8). In addition, the export cable and onshore facilities associated with the wind farm will be located, at least in part, within the coastal zones of Massachusetts and Rhode Island and, thus, within their coastal jurisdictions for federal consistency purposes. *See* SouthCoast Wind COP Appendix D1 and D2. SouthCoast Wind prepared and submitted consistency certifications to the CZMP offices in Massachusetts and Rhode Island to ensure compliance with the CZMA. *See* SouthCoast Wind COP Appendix D1 and D2. The states have yet to complete their consistency reviews.

8.0 Public Comments, Hearing Requests, and Permit Appeals

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position and all supporting material for their arguments in full, unless such material is already in the administrative record for the permit, by the close of the public comment period, to the permit writer, Sharon DeMeo at the following email address: demeo.sharon@epa.gov.

The Regional Administrator has determined, pursuant to 40 CFR §124.12, that a significant degree of public interest exists in the proposed Permit and that a public meeting and a public hearing will be held virtually to consider the permit. This notice serves to announce that a public meeting and public hearing will be held on the following dates and times:

Public Informational Meeting:
DATE: November 4, 2024
TIME: 7:00pm
LOCATION: Virtual Meeting Information will be provided on EPA's website at:
https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits

Public Hearing:
DATE: November 4, 2024
TIME: 7:30pm
LOCATION: Virtual Meeting Information will be provided on EPA's website, noted above

The following is a summary of the procedures that will be followed at the public informational meeting:

a. The Presiding Chairperson will have the authority to open and conclude the meeting and to maintain order;
b. EPA will make a short presentation describing the NPDES permit process and the Draft Permit conditions, and then accept clarifying questions from the audience; and
c. Formal oral comments concerning the Draft Permit will not be accepted at the public meeting. Formal oral comments will be accepted at the subsequent public hearing.

The following is a summary of the procedures that will be followed at the public hearing:

a. The Presiding Chairperson will have the authority to open and conclude the hearing and to maintain order; and
b. Any person appearing at such a hearing may submit oral or written statements concerning the Draft Permit.

In reaching a final decision on the Draft Permit, EPA will respond to all significant comments in a Response to Comments document issued with the Final Permit. EPA will make these responses available to the public on EPA's website.

Following the close of the comment period, and after the public hearing, EPA will issue a Final Permit decision, forward a copy of the final decision to the applicant, and provide a copy or notice of availability of the final decision to each person who submitted written comments. Within 30 days after EPA serves notice of the issuance of the Final Permit decision, an appeal of the federal NPDES permit may be commenced by filing a petition for review of the permit with the Clerk of EPA's Environmental Appeals Board in accordance with the procedures at 40 CFR § 124.19.

If for any reason, comments on the Draft Permit cannot be emailed to the permit writer specified above, please contact them at telephone number: (617) 918-1995.

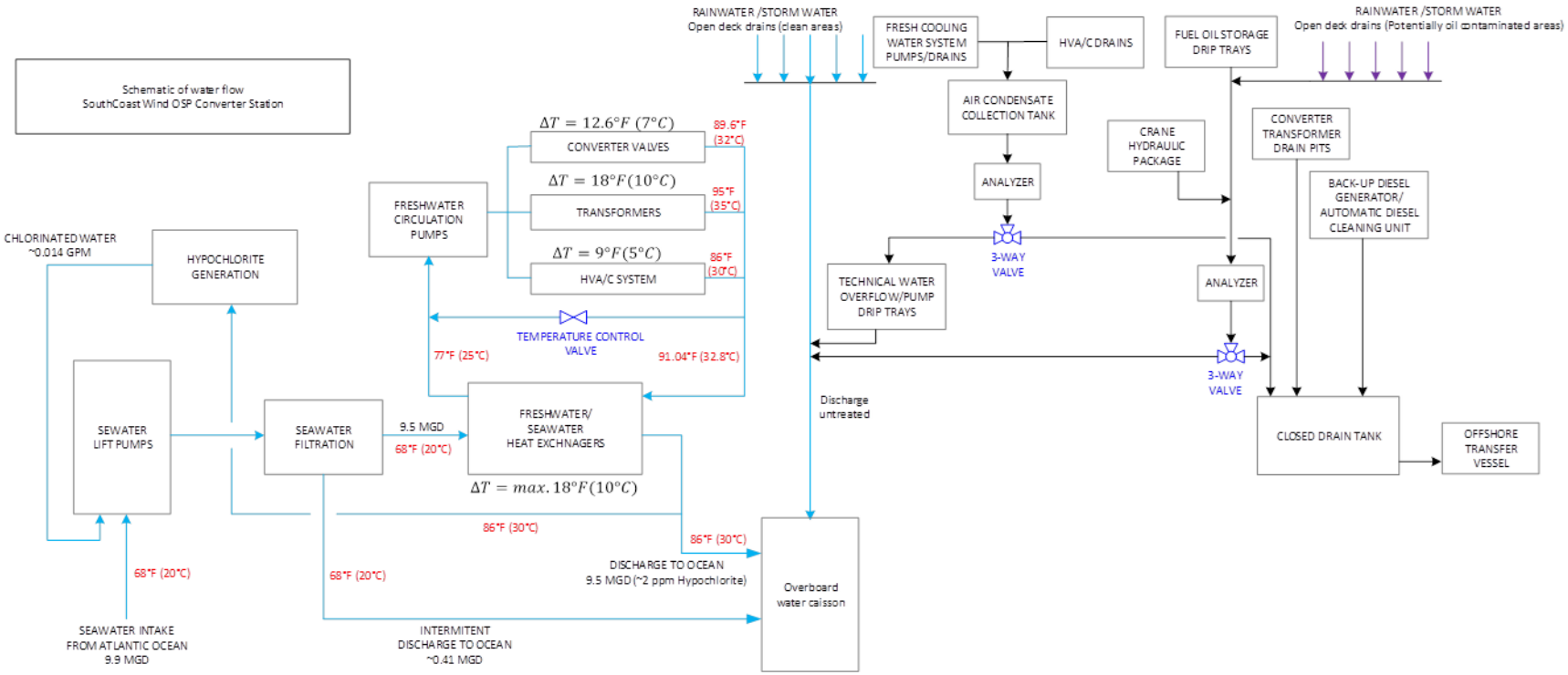
9.0 Administrative Record

The administrative record on which this Draft Permit is based may be accessed by contacting Sharon DeMeo at (617) 918-1995 or via email to demeo.sharon@epa.gov.

October 2024

Ken Moraff, Director
Water Division
U.S. Environmental Protection Agency

Appendix A: Schematic of Water Flow



Appendix B: Essential Fish Habitat

Species/Management Unit	Lifestage(s) Found at Location
Albacore Tuna	Adult, Juvenile
Atlantic Butterfish	Adult, Juvenile, Larvae
Atlantic Cod	Adult
Atlantic Herring	Juvenile
Atlantic Mackerel	Adult, Juvenile, Larvae
Atlantic Sea Scallop	ALL
Basking Shark	ALL
Blue Shark	Juvenile/Adult, Neonate
Bluefin Tuna	Adult, Juvenile
Bluefish	Adult
Common Thresher Shark	ALL
Dusky Shark	Juvenile/Adult
Haddock	Juvenile
Little Skate	Adult
Monkfish	Adult, Eggs/Larvae, Juvenile
Ocean Pout	Adult, Eggs, Juvenile
Porbeagle Shark	ALL
Red Hake	Adult, Eggs/Larvae/Juvenile
Sandbar Shark	Adult, Juvenile
Shortfin Mako Shark	ALL
Silver Hake	Adult, Eggs/Larvae, Juvenile
Skipjack Tuna	Adult, Juvenile
Summer Flounder	Adult
Tiger Shark	Juvenile/Adult
White Hake	Juvenile
White Shark	Juvenile/Adult, Neonate
Windowpane Flounder	Larvae
Winter Skate	Juvenile
Witch Flounder	Adult, Juvenile
Yellowfin Tuna	Juvenile
Yellowtail Flounder	Adult, Juvenile
HAPC Name	
Summer Flounder SAV	

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UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1 (EPA)
WATER DIVISION
5 POST OFFICE SQUARE
BOSTON, MASSACHUSETTS 02109

EPA PUBLIC NOTICE OF A DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE INTO WATERS OF THE UNITED STATES UNDER SECTION 402 OF THE CLEAN WATER ACT (CWA), AS AMENDED.

PUBLIC NOTICE PERIOD: October 3, 2024, through November 6, 2024

NAME AND MAILING ADDRESS OF APPLICANT:

SouthCoast Wind, LLC
101 Federal St., Suite 1900
Boston, MA 02110

NAME AND ADDRESS OF THE FACILITY WHERE DISCHARGE OCCURS:

SouthCoast Wind Farm Offshore Converter Station #1
BOEM Renewable Energy Lease Area OCS-A 0521

RECEIVING WATER AND CLASSIFICATION:

Atlantic Ocean (OCS-A 0521)

PREPARATION OF THE DRAFT PERMIT AND EPA REQUEST FOR CWA § 401 CERTIFICATION:

EPA is issuing for public notice and comment the Draft NPDES Permit for the SouthCoast Wind Offshore Converter Station #1, which will primarily discharge non-contact cooling water and treated stormwater. The effluent limits and permit conditions have been drafted pursuant to, and assure compliance with, the CWA.

INFORMATION ABOUT THE DRAFT PERMIT:

The Draft Permit and explanatory Fact Sheet may be obtained at no cost at https://www.epa.gov/npdes-permits/massachusetts-draft-individual-npdes-permits or by contacting:

Sharon DeMeo
Telephone: (617) 918-1995
Email: demeo.sharon@epa.gov

Any electronically available documents that are part of the administrative record can be requested from the EPA contact above.

CWA §316(b) COOLING WATER INTAKE STRUCTURES:

The Draft Permit contains requirements applicable to the facility's cooling water intake structure under section 316(b) of the CWA, which are fully explained in the Fact Sheet.

PUBLIC MEETING AND PUBLIC HEARING:

The Regional Administrator has determined, pursuant to 40 CFR §124.12, that a significant degree of public interest exists in the proposed Permit and that a public meeting and a public hearing will be held virtually to consider the permit. This notice serves to announce that a public meeting and public hearing will be held on the following dates and times:

Public Informational Meeting:
DATE: November 4, 2024
TIME: 7:00pm
LOCATION: Virtual Meeting Information will be provided on EPA's website, noted above

Public Hearing:
DATE: November 4, 2024
TIME: 7:30pm
LOCATION: Virtual Meeting Information will be provided on EPA's website, noted above

The following is a summary of the procedures that will be followed at the public informational meeting:

a. The Presiding Chairperson will have the authority to open and conclude the meeting and to maintain order;
b. EPA will make a short presentation describing the NPDES permit process and the Draft Permit conditions, and then accept clarifying questions from the audience; and
c. Formal oral comments concerning the Draft Permit will not be accepted at the public meeting. Formal oral comments will be accepted at the subsequent public hearing.

The following is a summary of the procedures that will be followed at the public hearing:

a. The Presiding Chairperson will have the authority to open and conclude the hearing and to maintain order; and
b. Any person appearing at such a hearing may submit oral or written statements concerning the Draft Permit.

PUBLIC COMMENT:

All persons, including applicants, who believe any condition of this Draft Permit is inappropriate must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position by **November 6, 2024**, which is the close of the public comment period. Comments should be submitted to the EPA contact at the email listed above. If you prefer to submit comments by mail, please call or email the EPA contact above to make arrangements for that.

FINAL PERMIT DECISION:

Following the close of the comment period, and after the public hearing, the Regional Administrator will issue a final permit decision and notify the applicant and each person who has submitted written comments.

KEN MORAFF, DIRECTOR
WATER DIVISION
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY – REGION 1