BEFORE THE ENVIRONMENTAL APPEALS BOARD
FOR THE STATE OF DELAWARE

In the Matter of	)	
	)	**EAB No. 2021 -_____**
SECRETARY'S ORDER No. 2021-W/CCE-0026	)	

STATEMENT OF APPEAL OF SECRETARY'S ORDER NO. 2021-W/CCE-0026

Greenwich Terminals LLC ("Greenwich"), Gloucester Terminals LLC ("Gloucester"), and GMT Realty, LLC ("GMT") (hereinafter collectively referred to as the "Port Operators"), by and through their counsel, submit the instant appeal of the issuance by the Secretary of the Delaware Department of Natural Resources and Environmental Control ("DNREC") of Order No. 2021-W/CCE-0026 (the "Order"), issued on September 30, 2021, approving the Permit Application for a Subaqueous Lands Permit of Diamond State Port Corporation ("DSPC" or Applicant") and issuing a Federal Consistency Certification from the Delaware Coastal Management Program with respect to certain United States Army Corps of Engineers ("USACE") authorizations required for DSPC's proposed project. A copy of the Order is attached hereto as Exhibit A, and the Hearing Officer's Report accompanying the Order (with all attachments, including the Technical Response Memorandum) is attached hereto as Exhibit B. In support of this appeal, the Port Operators aver as follows:

I. BACKGROUND TO APPEAL

1. On or about March 16, 2020, DSPC submitted to DNREC an application and supporting documents seeking a Subaqueous Lands Permit ("Permit") and Federal Consistency Certification ("Certification") for the construction of a new container port on the Delaware River at the former location of the DuPont Edgemoor (Chemours) site (the "DSPC project"). The proposed DSPC project includes building a 2600-foot long wharf structure, dredging the berth and access channel to a depth of 45 feet below mean lower low water (which involves dredging

over 80 acres of river bed and approximately 3.3 million cubic yards of river sediments and underlying soil), installing a bulkhead along 3,200 feet of shore line, and permanently filling in over 5.5 acres of subaqueous lands.

2. The proposed DSPC project is located on a critical turn on the Delaware River, an area that is heavily trafficked by large container, tanker and other commercial vessels. The plans for the DSPC project include a new turning basin which occupies the entire Delaware River Main Navigation Channel. The Main Navigation Channel is used by all upbound and downbound ships heading to or from ports further north on the Delaware River.

3. One of the unique aspects of the DSPC project when it was proposed was the incorporation of 13 large shoaling fans into the project's design. While use of shoaling fans on this scale is unprecedented and presented a host of ecological and other concerns, the Applicant initially proposed them as part of the design to reduce the massive amount of maintenance dredging that is expected to be required at the proposed DSPC facility.

4. A Joint Public Notice was issued on August 23, 2020, advising the public of the application and other submissions seeking the Permit and Certification. The application and some supporting documents were made available to the public through DNREC's website. A virtual public hearing was held on September 29, 2020 and the public was allowed to submit comments through December 1, 2020. Over 200 entities submitted comments, including the Port Operators.

5. The Port Operators submitted comments on October 30, 2020. A copy of the Port Operators' comments and exhibits is attached hereto as Exhibit C. The Port Operators raised a number of concerns about the proposed DSPC project in their comments, including concerns about the project's proposed use of shoaling fans, its impact on navigation and safety on the

river, and the lack of compensatory mitigation. The comments attached a report prepared by Captain Jerzy Kichner, a retired U.S. Coast Guard Captain, who reviewed the proposed project's application materials with respect to navigation and safety on the Delaware River. Captain Kichner's review focused on a study DSPC submitted in support of its project entitled "Full Mission Ship Simulation for Edgemoor Navigation Feasibility Study," prepared by the Maritime Institute of Technology and Graduate Studies (MITAGS), dated August 22-24, 2018 (the "Navigation Simulation Report"), which was Appendix 23 to the Environmental Assessment Technical Document ("EATD").[1] The Navigation Simulation Report purported to evaluate the proposed DSPC project's impact on navigation. However, as detailed in Captain Kichner's report, the Navigation Simulation Report was incomplete and did not account for the wide range of conditions on the Delaware River relative to the project's anticipated operations, including, among other things, failing to analyze the impact of placing the turning basin in the Main Navigation Channel. All of this was brought to the Secretary's attention in the Port Operators' comments.

6. On September 30, 2021, the Secretary issued the Order approving issuance of the Permit and Certification. The Secretary based his decision to issue these approvals on the record prepared by Hearing Officer Lisa A. Vest (the "Record"), as summarized in the Hearing Officer's Report, dated September 29, 2021 (the "Hearing Officer's Report"). *See* Ex. A, Order at 5, 10. The Record is summarized on pages 4-5 of the Hearing Officer's Report (Ex. B) and expressly includes the 200 written comments from members of the public, including those submitted by the Port Operators. By law, information outside of this Record cannot form the basis of the Secretary's decision. *See* 7 *Del. C.* § 6006(4) (providing that "the Secretary shall

[1] DSPC's permit application along with the EATD and its Appendices can be accessed at https://dnrec.alpha.delaware.gov/port-proposal/.

make findings of fact based on the record," which consists of the verbatim transcript from the public hearing as well as "the exhibits and other documents introduced by the Secretary or other party" that are expressly incorporated in the public hearing record).

7. The Hearing Officer's Report purports to address concerns expressed in public comments about navigation and safety on the Delaware River, but does not accurately describe the range of concerns expressed by the Port Operators and Captain Kichner. *See* Ex. B, Hearing Officer's Report at 18; Technical Response Memorandum at 12-13. Also, to address the subset of concerns described by the Hearing Officer, the Hearing Officer relies on a letter from the President of The Pilots' Association for the Bay & River Delaware ("Pilots' Association") to DSPC, which document was not part of the Record before the Secretary and has not been made available to the public. The Hearing Officer's Report also references input from the U.S. Coast Guard and states: "On September 17, 2021, USCG Sector Delaware Bay stated that it does not see this project posing a risk to safe navigation." *See also* Technical Response Memorandum at 13. The input referenced is not attributed to any specific member of the U.S. Coast Guard, does not appear to be contained in a document, is not part of the Record before the Secretary, and has not been made available to the public. As will be described further below, the issues and concerns identified in the Port Operators' comments and Captain Kichner's report regarding navigation and the public's safe use of the Delaware River and Main Navigation Channel have not been adequately addressed by DNREC, the Hearing Officer's Report or the accompanying Technical Response Memorandum.

8. DSPC's application indicates that the proposed container port will require annual maintenance dredging of 500,000 cu. yd., though a study prepared by one of DSPC's consultants in May 2020 disclosed that the amount could be as much 610,000 cu. yd. and might be "required

at a frequency higher than what the range of predicted annual sedimentation might suggest." *See* Attachment 1 to Jones Declaration (Ex. E) at 44, Excerpt from "Preliminary Modeling in Support of Port of Wilmington Expansion Study," Moffatt & Nichol (May 9, 2020). While DSPC's application initially proposed the use of 13 shoaling fans to reduce the amount of annual maintenance dredging, the Order and Hearing Officer's Report revealed to the public for the first time that the shoaling fans have been removed from the plans. *See* Ex. A, Order at 2; Ex. B, Hearing Officer's Report at 10 ("On July 1, 2021, the consultant for the Applicant, Duffield Associates, submitted a revision to the project plans that reflects the removal of the shoaling fans from the project design."). In contrast, the final version of DSPC's permit application, dated June 11, 2020, the one that was available to the public for comment, reflected the use of the 13 shoaling fans and includes the following question and answer in Appendix S of the application:

Q: What measures are being taken to reduce the frequency of dredging?

A: Shoaling fans are being pursued as means of reducing the frequency of dredging.

Thus, the public never had an opportunity to provide input on this major design change to the proposed DSPC project.

9. Despite the removal of the shoaling fans from the DSPC project plans, and notwithstanding the massive amount of anticipated maintenance dredging, the current Record does not contain any proposed measures to reduce the need or frequency of maintenance dredging. Similarly, neither DSPC's application and supporting technical documents, nor any document in the Record, contain an analysis of or plan for the significant amount of maintenance dredging that will be required. An appropriate analysis and plan addressing maintenance dredging would include assessing impacts to traffic on the Delaware River from the location of pipelines and booster pumps, the number of dredge barges and support vessels needed for the

maintenance dredging, and the yearly months-long disruption to the flow of vessel traffic on this portion of the Delaware River. None of this information was in the Record before the Secretary as the Record barely touches on maintenance dredging.

10. As set forth more fully below, the Port Operators' interests have been substantially affected by the issuance of the Order, Permit and Certification.

11. Notice of the Order was published on September 30, 2021. Accordingly, this Statement of Appeal is timely filed in accordance with 7 *Del. C.* § 6008(a) and Section 1.1 of the Regulations of the Environmental Appeals Board.

12. In accordance with Section 2.3 of the Regulations of the Environmental Appeals Board, a $50 deposit for costs accompanies this Statement of Appeal.

II. BASIS FOR APPEAL

Paragraphs 1 through 12 above are incorporated by reference as if fully set forth herein. In accordance with Section 2.1 of the Regulations of the Environmental Appeals Board, the Port Operators aver the following in support of the instant appeal:

A. The Interest Which Has Been Substantially Affected

13. The Port Operators' interests have been substantially affected by the Order and the issuance of the Permit and Certification. Greenwich operates the Packer Avenue Marine Terminal in Philadelphia PA. Gloucester operates the Gloucester Marine Terminal in Gloucester City NJ and the Paulsboro Marine Terminal in Paulsboro NJ. GMT owns the Gloucester Marine Terminal and is incorporated in Delaware. All of these Terminals' existence rely on the ability of ships to safely use and navigate up and down the Delaware River in order to reach their facilities. Ships transiting from and to the Atlantic Ocean have no other way to access the

Terminals except by passing the location of the proposed DSPC project and through the area in the Main Navigation Channel of its proposed turning basin.

14. The Port Operators' interest in the proposed DSPC project is concrete and particularized – to ensure that the DSPC project does not prevent ships from being able to navigate safely and unimpeded up and down the Delaware River in order to reach the Port Operators' facilities. The anticipated impediments to navigation resulting from the DSPC project are detailed below and in the attached declarations from Captain Jerzy Kichner (Exhibit D) and Dr. Craig Jones (Exhibit E). It is substantially likely that the proposed DSPC project, including the new turning basin, will cause delays, travel restrictions, safety concerns, and other impediments to ship traffic moving to and from the Port Operators' facilities. The proposed DSPC project and turning basin also increase the likelihood of a collision or complete blockage in the Main Navigation Channel, which would have devastating consequences for the ports north of the proposed DSPC project, including for the Port Operators' terminals. Ships being blocked from transiting up or down the Delaware River, or affecting the ability of ships to transit safely on the River, are not competitive issues but instead are existential issues for the ports in Philadelphia, Gloucester City and Paulsboro.

15. Accordingly, the Permit and Certification which allow the DSPC project to proceed result in an "injury in fact" to Greenwich and Gloucester as there is a substantial likelihood that on some regular basis ships destined for or returning from their terminals will be blocked and/or their safety and maneuverability will be hampered due to constraints resulting from the DSPC project. These consequences, described further below and in the attached declarations, are concrete and particularized and are actual and imminent as they will have a direct effect on the Port Operators' facilities if the proposed DSPC project is allowed to proceed.

Because the injury of having ships headed to or from the Port Operators' facilities being blocked and/or their safety and maneuverability being hampered only results if the proposed DSPC project is allowed to proceed, there is an actual connection between the injury and the conduct complained of – the issuance of the Permit and Certification which allows the DSPC project to proceed. This injury will be redressed by the Environmental Appeals Board's reversing the Secretary's Order and vacating the issuance of the Permit and Certification.

16. The Port Operators' interest in the continued safe use of a public waterway - the Delaware River and the Main Navigation Channel, as well as their interest in maintaining the navigability of the Delaware River and the Main Navigation Channel, are within the "zone of interests" sought to be protected by *The Subaqueous Lands Act*, *The Regulations Governing the Use of Subaqueous Lands*, the federal *Coastal Zone Management Act* (16 U.S.C. §§ 1451 to 1467) (the "CZMA") and its implementing regulations, and the *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 *Del. Admin. C.* § 2201), pursuant to which the Secretary issued the Permit and Certification for the DSPC project, the subjects of this Appeal.

17. Pursuant to *The Regulations Governing the Use of Subaqueous Lands*, 7 Del. Admin. Code Chapter 7504, ensuring the public's continued safe use of a public waterway like the Delaware River is one of the purposes of The Subaqueous Lands Act and its implementing regulations and is a factor that should have been considered by DNREC before issuing the Permit and Certification. "Subaqueous lands within the boundaries of Delaware constitute an important resource of the State and require protection against uses or changes which may impair the public interest in the use of tidal or navigable waters." 7 *Del. Admin. C.* § 7504. In determining whether to issue a permit, DNREC "shall" consider the public interest in any

proposed activity which might affect the use of subaqueous lands, including "[t]he potential effect on the public with respect to commerce [and] navigation …" 7 *Del. Admin. C.* § 7504-4.6.3; *see also* 7 *Del. Admin. C*. § 7504-4.7.4 (In determining whether to approve an application, "[t]he Department shall also consider … [t]he degree to which the project represents an encroachment on or otherwise interferes with public lands, waterways or surrounding private interests") (emphasis added). Moreover, pursuant to 7 *Del. Admin. C.* § 7504-4.11.1.2, for all activities involving dredging and filling, such projects shall be designed to "[m]aintain the navigability of channels."

18. The purpose of the CZMA is to "encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone" by balancing ecological, cultural, historical, and esthetic values with "compatible economic development." 16 U.S.C. § 1452(2). The CZMA is therefore intended to provide states like Delaware with input regarding federal projects that will not only impact "natural resource[s]," but also "land or water use[s]" in the coastal zone including "ports and transportation." 16 U.S.C. § 1452(2)(A) & (D); *see also* 16 U.S.C. § 1456(c)(1)(A). DNREC reviews proposed federal projects for consistency with its Coastal Zone Management Program in accordance with its Coastal Management Program Federal Consistency Policies and Procedures ("Coastal Zone Policies"), 7 *Del. Admin. C.* § 2201. The Coastal Zone Policies are composed of pre-existing state laws, regulations, and executive orders, including but not limited to DNREC's *Regulations Governing the Use of Subaqueous Lands*. Under the Coastal Zone Policies, DNREC is instructed to consider and balance proposed uses of coastal resources, including subaqueous lands, in relation to one another, including the potential effect on the public with respect to

"commerce" and "navigation." 7 *Del. Admin. C.* § 2201-5.4.22.3. This is reflected in the Certification that was issued for the Project, in which DNREC purported to consider whether the Project "pos[es] a risk to safe navigation," citing 7 *Del. Admin. C.* § 2201-5.4.22.3. *See* Certification at 4.

19. The Hearing Officer's Report recognizes that a consideration in determining whether to issue the Permit and Certification under the relevant statutes, regulations and policies is the impact on navigation. The Hearing Officer's Report references the need to consider navigational studies and acknowledges that concerns were expressed as to the completeness and sufficiency of the navigational studies performed. Ex. B, Hearing Officer's Report at 18; Technical Response Memorandum at 12-13. As will be discussed further below, the Hearing Officer ignores some of the concerns expressed and misstates others, and then bases her decision on items that are not part of the Record.

B. Allegation That The Decision Is Improper

20. For the reasons set forth herein, the Port Operators allege that the Order and the issuance of the Permit and Certification are improper and invalid because they are arbitrary and capricious, contrary to and/or inconsistent with applicable law, not supported by sufficient evidence on the record, and constitute an abuse of the Secretary's discretion. The DNREC Secretary's issuance of the Permit and Certification does not comply with applicable procedural requirements, reflects a failure by DNREC to fulfill its regulatory obligations, and is not supported by the Record.

C. Reasons Why The Decision Is Improper

21. The Port Operators appeal the Order and issuance of the Permit and Certification because they are arbitrary, capricious, contrary to and/or inconsistent with applicable law,

constitute an abuse of the Secretary's discretion, are contrary to fact, are not supported by sufficient evidence on the record, are procedurally deficient, reflect a failure by the Secretary to fulfill his regulatory obligations, and are otherwise contrary to the Secretary's authority under the provisions of the Delaware Environmental Control Statute, 7 *Del. C.* Chapter 60, for the following reasons:

1) Procedural Deficiencies in DNREC's Issuance of the Secretary' Order, and of the Permit and Certification, Necessitate the Order being Reversed and Vacated and the Matter being Remanded to DNREC.

a) DSPC's Application has not been updated and therefore is incomplete and not in proper form

22. DNREC's *Regulations Governing the Use of Subaqueous Lands* provide that an applicant applying for a Subaqueous Lands Act permit "shall provide the information requested in the appropriate application form." 7 *Del. Admin. C.* § 7504-3.1.1.2. The Regulations also provide that "[t]he applicant shall maintain the application in a current state and notify the Department immediately of any changes to the information provided." 7 *Del. Admin. C.* § 7504-3.1.3.

23. Here, the Secretary issued the Permit and Certification to DSPC based on an application that was incomplete and not current. DNREC's application form requires an Applicant to describe "What measures are being taken to reduce the frequency of dredging." The latest version of the Application provides only that "[s]hoaling fans are being pursued as means of reducing the frequency of dredging." However, the Order reveals that shoaling fans are no longer part of the project's design. DSPC's failure to provide accurate and complete answers to the questions in the permit application form – *i.e.* the measures it proposes to reduce the frequency of maintenance dredging – and its failure to keep the information in the application form "in a current state" renders the Application "incomplete" and not in "proper form." The

Secretary's issuance of a permit to DSPC based on an incomplete and out-of-date permit application is improper.

24. The failure to provide the information requested in the application form is no mere technicality. The anticipated maintenance dredging for this project is massive, both in volume and frequency. While the shoaling fans presented a host of their own problems, by DSPC's own admission the fans were proposed in order to significantly reduce the frequency of maintenance dredging, reduce upland disposal requirements associated with maintenance dredging, and reduce the costs associated with maintenance dredging. Removing the fans from the project's design leaves critical issues unaddressed in DSPC's permit application.

b) DNREC did not provide notice or afford the public an opportunity to provide input, either through a public hearing or comments, after a major design change was made

25. The Secretary issued the Permit and Certification without affording the public an opportunity to weigh in on a major design change to the proposed project and its impacts – the removal of the shoaling fans and the resulting increase in maintenance dredging. Under 7 *Del. C.* § 7207, DNREC must provide notice of a Subaqueous Lands Act permit application and the public's right to provide input on it once the application is "in proper form." The purpose behind this provision is to ensure that the public has a fair opportunity to consider and comment on the project as it will likely be realized. In this case, DSPC made a major project modification after the public comment period by removing the fans from the project's design, a modification that raises significant questions regarding the sustainability of the project and its impact on surrounding uses. The appropriate solution was for DNREC to obtain all of the necessary information from the Applicant to put the application back in "proper form" and then provide notice and an opportunity for a public hearing and comments, consistent with 7 *Del. C.* § 7207.

DNREC's failure to notify the public and reopen the public comment period based on this major project modification was improper.

c) The DNREC Secretary improperly relied on input that was outside the Record

26. The Order and Hearing Officer's Report dismiss the concerns raised by the Port Operators regarding navigation and safety based on certain communications with the Pilots' Association and the U.S. Coast Guard. None of these communications, however, are contained in the Record. Accordingly, they cannot form the basis for the Secretary's decision. *See* 7 *Del. C.* § 6006(4).

2) DNREC's Failure to Satisfy Specific Substantive Regulatory Obligations in its Issuance of the Secretary's Order, and of the Permit and Certification, Necessitate the Order being Reversed and Vacated and the Matter being Remanded to DNREC.

a) Failure to address navigation and safety concerns found in the Record

27. DNREC has an obligation to consider the impact a project will have on public waterways and navigation before approving an application for a Subaqueous Lands Permit or issuing a Federal Consistency Certification. *See* regulations cited in para. 17, *supra*. The DNREC Secretary's issuing of the Order, and the Permit and Certification, based on the Record before him reflects a failure to satisfy these regulatory obligations.

28. As noted above, the Port Operators submitted comments on October 30, 2020, which included an October 1, 2020 report by Captain Jerzy Kichner, a retired U.S. Coast Guard Captain, which report was therefore part of the Record before the Secretary. Captain Kichner's report raised several concerns about the proposed DSPC project's impact on navigation in the Delaware River and Main Navigation Channel and the potentially risky scenarios that had not been evaluated. Captain Kichner's report also explained why the Navigation Simulation Report

relied on by DSPC is incomplete. As noted in Captain Kichner's declaration, attached hereto as Exhibit D, the issues and concerns expressed in his October 1, 2020 report are not addressed in the Secretary's Order, the Hearing Officer's Report or the Technical Response Memorandum. The significant concerns identified by Captain Kichner, which demonstrate that DNREC failed to undertake its regulatory obligations under 7 Del. Admin. Code Chapter 7504, are summarized below and are further described in Captain Kichner's attached declaration (Ex. D) and October 1, 2020 report.

29. DSPC's placing a turning basin so that it occupies the entire Main Navigation Channel is contrary to recognized industry and government best practices and standards, including recommendations by the World Association for Waterborne Transport Infrastructure (PIANC) Maritime Navigation Commission. The proposed DSPC project and turning basin is also located at a critical turn in the main channel, and so is likely to affect visual navigational aids and vessel maneuverability.

30. The only study regarding impacts to navigation in the Record is the MITAGS Navigation Simulation Report, dated August 22-24, 2018, which is an Appendix to the Environmental Assessment Technical Document. As explained in the Port Operators' comments and Captain Kichner's report, while the Navigation Simulation Report purports to determine the impact of the proposed DSPC project on the ships transiting the Main Navigation Channel, nowhere in the Navigation Simulation Report is the impact of the turning basin being in the Main Navigation Channel addressed. *See* Ex. C. The Navigation Simulation Report does not include any simulations involving the impact of a turning ship in the turning basin on other ships that are traveling in the Main Navigation Channel at that time. In connection with safety of other ships in the main channel, MITAGS only conducted simulations of two ships passing, not turning, in

the Main Navigation Channel and under favorable conditions. A ship that is turning in the main channel would prevent use of this section of the Main Navigation Channel for a significant period of time resulting in potential delays to upbound and downbound traffic and could force other ships to slow down or have to stop, thereby affecting these other ships' maneuverability and safety. Turning a vessel involves the use of multiple resources (tugs) and careful coordination accounting for a complex set of factors including the ship's maneuvering characteristics, draft, sail area, wind and currents, to maintain position in a tight designated area of sufficient depth to keep a vessel from going aground. While a vessel is being turned, no other deep draft traffic can use the channel and must remain clear until the turning vessel is oriented for travel up or down the channel.

31. In summarizing the concerns expressed about impacts to navigation found in the public comments, the Hearing Officer's Report suggests these concerns involve "non-typical emergency scenarios." Ex. B, Hearing Officer's Report at 18. However, as explained above, the concerns expressed about the navigation studies do not involve non-typical emergency scenarios, but instead involve expected turning operations that will be employed regularly and which have not been studied or analyzed. The Hearing Officer's Report also references assurances obtained from the Pilots' Association and U.S. Coast Guard. The Secretary's reliance on a letter from the Pilots' Association, which is not part of the Record, the basis of which is not clear, does not satisfy DNREC's obligations under 7 Del. Admin. Code Chapter 7504. Similarly, the Secretary's reliance on an apparent statement from an unidentified member of the U.S. Coast Guard, without understanding the basis for the statement, including what questions and information were before the Coast Guard, and which statement is not part of the Record, also fails to satisfy DNREC's obligations under 7 Del. Admin. Code Chapter 7504.

32. Captain Kichner's report raised several other concerns about the limited scope of the Navigation Simulation Report, and concluded that "[t]he MITAGS study is incomplete." *See* Ex. C and D. As further explained in Captain Kichner's report, the Navigation Simulation Report failed to consider the wide range of vessel types that utilize the Delaware River and Main Navigation Channel, the full range of tide and weather conditions that will likely be encountered, and the traffic impacts that would be expected for a terminal and turning basin in this location. Since the ports and terminals further north on the Delaware River rely on ships being able to reach them unimpeded, Captain Kichner concluded, and the Port Operators assert, that a more careful and thorough evaluation of the actual impacts of the proposed terminal and turning basin on ship safety and navigation was warranted before DNREC issued the Permit and Certification for the DSPC project. In light of the numerous concerns raised by Captain Kichner and the Port Operators regarding the Navigation Simulation Report, which call into serious doubt the usefulness of the Report for determining the expected impacts from the DSPC project, the Secretary's and Hearing Officer's continued reliance on the Navigation Simulation Report to conclude there will be minimal impacts to navigation from the proposed DSPC project is improper.

33. The Secretary and Hearing Officer seemingly ignored specific limitations found in the Navigation Simulation Report. The Navigation Simulation Report recommends that inbound transits only be allowed at the proposed DSPC terminal during high tide and when the wind is 20 knots or less. Yet, the Permit as issued does not appear to include any such conditions, and so it is not clear how this limitation, which affects the conclusions of the Navigation Simulation Report, is addressed by the Secretary's Order and the Hearing Officer's Report. Either vessels transiting to the DSPC facility will not follow these recommendations

which has obvious safety risks, or operational constraints will be imposed that could negatively impact other upbound and downbound vessels that use the Main Navigation Channel. Again, these concerns regarding limitations on inbound transits to the proposed DSPC terminal do not relate to "non-typical emergency scenarios" as suggested by the Hearing Officer's Report, but to ongoing operations and conditions.

34. In addition, because some concerns identified by the Port Operators and Captain Kichner are associated with "non-typical emergency scenarios" does not mean that such scenarios should not be studied and addressed. Having only one collision or ship go aground would have devastating consequences for the Port Operators' facilities further up the Delaware River. Since the ports further north on the Delaware River rely on ships being able to reach them unimpeded and on schedule, additional study and planning beyond that found in the Navigation Simulation Report (such as proposed in Captain Kichner's report) should have been done before the Permit and Certification were issued by DNREC for the DSPC project.

35. The Secretary's and Hearing Officer's reliance on two communications that are not part of the Record, to conclude there would be minimal impacts to ships in the main channel, is both improper and insufficient to address the valid concerns raised by the Port Operators and Captain Kichner. Even if these communications were somehow considered part of the Record, which they are not, the response in the Hearing Officer's Report to navigation concerns amounts to relying on the Pilots' Association, whose pilots have a vested interest in more ships transiting to a new facility, and on an unattributed statement that the Coast Guard is not worried about it. The Record does not disclose the context of these communications, such as whether the Pilots' Association or U.S. Coast Guard were provided with copies of the public comments reflecting concerns about the DSPC project's impacts to navigability (including Captain Kichner's report)

before they were asked to comment on the proposed project. These responses are not part of the Record and fail to satisfy 7 *Del. Admin. C.* § 7504-4.7.4 as they do not allow DNREC to consider the encroachment and interference that the DSPC project and proposed turning basin will have on the "waterways or surrounding private interests," including ports and ship-dependent businesses north of the DSPC project.

36. The Record reflects that DNREC and the Hearing Officer did not even consider all of the appropriate regulations in considering the DSPC project's impacts to navigation and safety. In addressing public comments regarding the project's impact to navigation, DNREC relies on the fact that the project purportedly complies with 7 *Del. Admin. C.* § 7504-4.8.4, which provides that "*[s]tructures* shall not interfere with navigation, public, or other rights." (emphasis added). Ex. B, Hearing Officer's Report at 18. The concerns expressed in the Port Operators' comments go beyond a concern over *structures* impeding navigation. DNREC also relies on the fact that the project complies with the "setback and siting criteria" set out in 7 *Del. Admin. C.* § 7504-4.9. These criteria focus on the physical location and siting requirements for boat docking facilities. The Subaqueous Lands Act Regulations clearly impose an obligation on DNREC to consider more broadly a proposed project's impacts on commerce, navigation, waterways, and surrounding private interests besides solely the location and siting of docking structures. *See, e.g.*, 7 Del. Admin. C. §§ 7504-4.6, 4.7.4.1, and 4.11.1. DSPC's project is contrary to 7 *Del. Admin. C.* § 7504-4.11.1.2 in that projects involving dredging or filling shall be designed to meet specified objectives, including to "[m]aintain the navigability of channels." None of these regulatory provisions are referenced in either the Hearing Officer's Report or Technical Response Memorandum. Thus, DNREC did not adequately consider the risks posed by the DSPC project to navigation and waterways and did not fulfill its express regulatory obligations.

b) Failure to analyze and address negative repercussions to navigation and safety resulting from the expected significant maintenance dredging operations which are now even greater due to the removal of the shoaling fans from the plans

37. As noted above, DSPC made a significant change to its plans for the proposed DSPC project in July 2021 by removing the 13 shoaling fans that were originally proposed to be used, and failed to update its application to reflect this significant change. In addition to the procedural problems associated with this change, DSPC and DNREC have failed to do the necessary studies and analyses associated with this significant change which impacts the public's safe use of the Delaware River and Main Navigation Channel due to uncertainty regarding DSPC's plans for the extraordinary amount of annual maintenance dredging that will be required at the proposed DSPC facility.

38. In a number of documents submitted in support of DSPC's application there are contradictory references to the amount of annual maintenance dredging that will be required. Certain studies submitted in support of DSPC's Environmental Assessment Technical Document reflect that 500,000 cu.yd. of maintenance dredging will be required each year, and that amount was part of an application that included use of the shoaling fans. *See, e.g.*, "Biological Assessment of Potential Impacts of the Edgemoor Container Port Project to Species Listed Under the Endangered Species Act," Environmental Research & Consulting, Inc. (revised May 12, 2020), App'x 13 to EATD at 41-42. A study performed by Moffatt and Nichol predicted a range of sedimentation in the project area under the Preferred Alternative between approximately 450,000 and 610,000 cu. yd. per year, and a maximum of between 6 and 10 feet of sedimentation over a year was predicted along the shoreward end of the project area. Attachment 1 to Ex. E at 43 (Moffatt & Nichol, May 9, 2020). Inexplicably, the Moffatt and Nichol study was not part of DSPC's application materials and was not available through

DNREC's website and links, but was apparently provided by the Applicant to the U.S. Army Corps of Engineers as the Port Operators learned via a Freedom of Information Act request to the Army Corps. With the removal of the shoaling fans from the plans, the amount of annual maintenance dredging will be on the high side of the estimates provided. To put the amount of maintenance dredging in perspective, it appears that the amount of sediment from maintenance dredging every 5.5 years will equate to the amount of sediment dredged for the entire initial construction of the facility of 3.3 million cu. yd. This is an extraordinary accumulation of sediment, likely due to the location of the facility at a bend in the Delaware River, and will require maintenance dredging on a scale not typically employed by similar facilities. On the current Record, it is unclear how, after removing the shoaling fans from the plans, DSPC attempted to address the criteria under 7 *Del. Admin. C.* § 7504-4.9, including that structures should be constructed to avoid dredging or filling. 7 *Del. Admin. C.* § 7504-4.9.2.2.

39. Pursuant to DNREC's obligations under 7 Del. Admin. C. Chapter 7504, before issuing the Permit and Certification, DNREC should have evaluated the impact on the Delaware River and the Main Navigation Channel of the significant maintenance dredging operations that will be required on an annual basis. Maintenance dredging of this magnitude will require several pipelines, booster pump stations, dredge barges and support vessels. The current Record provides no information or analysis of how this annual maintenance dredging will impact ship traffic, including potentially impeding ship traffic in the vicinity of the proposed DSPC facility. Accordingly, on the current Record, DNREC and the Secretary could not have satisfied their obligation to consider the effect on the public with respect to safe use of the public waterway, to consider the potential effect on the public with respect to commerce and navigation, and to maintain the navigability of the Delaware River and Main Navigation Channel. *See* 7 *Del.*

Admin. C. § 7504-4.6, 4.7 and 4.11. Concerns about the impact to navigation, ship traffic and the safe use of the Delaware River from the expected annual maintenance dredging are further described in the declaration of Dr. Craig Jones, attached hereto as Exhibit E.

40. As the current Record contains no studies or analyses regarding the impacts of the extraordinary amount of annual maintenance dredging that will be required at the proposed DSPC facility, the current Record was insufficient for DNREC's Secretary to make the necessary evaluations and determinations regarding the impacts to the public's safe use of the waterways and the impacts to navigability of the Delaware River and Main Navigation Channel.

III. REQUESTED RELIEF AND HEARING INFORMATION

41. In light of the foregoing, the Port Operators ask this Board to reverse and vacate the Secretary's Order and the issuance of the Permit and Certification, and to remand this matter to DNREC consistent with the foregoing issues and concerns.

42. The Port Operators reserve the right to assert additional grounds for appeal and reserve the right to amend this Statement of Appeal after an opportunity to review certain documents referenced in the Hearing Officer's Report which have not yet been made available to the public and which the Port Operators are seeking through a Freedom of Information Act request.

43. The Port Operators have authorized the following attorney to represent it in this matter before the Environmental Appeals Board:

Thaddeus J. Weaver (Bar I.D. No. 2790)
Dilworth Paxson LLP
One Customs House
704 King Street, Suite 500
Wilmington, DE 19801
Tel: (302) 571-8867
Email: tweaver@dilworthlaw.com

44. The Port Operators estimate that it will call four witnesses and that the presentation of its testimony will take one - two day(s). The Port Operators reserve the right to examine any witnesses called or listed by DNREC or by any other party to this proceeding, including any consolidated appeals.

Respectfully Submitted,

Thaddeus J. Weaver

Thaddeus J. Weaver (Bar I.D. No. 2790)
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Gloucester Terminals LLC and
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OF COUNSEL:

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(484) 430-5700

Dated: October 20, 2021

EXHIBIT A

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

OFFICE OF THE SECRETARY

PHONE
(302) 739-9000

Secretary's Order No.: 2021-W/CCE-0026

RE: Diamond State Port Corporation ("DSPC") Wetlands and Subaqueous Lands Section ("WSLS") Permit Application for a Subaqueous Lands Permit from the Division of Water and Federal Consistency Certification from the Division of Climate, Coastal and Energy's Delaware Coastal Management Program ("DCMP") for the DSPC's proposal to construct a new container port on the Delaware River at DSPC's Edgemoor property, located at 4600 Hay Road, New Castle County, Delaware

Date of Issuance: September 30, 2021

Effective Date: September 30, 2021

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC"), pursuant to 7 *Del.C.* §§6003, 6004, 6006, *The Subaqueous Lands Act* (7 *Del.C.* Ch. 72), *The Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201), and all other relevant statutory authority, the Department issues this Order, approving the Division of Water, Wetlands and Subaqueous Lands Section ("WSLS") Permit Application for a Subaqueous Lands Permit, and the Federal Consistency Certification from the Division of Climate, Coastal and Energy's Delaware Coastal Management Program ("DCMP") with respect to the United States Army Corps of Engineers ("USACE") authorizations also required in this matter, of Diamond State Port Corporation ("DSPC" or "Applicant").

The above referenced WSLS Permit Application for a Subaqueous Lands Permit ("Application") and the DCMP Federal Consistency Certification ("Certification") are currently pending before the Department at this time, necessitated by the Applicant's proposal to construct a new container port on the Delaware River at DSPC's Edgemoor property, located at 4600 Hay Road, Edgemoor, New Castle County, Delaware ("proposed project").

Background, Procedural History and Findings of Fact

The Applicant's property (tax parcels: 0615300006 and 0615300003) is the former location of the DuPont Edgemoor (Chemours) site, and its associated titanium dioxide pigment production facility. It lies along the Delaware River between Fox Point State Park ("FPSP"), to the north, and industrial facilities to the south. The site operated as a titanium dioxide production facility through 2016, and has, historically, been regulated under the Delaware Hazardous Waste Program throughout its operations. That facility was demolished before the sale of the property to the DSPC in February of 2017. The proposed project is located adjacent to and north of the federal navigation channel, in the southern portion of Reach B of the Delaware River, at the intersection of the Cherry Island and Bellevue Ranges, and is offshore of the Applicant's property, as described above.

The Applicant's proposed project includes building a pile-supported wharf (approximately 2,600 feet long), dredging the berth and access channel to a depth of 45 feet below mean lower low water, installing a bulkhead along 3,200 feet of shoreline and occupying approximately 5.5 acres of subaqueous lands. The Applicant also proposes to deepen portions of the Delaware River adjacent to the federal navigation channel to create a primary access channel that would serve the proposed berth construction at the site.

The majority of the dredged materials (approximately 3.3 million cubic yards of river sediments and underlying soil) will be stored in existing USACE-owned confined disposal facilities, with a portion retained onsite to be used as fill material. It should be noted that the use of shoaling fans (as proposed by DSPC in the original Application) was removed from the scope of the proposed activities after consultation with the Applicant.

It should also be noted that the portion of the Applicant's proposed project that fell under the permitting authority of the Department's Division of Waste and Hazardous Substances, Remediation Section ("DWHS-RS"), specifically, the implementation of corrective measures and post-closure care that would be authorized under a Resource Conservation and Recovery Act ("RCRA") Corrective Action Permit ("CAP"), was previously approved with the execution of DNREC Secretary's Order No. 2021-WH-0014, and the issuance by DNREC of a RCRA CAP Renewal Permit to the DSPC (Effective Date: April 29, 2021).

The Department processed all the above permit applications received from DSPC together regarding this proposed project, and held the public hearing on September 29, 2020, to assure both efficiency and transparency, and to make sure the public was afforded the ability to provide meaningful comment on the proposed project in its entirety, as noted above. With the RCRA CAP Renewal Permit having already been issued to DSPC, this Order concerns only the DSPC's WSLS Application for a Subaqueous Lands Permit and DCMP Certification that remains pending before the Department at this time.

The statutory and regulatory authority for the Department's review of the matters contained herein is established and provided for under 7 *Del.C.* Chapter 60, as well as *The Subaqueous Lands Act* (7 *Del.C.* Chapter 72), *The Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), and *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201).

Given the level of public interest on the Applicant's proposed activities regarding this proposed project, the Department made the decision to issue a Joint Public Notice on August 23, 2020, advising the public of the requisite permit applications and DCMP Certification submission received from DSPC, and of a joint virtual public hearing to be held by DNREC, as referenced above. Thereafter, the Department held its public hearing on September 29, 2020.

Department staff, representatives of DSPC, Duffield Associates (consultant for the Applicant), Gulftainer, and over fifty members of the public virtually attended the September 29, 2020 public hearing, with three members of the public providing live comment on the pending permit applications at that time. Due to the high level of public interest, and in response to requests made by the public for the Department to extend the public comment period, the hearing record ("Record") remained open for receipt of comment through December 1, 2020. It should be noted that comments were received from the public not only at the time of the public hearing, but also during both the pre- and post-hearing phases of this permitting matter. Proper notice of the hearing was provided as required by law.

The Record generated in this matter indicates that numerous members of the public offered comments regarding the aforementioned permit applications, both at the time of the public hearing on September 29, 2020 and during the time periods when the Record remained open to receive public comment (both prior to and subsequent to the hearing). The Department received approximately 200 comments overall, voicing both support and opposition to the proposed project.

At the request of Hearing Officer Lisa A. Vest, the technical experts in the Department's Division of Water, WSLS, and the Division of Climate, Coastal and Energy, DCMP, prepared a Technical Response Memorandum ("TRM") to (1) address the concerns associated specifically with the WSLS and DCMP aspects of the proposed project, as voiced in the public comments received by the Department; and (2) offer conclusions and recommendations with regard to those concerns for the benefit of the Record generated in this matter. The TRM, dated September 29, 2021, provided a summary of only those comments received that fell within the scope of the aforementioned WSLS and DCMP portions of the Applicant's proposed project, and offered detailed responses to the same.

Subsequent to the receipt of the Department's TRM referenced above, Hearing Officer Vest prepared her Hearing Officer's Report ("Report"), dated September 29, 2021, which expressly incorporated said documentation therein. Ms. Vest's Report set forth the procedural history, summarized and established the record of information ("Record") relied on in the Report, and provided findings of fact, reasons, and conclusions that recommend the Department approve the DSPC's pending WSLS Application and DCMP Certification, subject to the conditions set forth in the finalized Subaqueous Lands Draft Permit, as prepared by the WSLS, and as contained in the finalized DCMP Certification. The Report, including attachments, is expressly incorporated herein by reference. The Report also thoroughly addressed the public comments received in this matter and concluded that the same did not warrant the Department's denial of DSCP's pending WSLS Application and DCMP Certification, nor the delay of the permit decision to receive any additional information.

Reasons and Conclusions

Currently pending before the Department is the WSLS Application submitted by DSPC, as well as the DCMP Certification with respect to the USACE authorizations also required for the project. I find that the Applicant is required to obtain both a WSLS Subaqueous Lands Permit and the DCMP for the proposed project, as noted above.

I further find that the specific aspects of the proposed project that fall under the permitting authority of the WSLS and DCMP are subject to various state and federal regulatory requirements as set forth above, including, but not limited to, 7 *Del.C.* Chapters 60 and 72, with additional regulatory authority provided under the *Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), the *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), and the *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201).

In reviewing the applicable statutes and regulations, as well as weighing the public benefits of those aspects of the proposed project under the permitting authority of the WSLS and the DCMP against potential detriments, the Department's experts in the WSLS and the DCMP have concluded that DSPC's pending WSLS Application and DCMP Certification complies with all applicable federal and state laws and regulations. The WSLS Subaqueous Lands Permit and the DCMP Certification to be issued by the Department will be reflective of the submissions by DSPC and will be appropriately conditioned to ensure continued protection of public health and the environment.

The Department's TRM acknowledges the comments received from the public concerning the Applicant's proposed project, and thoroughly responds to the same therein. While many comments voiced support of the DSPC's proposed project, other comments voiced concerns related to certain aspects of the project that fall under the permitting authority of the WSLS and the DCMP. Specifically, the TRM noted twelve (12) areas of concern, as voiced by the public, that were contained within the comments received by the Department in this matter. All comments were posted on the Department's hearing web page dedicated to this matter as they were received. Additionally, the Department's extensive responses to the comments received in this matter are set forth in detail in the TRM, which was expressly incorporated into the Record by Hearing Officer Vest, and attached to her Report as Attachment "A." Thus, the public may review all the public comments contained in the Record, as well as the Department's responses to the concerns voiced therein, by reviewing the hearing web page and the TRM, should they wish to do so.

A major aspect of the proposed project is that compensatory mitigation is required of the Applicant for the filling of 5.5 acres of subaqueous lands of the State of Delaware related to the construction activities associated with the proposed project. In his memorandum dated September 26, 2021, John Cargill, Hydrologist IV for the Department's Division of Watershed Stewardship, Watershed Assessment and Management Section, set forth the components of the State Compensatory Mitigation Plan for DSPC ("Mitigation Plan") for inclusion into the Record developed in this matter.

The Mitigation Plan provides an adequate combination of direct in-kind replacement of lost habitat by the creation of new intertidal wetland habitat in the immediate area of the project, statewide fisheries' benefits by the incorporation of the Environmental DNA monitoring program and reconnects the impacted local community to the Delaware River by means of enhancements to FPSP.

For Phase One of the Mitigation Plan, DSPC will construct approximately one (1) acre of intertidal wetland along the Delaware River at the north end of FPSP as an "in-kind" component of habitat replacement to partially compensate for what is being lost through the proposed construction of the port. DSPC shall be responsible for all aspects of the project. This will include obtaining any necessary authorizations, construction of the wetland, and three (3) years of monitoring, maintenance and reporting to ensure that the wetland habitat creation is a success.

In Phase Two of the Mitigation Plan, to provide additional compensatory mitigation, the DSPC will provide funding to establish the Environmental DNA ("eDNA") Fisheries Monitoring Program under the operation and management of DNREC. The first project administered through that program will focus on monitoring around the proposed project area and the surrounding Christina River watershed before, during and after dredging.

Additionally, DNREC will expand the eDNA monitoring to other rivers, creeks and ponds in Delaware to monitor endangered species, invasive species, and other species of interest. The data collected will help DNREC to evaluate and understand potential impacts of the proposed project on both resident and transient fish species that utilize the Delaware River and will help to supplement traditional data collection methods used by DNREC fisheries managers in other water bodies throughout the State of Delaware.

Phase Three of the Mitigation Plan provides for increased public access at FPSP to the natural resources of the Delaware River. The DSPC will consult with DNREC to produce landscape designs for an improved walking trail around the newly created intertidal wetland, a viewing/observation platform that will facilitate associated education opportunities, and substantial vegetation removal to restore the view of the Delaware River along the length of the park. Additional enhancements under consideration include roadway and lighting improvements, restroom repairs, and other amenities aimed at increasing public access to the natural resources of FPSP and the Delaware River.

For the benefit of the Record, the aforementioned memorandum authored by Mr. Cargill, dated September 26, 2021, which summarized the Mitigation Plan for DSPC, was expressly incorporated into the Record by Hearing Officer Vest, and attached to her Report as Attachment "D."

The Department's experts in the WSLS and the DCMP have addressed all public comments and concerns specifically related to the proposed project and the Application currently pending before the Department, as provided in the public notice and public hearing process. Furthermore, the WSLS and the DCMP have thoroughly considered all public concerns in the finalized WSLS draft permit and DCMP Certification that will be issued to DSPC in this matter.

The Record developed in this matter indicates that the Department's experts in the WSLS and the DCMP have conducted a comprehensive review of the information provided by the Applicant, considered all statutes and regulations that govern projects such as the Applicant's above proposed activities, reviewed the Mitigation Plan as submitted to DNREC by the DSPC, and determined that the Record provides adequate justification and detail to support the proposed project. Additionally, as noted in the TRM, DNREC obtained independent confirmation from external agencies (e.g., DelDOT and USCG) where needed to thoroughly evaluate the public's concerns in areas beyond the Department's standard regulatory purview. As a result of this comprehensive review of the Record developed in this matter, the Department's experts have recommended issuance of the WSLS Subaqueous Lands Permit and the DCMP Certification.

I find and conclude that the Applicant has adequately demonstrated compliance with all requirements of the statutes and regulations, has submitted the requisite Compensatory Mitigation Plan required for the filling of 5.5 acres of subaqueous lands of the State of Delaware related to the proposed construction associated with this project, and is continuing to work with the Department to assure that all commitments and ongoing compliance requirements are met. I further find that the Record supports approval of the WSLS Application and DCMP Certification, as submitted by DSPC in this matter. Moreover, I find and conclude that the Record supports the recommendations of the Department's experts in the WSLS and DCMP, as set forth in the TRM of September 29, 2021, including, but not limited to, the recommendation concerning the issuance of the WSLS Subaqueous Lands Permit and the DCMP Certification for the Applicant, for the reasons noted above.

Accordingly, this Order approves the issuance of the WSLS Subaqueous Lands Permit and the DCMP Certification for the DSPC, consistent with the Record developed in this matter, and with appropriate conditions.

Further, the Department concludes and specifically directs the following:

1. The Department has jurisdiction under 7 *Del.C.* Chapters 60 and 72, with additional authority under the *Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), the *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), the *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201), and all other relevant statutory authority, to make a final determination on the Application after holding a public hearing, considering the public comments, and all information contained in the Record generated in this matter;

2. The Department provided proper public notice of the WSLS Application and the DCMP Certification submitted by DSPC, and of the public hearing held on September 29, 2020, and held said hearing to consider any public comments that may be offered on the same, in a manner required by the law and regulations;

3. The Department considered all timely and relevant public comments in the Record, as established in the TRM dated September 29, 2021, provided by the Department's WSLS and DCMP, as well as the supplemental documentation provided in Mr. Cargill's memorandum summarizing the Mitigation Plan for DSPC, dated September 26, 2021, both of which have been expressly incorporated into the Record generated in this matter and attached to the Hearing Officer's Report as Attachments "A" and "D," respectively;

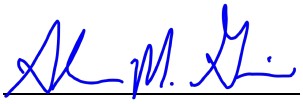
4. The Department has carefully considered the factors required to be weighed in issuing the aforementioned WSLS Permit and the DCMP Certification, as necessitated by the Applicant's proposed project, and finds that the Record supports approval of the same;

5. The Department shall issue to DSPC Subaqueous Lands Permit No. SP-101/20 and DCMP – Federal Consistency Certification for Port of Wilmington Edgemoor No. FC 2020.0043, consistent with the Record developed in this matter. Furthermore, the aforementioned WSLS Permit and DCMP Certification shall include all conditions necessary to ensure that Delaware's environment and public health will be protected from harm;

6. The Department adopts the Report and its attachments as further support for this decision;

7. The Department has an adequate Record for its decision, and no further public hearing is appropriate or necessary; and

8. The Department shall serve and publish its Order on its internet site.



Shawn M. Garvin
Secretary

Ahear\PORT – WSLS DCMP 2021.ORD

EXHIBIT B

HEARING OFFICER'S REPORT

TO: The Honorable Shawn M. Garvin
Cabinet Secretary, Department of Natural Resources and Environmental Control

FROM: Lisa A. Vest
Regulatory Specialist, Office of the Secretary
Department of Natural Resources and Environmental Control

RE: Diamond State Port Corporation ("DSPC") Wetlands and Subaqueous Lands Section ("WSLS") Permit Application for a Subaqueous Lands Permit from the Division of Water and Federal Consistency Certification from the Division of Climate, Coastal and Energy's Delaware Coastal Management Program ("DCMP") for the DSPC's proposal to construct a new container port on the Delaware River at DSPC's Edgemoor property, located at 4600 Hay Road, Edgemoor, New Castle County, Delaware.

DATE: September 29, 2021

I. BACKGROUND AND PROCEDURAL HISTORY:

A joint virtual public hearing was held on Tuesday, September 29, 2020, at 6:00 p.m. via the State of Delaware Cisco WebEx Meeting Platform by the Department of Natural Resources and Environmental Control ("DNREC" or "Department") to receive comment on the Division of Water, Wetlands and Subaqueous Lands Section ("WSLS") permit application, and federal consistency certification from the Division of Climate, Coastal and Energy's Delaware Coastal Management Program ("DCMP") with respect to the United States Army Corps of Engineers ("USACE") authorizations also required in this matter, of Diamond State Port Corporation ("DSPC" or "Applicant"). Both the WSLS permit application for a Subaqueous Lands Permit ("Application") and the DCMP federal consistency certification ("Certification") are currently pending before the Department at this time, necessitated by the Applicant's proposal to construct a new container port on the Delaware River at DSPC's Edgemoor property, located at 4600 Hay Road, Edgemoor, New Castle County, Delaware ("proposed project").

The Applicant's property (tax parcels: 0615300006 and 0615300003) is the former location of the DuPont Edgemoor (Chemours) site, and its associated titanium dioxide pigment production facility. It lies along the Delaware River between Fox Point State Park ("FPSP") to the north, and industrial facilities to the south. The site operated as a titanium dioxide production facility through 2016, and has, historically, been regulated under the Delaware Hazardous Waste Program throughout its operations. That facility was demolished before the sale of the property to the Diamond State Port Corporation in February of 2017. The proposed project is located adjacent to and north of the federal navigation channel, in the southern portion of Reach B of the Delaware River, at the intersection of the Cherry Island and Bellevue Ranges, and is offshore of the Applicant's property, as described above.

The Applicant's proposed project includes building a pile-supported wharf (approximately 2,600 feet long), dredging the berth and access channel to a depth of 45 feet below mean lower low water, installing a bulkhead along 3,200 feet of shoreline and occupying approximately 5.5 acres of subaqueous lands. Additionally, the DSPC proposes to deepen portions of the Delaware River adjacent to the federal navigation channel to create a primary access channel that would serve the proposed berth construction at the site.

The majority of the dredged materials (approximately 3.3 million cubic yards of river sediments and underlying soil) will be stored in existing USACE-owned confined disposal facilities, with a portion retained onsite to be used as fill material. It should be noted that the use of shoaling fans (as proposed by DSPC in the original Application) was removed from the scope of the proposed activities after consultation with the Applicant.

It should also be noted that the portion of the Applicant's proposed project that fell under the permitting authority of the Department's Division of Waste and Hazardous Substances, Remediation Section ("DWHS-RS"), specifically, the implementation of corrective measures and post-closure care that would be authorized under a Resource Conservation and Recovery Act ("RCRA") Corrective Action Permit ("CAP"), was previously approved with the execution of DNREC Secretary's Order No. 2021-WH-0014, and the issuance by DNREC of a RCRA CAP Renewal Permit to the DSPC (Effective Date: April 29, 2021).

The Department processed all the above permit applications received from DSPC together regarding this proposed project, and held the public hearing on September 29, 2020, to assure both efficiency and transparency, and to make sure the public was afforded the ability to provide meaningful comment on the proposed project in its entirety, as noted above. With the RCRA CAP Renewal Permit having already been issued to DSPC, this Hearing Officer's Report concerns only the DSPC's WSLS Application and DCMP Certification that remain pending before the Department at this time.

The statutory and regulatory authority for the Department's review of the matters contained herein is established and provided for under 7 *Del.C.* Chapter 60, as well as *The Subaqueous Lands Act* (7 *Del.C.* Chapter 72), *The Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), and *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201).

Given the level of public interest on the Applicant's proposed activities regarding this proposed project, the Department made the decision to issue a Joint Public Notice on August 23, 2020, advising the public of the requisite permit applications and DCMP Certification submission received from DSPC, and of a joint virtual public hearing to be held by DNREC, as referenced above. Thereafter, the Department held the public hearing on September 29, 2020.

Department staff, representatives of DSPC, Duffield Associates (consultant for the Applicant), Gulftainer, and over fifty members of the public virtually attended the September 29, 2020 public hearing, with three members of the public providing live comment on the pending permit applications at that time. Due to the high level of public interest, and in response to requests made by the public for the Department to extend the public comment period, the hearing record ("Record") remained open for receipt of comment through December 1, 2020. It should be noted that comments were received from the public not only at the time of the public hearing, but also during both the pre- and post-hearing phases of this permitting matter. Proper notice of the hearing was provided as required by law.

II. SUMMARY OF THE PUBLIC HEARING RECORD:

The Record consists of the following documents:

(1) The official verbatim Transcript of Proceedings from Wilcox & Fetzer, Ltd., generated from the public hearing of September 29, 2020;

(2) Nine (9) exhibits submitted for the Record by the DNREC DWHS-RS, introduced by responsible Department staff at the aforementioned hearing, and expressly incorporated into the Record by this Hearing Officer at the time of the public hearing;

(3) Sixteen (16) exhibits submitted for the Record by the DNREC Division of Water, WSLS, introduced by responsible Department staff at the aforementioned hearing, and expressly incorporated into the Record by this Hearing Officer at the time of the public hearing;

(4) Seventeen (17) exhibits submitted for the Record by the DNREC Division of Climate, Coastal and Energy, DCMP, introduced by responsible Department staff at the aforementioned hearing, and expressly incorporated into the Record by this Hearing Officer at the time of the public hearing;

(5) PowerPoint submitted for the Record by Duffield Associates, on behalf of the Applicant, as introduced by Duffield Associates staff at the aforementioned hearing, and expressly incorporated into the Record by this Hearing Officer as "Applicant Exhibit 1" at the time of the public hearing;

(6) Approximately 200 written comments from members of the public, received by the Department both prior to and subsequent to the aforementioned public hearing, as posted on the hearing web page dedicated to this matter;

(7) Technical Response Memorandum ("TRM") from the Department's experts in the DWHS-RS including, but not limited to, Chris Brown, Hydrologist II, and Frank Gavas, dated March 17, 2021;

(8) Email of Chris Brown dated April 28, 2021, which provided the Finalized Statement of Basis and finalized RCRA CAP Renewal, as prepared by the Department's experts in the DWHS-RS and provided to this Hearing Officer for inclusion into the Record developed in this matter;

(9) TRM from the Department's experts in the WSLS and DCMP, including, but not limited to, John Cargill, Hydrologist IV, Division of Watershed Stewardship, Watershed Management Section; Katie Esposito, Environmental Scientist III, and Steven Smailer, Program Administrator, Division of Water, WSLS; and Laura Mensch, Program Manager, and Kimberly Cole, Program Administrator, Division of Climate, Coastal and Energy, DCMP, dated September 29, 2021;

(10) Memorandum from John Cargill, Hydrologist IV, Division of Watershed Stewardship, Watershed Assessment and Management Section, through Steven Smailer (expert in the Department's WSLS, as previously identified above), dated September 26, 2021, regarding the Components of the State Compensatory Mitigation Plan for the DSPC's proposed project.

(11) Finalized WSLS Subaqueous Lands Draft Permit, dated September 29, 2021; and

(12) Finalized DCMP Draft Certification, dated September 29, 2021.

The Department's persons primarily responsible for reviewing the WSLS Application and DCMP Certification submitted by the Applicant (see DNREC staff identified in #9 above) developed the Record as it specifically relates to the WSLS and DCMP portions of this proposed project, with the relevant documents in the Department's files.

The Record generated in this matter indicates that numerous members of the public offered comments regarding the Applicant's proposed project, both at the time of the public hearing on September 29, 2020, and during the time periods when the Record remained open to receive public comment (both prior to and subsequent to the hearing). The Department received approximately 200 comments overall, voicing both support and opposition to the proposed project.

At the request of this Hearing Officer, the technical experts in the Department's Division of Water, WSLS, and Division of Climate, Coastal and Energy, DCMP, prepared a TRM to (1) address the concerns associated specifically with the WSLS and DCMP aspects of the Applicant's proposed project, as voiced in the public comments received by the Department; and (2) offer conclusions and recommendations with regard to this pending permitting matter for the benefit of the Record. The TRM, dated September 29, 2021, provides a summary of only those comments received that fell within the scope of the WSLS and DCMP portions of the Applicant's proposed project, and offers detailed responses to the same.

I find that the TRM of September 29, 2021, as provided by the Department's experts in WSLS and DCMP, offers a comprehensive review of all aspects of the Applicant's pending WSLS Application and DCMP Certification, addresses the areas of concern voiced by the public that are germane to the subject matter of the aforementioned public hearing, and responds to them in a balanced manner, accurately reflecting the information contained in the Record as it relates to this scope of the proposed project. Thus, the TRM of September 29, 2021, the finalized WSLS Subaqueous Lands Draft Permit ("Permit"), and the finalized DCMP Draft Certification are all attached hereto as Appendices "A" through "C" and are expressly incorporated herein.

III. RECOMMENDED FINDINGS AND CONCLUSIONS:

Currently pending before the Department is the WSLS Application submitted to the Department by DSPC, as well as the DCMP Certification with respect to the USACE authorizations also required for the project. I find that the Applicant is required to obtain both the WSLS Permit and the DCMP Certification for the proposed project, as noted above.

I further find that the specific aspects of the proposed project that fall under the permitting authority of the WSLS and DCMP are subject to various state and federal regulatory requirements as set forth above, including, but not limited to, 7 *Del.C.* Chapters 60 and 72, with additional regulatory authority provided under the *Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), the *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), and the *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201).

In reviewing the applicable statutes and regulations, as well as weighing public benefits of this project against potential detriments, the Department's experts in the WSLS and the DCMP have concluded that the pending WSLS Application and DCMP Certification submitted by DSPC complies with all applicable federal and state laws and regulations. Should this Application be approved, the WSLS Permit and DCMP Certification that would be issued by the Department would be reflective of the submissions by DSPC and would be appropriately conditioned to ensure continued protection of public health and the environment.

The Department's TRM acknowledges the comments received from the public concerning the Applicant's proposed project, and thoroughly responds to the same therein. While many comments voiced support of the DSPC's proposed project, other comments voiced concerns related to certain aspects of the Application that fall under the permitting authority of the WSLS and the DCMP.

Twelve (12) areas of concern, as voiced by the public in this matter, are discussed at length in the TRM, along with the Department's detailed responses to the same. For brevity's sake, this Report will identify each concern, and provide a summary of the Department's responses to the same. The entirety of the Department's responses to the comments received in this matter are fully set forth in the aforementioned TRM, which again has been expressly incorporated herein as Attachment "A."

Comments Received in Opposition to the Proposed Project

1. The proposed project represents a threat to Homeland Security

The DSPC owns the Port of Wilmington, including the property known as the Edgemoor site, where it seeks to permit and build a terminal container facility. As the TRM details, DSPC retained consultants and conducted a detailed review of the several bids received and selected GT (a subsidiary of Gulftainer Company Ltd., headquartered in the United Arab Emirates). The Board of Directors of GT and DSPC approved the transaction.

Statutory provisions in 29 *Del. C.* §8784(1) also required DSPC to obtain approval from the Delaware General Assembly. Multiple opportunities for public and stakeholder input were provided in advance of approval for this transaction. Before and after entering into the Concession Agreement, DSPC security was and continues to be handled jointly by the U.S. Coast Guard ("USCG") and U.S. Customs and Border Protection, both of which are part of U.S. Department of Homeland Security. Similarly, Customs and Border Protection provided, and continues to provide, security with respect to imported cargo leaving the Port of Wilmington.

The USCG has jurisdiction and provides overall security for the Port of Wilmington. All employees working at the Port of Wilmington are required to secure Transportation Workers Identification Credentials, which includes an extensive background check. During the term of the Concession Agreement, DSPC maintains certain oversight and consent rights regarding the operation of the Port of Wilmington, including the safety and security at the Port.

The TRM notes that the Concession Agreement provides for implementation and operation of safety and security standards applicable to Port operations in accordance with applicable federal, state, and local laws. Further, DSPC retains oversight rights regarding the implementation and operation of the above referenced safety standards and retains the right to terminate the Concession Agreement for material failures by GT to comply with such standards. GT has been operating the Port of Wilmington with its 350,000 plus twenty-foot equivalent units (TEUs) per year since 2018 without incident. Some public comments received by the Department voiced security concerns regarding the proposed project, based on the fact GT is a subsidiary of a foreign-owned private company headquartered in the United Arab Emirates. The TRM states that such concerns were fully addressed before the transaction was approved and were found to be unsubstantiated.

2. <u>The proposed shoaling fans pose a risk to aquatic life and water quality</u>

DSPC's original WSLS Application and Certification for the Port of Wilmington Expansion Project submitted to DNREC on March 16 and 18, 2020 included the installation and operation of SedCon Technologies, Inc.'s Turbo System anti-sedimentation devices ("shoaling fans") to minimize the need for maintenance dredging. DNREC's Division of Fish and Wildlife - Fisheries Section ("DFW Fisheries") reviewed the proposed project activities, including the use of shoaling fans. On December 14, 2020, DFW Fisheries provided comments on the project in relation to the proposed use of shoaling fans as an anti-sedimentation technique.

The DFW Fisheries commented that the installation and operation of the shoaling fans would increase fish mortality and degrade ecosystem function and aquatic habitat in the project area. Shoaling fans would have adverse impacts on fish directly through impingement and entrainment, and indirectly through increased sedimentation and potential resuspension of contaminants. Adult fishes impinged on the shoaling fans may also be killed. Fan intakes would entrain pelagic fish eggs and larvae. In addition to the entrainment and impingement impacts, DFW Fisheries noted that spawning runs could be altered by the noise produced by the fan blades. All these concerns were passed on to the Applicant to be addressed.

In response to the above concerns that shoaling fans may pose a risk to aquatic life and water quality, DSPC modified the scope of the project activities to remove the use of shoaling fans. On July 1, 2021, the consultant for the Applicant, Duffield Associates, submitted a revision to the project plans that reflects the removal of the shoaling fans from the project design. The removal of the shoaling fans from the Application, coupled with the Applicant's proposed compensatory mitigation package, (described in greater detail further herein), address the significant portions of concern the Department had regarding the potential impacts to aquatic resources in regard to Delaware's *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, specifically, Sections 4.7.1.2, 4.7.1.3, 4.7.1.4, and 4.7.4.

3. <u>The proposed dredging activities will impact water quality</u>

The Department's TRM acknowledges that dredging activities have the potential to increase turbidity in the river around the cutterhead, causing sediment particles and associated contaminants to become suspended in the river water, and thus impact water quality. However, the impacts are expected to be limited in extent, and will be monitored during the entire course of dredging activities to ensure impacts do not extend beyond regulatory boundaries.

Per an approved monitoring plan, turbidity/total suspended solids, among other physical parameters, will be measured regularly behind the cutterhead, and at background locations upstream and downstream of the dredging activities. Water quality samples and sediment samples will be collected regularly to evaluate water/sediment chemistry and to compare results to modeled predictions. Those samples will be analyzed for pH, hardness, organic carbon content, inorganic compounds (metals), pesticides, polycyclic aromatic hydrocarbons ("PAHs"), dioxins and furans and PCBs. While previous studies indicate that most (approximately 98%) of the dredged sediments will be captured and retained in Confined Disposal Facilities ("CDFs"), a small amount may be released back into the water through elutriate discharge.

Per the approved monitoring plan, DSPC will be required to conduct monitoring of the CDF influent and effluent. During active dredging, dredge slurry (influent) will be sampled regularly and will be allowed to separate into water and sediment. Sediment and water samples will be analyzed for organic carbon content, inorganic compounds (metals), pesticides, PAHs, dioxins and furans and PCBs. Effluent water samples will be collected at the same frequency as influent samples and will be analyzed for the same chemical parameters. When influent and effluent data is combined with measurements of flow rate, a mass balance calculation can be done to determine the overall retention of contaminants in the CDF.

If any data collected during the course of active dredging and active discharge from the CDF are outside of applicable Delaware River Basin Commission and DNREC water quality criteria, then corrective actions will be implemented to address non-compliant conditions. The TRM states that the proposed monitoring and responsive corrective actions address the significant portions of concern DNREC had regarding the potential impacts to water quality in regard to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, Sections 4.7.1.1.

4. <u>The activities associated with the project will result in increased air emissions</u>

The DCMP coordinated with the Department's Division of Air Quality ("DAQ") for input on air quality concerns related to the proposed activities included in this project. DAQ supports efforts that preserve public health and safety and promote smart growth. Activities associated with the proposed project must comply with all Delaware Air Quality Regulations (*Division of Air Quality,* 7 DE Admin. Code 1100) to not exceed air quality emission thresholds.

To reduce emissions associated with the construction phase of the project, DAQ recommends that retrofitted on-road and non-road diesel engines be used. Existing DAQ Regulations require the use of dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement, and use of unpaved roads and the use of covers on trucks that transport material to and from a site to prevent visible emissions (*Particulate Emissions from Construction and Materials Handling,* 7 DE Admin. Code 1106).

Additionally, Delaware Air Quality Regulations require a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the de minimis levels (*Conformity of General Federal Actions to the State Implementation Plans,* 7 DE Admin. Code 1135). Delaware Air Quality Regulations also restrict idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes (*Excessive Idling of Heavy-Duty Vehicles,* 7 DE Admin. Code 1145).

Compliance with the above referenced Air Quality Regulations and the incorporation of the DAQ recommendations address the concern the Department had regarding the potential impacts to water quality in regard to *Regulations Governing the Use of Subaqueous Lands,* 7 DE Admin. Code 7504, Sections 4.7.1.5.

5. The proposed project represents a threat to public health, especially in Environmental Justice communities

DNREC has placed great importance on understanding and addressing Environmental Justice concerns raised by communities in the vicinity of the proposed project site. As such, special consideration was taken to incorporate mitigation requirements that would result in improvements to the local environment and increase recreational opportunities for the residents of neighboring communities.

The Department's TRM notes that, as required under Delaware's *Regulations Governing Hazardous Waste* (7 DE Admin. Code 1302) and the *Resource Conservation and Recovery Act (*RCRA), a site Risk Assessment ("RA") was conducted which analyzed contaminant data from the upland (former DuPont/Chemours) property for potential risk to human health and the environment using appropriate guidelines and parameters. The RA considered all routes of potential exposure and determined that no unacceptable risk was posed to human health or the environment from contaminants at the site as long as the impacted media remains buried in place (thereby removing the potential pathway of exposure).

Based upon the RCRA Facility Investigation ("RFI") in conjunction with the RA, and in consideration of the site's future use, the presumptive site remedy of capping, construction management, groundwater monitoring and an environmental covenant, proposed in the Statement of Basis ("SB") and enforced by the conditions of the RCRA permit, issued April 29, 2021, work together to assure ongoing protection of both human health and the environment.

Furthermore, DNREC is requiring that the Applicant mitigate for potential negative impacts related to the proposed project, including the loss of 5.5 acres of subaqueous habitat. The DSPC, as a condition of the issuance of the WSLS Permit and DCMP Certification concurrence, must complete the State of Delaware Compensatory Mitigation Plan, which includes habitat and recreational enhancements that will benefit the residents of communities adjacent to the proposed project site. Some of these enhancements will occur at FPSP. FPSP, located on Lighthouse Road in Wilmington, Delaware, is in close proximity to the proposed project site. Communities located near the proposed project site have easy access to FPSP, therefore improvements to this park will also provide enhancements to the communities around the Edgemoor site. Additional information detailing the specific components of the State of Delaware Compensatory Mitigation Plan for the Applicant's proposed project will be discussed in detail further herein.

The presumptive remedy and enforcement of the RCRA requirements address the significant portions of concern the Department had regarding the potential impacts to water quality in regard to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, Sections 4.7.1.6. Additionally, the proposed compensatory mitigation package, described in greater detail further herein, is considered adequate mitigation pursuant to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, Sections 4.7.1.4 and 4.7.4.

6. The regulatory process needs to be transparent, and members of the public need a voice in the process

The Record developed in this matter reflects that DNREC published a joint public notice on August 23, 2020, to announce the receipt of the requisite permit applications and a DCMP Certification received from the Applicant, DSPC, and of a scheduled public hearing. DNREC held that public hearing on September 29, 2020, to provide members of the public with a description of the proposed project, an overview of the regulatory processes associated with reviewing the proposed project, and to allow for the public to submit live comments concerning the proposed project in its entirety.

The public comment period was originally scheduled to close on November 1, 2020 (which represented a 71-day comment period). On October 30, 2020, at the request of members of the public, DNREC extended the public comment period to December 1, 2020, thus providing a 101-day comment period for the public to submit comments for the Department's consideration. DNREC values transparency and public engagement, thus, documents were made available to the public during the entire 101-day comment period, and the public was given an extended public comment period to submit questions and comments for inclusion into the Record generated in this matter.

Additionally, the TRM notes that the DCMP considers issues raised by network partners, stakeholders and members of the public during a project's public comment period and, where applicable, engages with the Applicant to address concerns through project modification. Furthermore, the statutory requirements for the WSLS that require public notice upon receipt of an application are intended to allow for the public comments and concerns, including those expressed during the public hearing, to be considered during the detailed technical review of the project.

7. The proposed project is a violation of Delaware House Joint Resolution Ten (HJR-10)

DNREC's *Regulations Governing Solid Waste* requires that solid waste handling and disposal be conducted in a manner and under conditions which will eliminate the dangerous and deleterious effects of improper solid waste handling and disposal upon the environment and upon human health, safety, and welfare (7 DE Admin. Code 1301, Section 1.0). The TRM notes that Delaware House Joint Resolution 10 (HJR-10) directed the Department of Transportation ("DelDOT") to work with the Delaware Solid Waste Authority ("DSWA") to produce a report by September 30, 2020, that compared the financial and environmental impacts to Delaware of the current, uncoordinated trash collection system in New Castle County to the impacts of a coordinated system with one vendor collecting all the trash and recycling in an entire neighborhood. The Department concludes in the TRM that the activities associated with the proposed project are not in violation of HJR-10.

8. The proposed project will create traffic flow and volume problems

The lead state agency overseeing traffic flow and volume in Delaware is DelDOT. As such, DelDOT staff responded to the specific concerns that pertain to this topic area.

The full responses from DelDOT concerning potential traffic issues associated with the proposed project are available for review in the Department's TRM attached hereto. For brevity's sake, this Report notes that the TRM contains no responses to the public's potential traffic concerns that would justify a denial of the DCMP Certification associated with the Applicant's proposed project.

9. The proposed project will result in a loss of recreational fishing and crabbing

The location of this project on the Delaware River is a known habitat of the Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*), two species that are listed as endangered under the Endangered Species Act ("ESA"). In order to minimize impacts to sturgeon and other commercially and recreationally valuable species during their spawning periods, DNREC requires that no in-water work occurs from March 15th through June 30th. This "time-of-year restriction" will be observed for all in-water work including, but not limited to, pile driving, construction, installation of temporary bulkhead wall and sheet pile walls, and all dredging including maintenance dredging.

Additionally, DNREC requires a soft start on all pile driving activities. Cherry Island Flats is an important fish habitat and one of the major striped bass spawning areas of the Delaware River. Due to the proximity of the project to Cherry Island flats, DNREC also requires in-situ turbidity monitoring of the flats be conducted during dredging activities associated with the construction of the port to ensure that the activity is not adversely impacting sensitive species.

The TRM notes that, if granting a permit will result in loss of a substantial resource to the public, then DNREC has the authority to require a permittee to take measures which will offset or mitigate the loss (7 *Del.C.* §7205, and the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, subsection 3.4). As noted previously, DNREC has required the Applicant to mitigate for the loss of 5.5 acres of subaqueous lands associated with the proposed project, and the details of DSPC's State of Delaware Compensatory Mitigation Plan will be addressed in greater detail further herein. The Department considers the proposed compensatory mitigation package to be adequate mitigation, pursuant to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, Sections 4.7.1.4 and 4.7.4.

10. <u>There are concerns regarding sediment and contaminants such as PCBs</u>

As noted above, the portion of the Applicant's proposed project that fell under the permitting authority of the Department's DWHS-RS was previously approved with the execution of DNREC Secretary's Order No. 2021-WH-0014 and the issuance by DNREC of a RCRA CAP Renewal Permit to the DSPC (Effective Date: April 29, 2021). The Department's DWHS Corrective Action Section ("CAS") has been managing/overseeing the environmental cleanup of the upland portion of the former DuPont/Chemours Edgemoor site, where the new port will be constructed, in accordance with the federal RCRA program.

Critical to long term protection and improvement of human and ecological health from contaminants in the sediment will be proper management of the dredged material and associated CDF elutriate generated during dredging for port construction. A Monitoring Plan for Construction Dredging and Dredged Slurry has been developed by DSPC and approved by DNREC and USACE. The TRM concludes that the RCRA remedial actions, detailed sediment characterization, removal of the contaminated sediments during the dredging, associated risk assessment, and proposed monitoring and responsive corrective actions address the significant portions of concern DNREC had regarding the potential contaminated sediment transport in regard to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin. Code 7504, Sections 4.7.1.1, 4.7.1.6 and 4.7.2.

11. <u>A hydrogeologic site investigation is needed</u>

As noted above, a comprehensive hydrogeologic site investigation was performed as part of the sitewide RCRA Facility Investigation ("RFI"). The TRM states that the Department's RCRA remedial actions, the detailed site characterization, sediment characterization, removal of the contaminated sediments during the dredging, associated risk assessment, and proposed monitoring and responsive corrective actions address the significant portions of concern DNREC had regarding the cumulative and secondary effects on the aquatic ecosystem, natural surface and groundwater hydrology in regard to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin Code 7504, Section 4.7.3.

12. Incomplete/Insufficient navigational studies, particularly for emergency scenarios

The Application includes a report by the Maritime Institute of Technology and Graduate Studies ("MITAGS") that assesses typical expected navigational scenarios and, as the TRM notes, concludes that "[t]he simulation results indicated the proposed Edgemoor Terminal would have minimal impact on ships as they transit the existing navigation channel." The Department received public comments that alleged that the proposed turning basin would negatively impact navigation of vessels on the main channel and that there would be impacts to shipping that may occur in non-typical emergency scenarios (i.e., ships losing power while turning). These concerns were passed on to the Applicant to be addressed.

In response, the Applicant's consultant, Duffield Associates, provided additional information to DNREC on March 4, 2021. This additional information included a letter from David K. Cuff, President of The Pilots' Association for the Bay & River Delaware ("Pilots' Association") to Mr. Eugene Bailey, Executive Director of the DSPC. The Pilots' Association reviewed the Navigation Feasibility Study for the Port of Wilmington Edgemoor Expansion project produced by the MITAGS and concurred with the above-cited statement in the MITAGS report that the proposed Edgemoor Terminal would have minimal impacts on ships traveling on the existing navigation channel.

Additionally, DNREC coordinated with Lieutenant Commander Andrew Cooke, USCG Sector Delaware Bay, to receive input from the USCG on the navigational components of this proposed project. On September 17, 2021, USCG Sector Delaware Bay stated that it does not see this project posing a risk to safe navigation. The TRM concludes that the Applicant's proposed plans meet all appropriate setback and siting criteria pursuant to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin Code 7504, Section 4.9. Additionally, the input that was received from the Pilots' Association for the Bay & River Delaware and the USCG have also adequately addressed the expressed navigational concerns pursuant to the *Regulations Governing the Use of Subaqueous Lands*, 7 DE Admin Code 7504, Section 4.8.4.

Comments in Support of the Proposed Project

The Department received numerous comments in support of the Applicant's proposed project. The supportive comments were submitted from a variety of individuals and groups, as set forth in the Department's TRM, and are available for review in their entirety on the Department's hearing web page dedicated to the Record developed in this matter.

The comments expressing support of the Application note the many benefits associated with the proposed project, including the creation of an employment hub that will provide approximately 1,000 new jobs for area residents. The proposed project will help fill the void created by the jobs lost with the closure of area manufacturing plants. These new job opportunities will offset unemployment in Wilmington and Northern New Castle County, and will provide work for local, highly skilled tradesmen and craftsmen.

The project will not only save current jobs for skilled tradesmen and craftsmen, but also create new jobs for both blue-collar laborers and skilled workers. In addition to the jobs created directly for dock work, jobs will also be created for the building trades, trucking industry, and other support industries throughout the community. These jobs, and the community revitalization they will support, can help address local issues of unemployment.

The proposed project will also address legacy environmental issues related to the site's previous industrial uses. Construction of the new port would result in a clean, environmentally friendly business on a currently inactive parcel of land previously used for heavy industry.

Furthermore, this project would help revitalize the shipping industry in Delaware. Delaware would be able to accept the larger vessels coming to the east coast as a result of the expansion of the Panama Canal and the Suez Canal. The new port would allow Delaware to accept the larger container ships that are being more widely used to transport cargo, thus enabling Delaware to compete regionally and nationally, and to keep up with the evolving needs of the shipping industry.

Components of the State of Delaware Compensatory Mitigation Plan for DSPC

As noted above, compensatory mitigation is required of the Applicant for the filling of 5.5 acres of subaqueous lands of the State of Delaware related to the construction activities associated with the proposed project. In his memorandum dated September 26, 2021, Mr. Cargill from the Department's Watershed Assessment and Management Section (as previously identified herein) set forth the components of the State Compensatory Mitigation Plan for DSPC ("Mitigation Plan") for inclusion into the Record developed in this matter. The Mitigation Plan provides an adequate combination of direct in-kind replacement of lost habitat by the creation of new intertidal wetland habitat in the immediate area of the project, statewide fisheries' benefits by the incorporation of the Environmental DNA monitoring program and reconnects the impacted local community to the Delaware River by means of enhancements to FPSP.

For Phase One of the Mitigation Plan, DSPC will construct approximately one (1) acre of intertidal wetland along the Delaware River at the north end of FPSP as an "in-kind" component of habitat replacement to partially compensate for what is being lost through the proposed construction of the port. DSPC shall be responsible for all aspects of the project. This will include obtaining any necessary authorizations, construction of the wetland, and three (3) years of monitoring, maintenance and reporting to ensure that the wetland habitat creation is a success.

In Phase Two of the Mitigation Plan, to provide additional compensatory mitigation, the DSPC will provide funding to establish an Environmental DNA ("eDNA") Fisheries Monitoring Program under the operation and management of DNREC. The first project administered through that program will focus on monitoring around the proposed project area and the surrounding Christina River watershed before, during and after dredging. Additionally, DNREC will expand the eDNA monitoring to other rivers, creeks and ponds in Delaware to monitor endangered species, invasive species, and other species of interest. The data collected will help DNREC to evaluate and understand potential impacts of the proposed project on both resident and transient fish species that utilize the Delaware River and will help to supplement traditional data collection methods used by DNREC fisheries managers in other water bodies throughout the State of Delaware.

Phase Three of the Mitigation Plan provides for increased public access at FPSP to the natural resources of the Delaware River. The DSPC will consult with DNREC to produce landscape designs for an improved walking trail around the newly created intertidal wetland, a viewing/observation platform that will facilitate associated education opportunities, and substantial vegetation removal to restore the view of the Delaware River along the length of the park. Additional enhancements under consideration include roadway and lighting improvements, restroom repairs, and other amenities aimed at increasing public access to the natural resources of FPSP and the Delaware River.

For the benefit of the Record, the aforementioned memorandum authored by Mr. Cargill, dated September 26, 2021, which summarized the Applicant's Mitigation Plan, is expressly incorporated into the Record and attached hereto as Attachment "D."

The Department's experts in the WSLS and the DCMP have addressed all public comments and concerns specifically related to the proposed project and the Application currently pending before the Department, as provided in the public notice and public hearing process. Furthermore, the WSLS and the DCMP have thoroughly considered all public concerns in the finalized WSLS draft permit and DCMP Certification that would be issued to DSPC in this matter.

The Record developed in this matter indicates that the Department's experts in WSLS and DCMP have conducted a comprehensive review of the information provided by the Applicant, considered all statutes and regulations that govern projects such as the Applicant's above proposed activities, reviewed the Mitigation Plan as submitted to DNREC by the DSPC, and determined that the Record provides adequate justification and detail to support the proposed project. Additionally, as noted in the TRM, DNREC obtained independent confirmation from external agencies (e.g., DelDOT and USCG) where needed to evaluate the public's concerns in areas beyond the Department's standard regulatory purview. As a result of this comprehensive review, the Department's experts have recommended issuance of the WSLS Subaqueous Lands Permit and the DCMP Certification.

I find and conclude that the Applicant has adequately demonstrated compliance with all requirements of the statutes and regulations, has submitted the requisite Compensatory Mitigation Plan required for the filling of 5.5 acres of subaqueous lands of the State of Delaware related to the proposed construction associated with this project, and is continuing to work with the Department to assure that all commitments and ongoing compliance requirements are met.

I further find that the Record supports approval of the WSLS Application and DCMP Certification, as submitted by DSPC in this matter. Moreover, I find and conclude that the Record supports the recommendations of the Department's experts in WSLS and DCMP, as set forth in the TRM of September 29, 2021, including, but not limited to, the recommendation concerning the issuance of the WSLS Subaqueous Lands Permit and the DCMP Certification for the Applicant, consistent with the Record developed in this matter, and with appropriate conditions, for the reasons noted above.

Further, I recommend the Secretary adopt the following findings and conclusions:

1. The Department has jurisdiction under 7 *Del.C.* Chapters 60 and 72, with additional authority under the *Regulations Governing the Use of Subaqueous Lands* (7 DE Admin. Code 7504), the *Federal Consistency with Approved Coastal Management Programs* (15 CFR Part 930), the *Delaware Coastal Management Program Federal Consistency Policies and Procedures* (7 DE Admin. Code 2201), and all other relevant statutory authority, to make a final determination on the Application after holding a public hearing, considering the public comments, and all information contained in the Record generated in this matter;

2. The Department provided proper public notice of the WSLS Application and the DCMP Certification submitted by DSCP for the proposed project, and of the public hearing held on September 29, 2020, and held said hearing to consider any public comment that may be offered on the same, in a manner required by the law and regulations;

3. The Department considered all timely and relevant public comments in the Record, as established in the TRM dated September 29, 2021, provided by the Department's experts in the WSLS and the DCMP, as well as the supplemental documentation provided in Mr. Cargill's memorandum summarizing the Mitigation Plan for DSPC, dated September 26, 2021, both of which have been expressly incorporated into the Record generated in this matter and are attached to this Report as Attachments "A" and "D," respectively;

4. The Department has carefully considered the factors required to be weighed in issuing the aforementioned WSLS Permit and the DCMP Certification, as necessitated by the Applicant's proposed project, and finds that the Record supports approval of the same;

5. The Department shall issue to DSPC Subaqueous Lands Permit No. SP-101/20 and DCMP – Federal Consistency Certification for Port of Wilmington Edgemoor No. FC 2020.0043, consistent with the Record developed in this matter. Furthermore, the aforementioned WSLS Permit and DCMP Certification shall include all conditions necessary to ensure that Delaware's environment and public health will be protected from harm;

6. The Department has an adequate Record for its decision, and no further public hearing is appropriate or necessary; and

7. The Department shall serve and publish its Order on its internet site.

/s/Lisa A. Vest
LISA A. VEST
Regulatory Specialist

ahear\PORT – WSLS DCMP 2021

Attachment A: TRM (09/29/21)
Attachment B: WSLS Finalized Draft Subaqueous Lands Permit (09/29/2021)
Attachment C: DCMP Finalized Draft Federal Consistency Certification for Port of Wilmington Edgemoor (09/29/2021)
Attachment D: WSLS Memorandum RE: Components of the State Compensatory Mitigation Plan for DSPC (09/26/21)

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
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Technical Response Memorandum

To: Lisa Vest, Hearing Officer

Through: Steven Smailer, DW Program Administrator
Kimberly Cole, DCCE Program Administrator

From: Laura Mensch, DCCE Program Manager
John Cargill, DWS Hydrologist
Katie Esposito, DW Environmental Scientist

Date: September 29, 2021

Subject: Diamond State Port Corporation, Edgemoor Container Port, 4600 Hay Road, Edgemoor, New Castle County, Delaware, 19809

INTRODUCTION

The Diamond State Port Corporation (DSPC) proposes to construct a new container port on the Delaware River at DSPC's Edgemoor property, located at 4600 Hay Road, Edgemoor, New Castle County, Delaware, 19809. The project will require permits from the Department of Natural Resources and Environmental Control (DNREC) Division of Water, Wetland and Subaqueous Lands Section (WSLS) and Division of Waste and Hazardous Substances, Remediation Section, as well as a federal consistency certification from the Division of Climate, Coastal and Energy's Delaware Coastal Management Program (DCMP) with respect to the United States Army Corps of Engineers (USACE) authorizations also required for the project.

PROJECT SITE

The property (tax parcels: 0615300006 and 0615300003) is the former location of the Chemours titanium dioxide production facility. It lies along the Delaware River between Fox Point State Park (FPSP), to the north, and industrial facilities to the south. The site operated as a titanium dioxide production facility through 2016. That facility was demolished before the sale of the property to the Diamond State Port Corporation in February of 2017. The proposed project is located adjacent to and north of the federal navigation channel, in the southern portion of Reach B of the Delaware River, at the intersection of the Cherry Island and Bellevue Ranges and is offshore of the applicant's property located Hay Road, in Edgemoor, Delaware.

PROJECT DESCRIPTION

The proposed project includes building a pile-supported wharf (approximately 2,600 feet in length), dredging the berth and access channel to a depth of 45 feet below mean low water, installing a bulkhead along 3,200 feet of shoreline and occupying approximately 5.5 acres of subaqueous lands. The applicant proposes to deepen portions of the Delaware River adjacent to the federal navigation channel to create a primary access channel that would serve the proposed berth construction at the site.

The majority of the dredged materials would be stored in existing USACE-owned confined disposal facilities with a portion retained on-site to be used as fill material. The use of shoaling fans, proposed in the original application materials, was removed from the scope of the proposed activities after consultation with the applicant.

REVIEW AUTHORITY

Authority for the Department's review of the matters contained herein is established in the following:

- The Subaqueous Lands Act (7 Del C., Chapter 72)
- The Regulations Governing the Use of Subaqueous Lands (7 DE Admin. Code 7504)
- Federal Consistency with Approved Coastal Management Programs (15 CFR Part 930)
- Delaware Coastal Management Program Federal Consistency Policies and Procedures (7 DE Admin. Code 2201)

The Department processed all DSPC permit applications necessary for this proposed project together to assure transparency, and to make sure the public was afforded the ability to provide meaningful comment on the complete project proposed for the Edgemoor property, as noted above. The portion of this project that fell under the permitting authority of the Department's Division of Waste and Hazardous Substances, Remediation Section (specifically, the implementation of corrective measures and post-closure care that would be authorized under a RCRA CAP Renewal), was approved with the execution of DNREC Secretary's Order No. 2021-

WH-0014, and the issuance by DNREC of a RCRA CAP Renewal Permit to the DSPC (Effective Date: April 29, 2021). Thus, this Technical Response Memorandum (TRM) concerns only the remaining permit applications of DSPC still pending with the Department's Division of Water, WSLS, and the federal consistency certification from the Division of Climate, Coastal and Energy, DCMP, and addresses comments and questions submitted to DNREC during the project's public comment period, from August 23, 2020, to December 1, 2020, with references to how the regulatory requirements were met, where appropriate.

PUBLIC PARTICIPATION

On August 23, 2020, DNREC issued a joint public notice of permit applications and federal consistency certification received from DSPC, and of a public hearing to be held by DNREC on September 29, 2020. The public comment period was originally scheduled to close on November 1, 2020, which represents a 71-day comment period. On October 30, 2020, at the request of members of the public, DNREC extended the public comment period to December 1, 2020, which represents a 101-day comment period.

During the public comment period DNREC received 196 comments, 3 of which were submitted live during the September 29, 2020, public hearing, the remainder were submitted in writing before or after the public hearing.

DNREC received both comments of support and opposition. Comments opposing the proposed structure stated the following topics of concern: homeland security, impacts of the proposed shoaling fans, community engagement and transparency, public health/environmental justice, violation of House Joint Resolution Ten (HJR-10), fishing/crabbing, natural resources, air quality, navigational concerns, and water quality. Comments in favor of the proposed structure noted the benefit to Delaware from building a port of call for larger container ships, job creation and economic development, and the cleanup and redevelopment of a currently inactive parcel.

TOPICS

1. Comment Subject: The proposed project represents a threat to Homeland Security

   As this topic is outside the purview of the Department, additional information was provided. The DSPC owns the Port of Wilmington, including the property known as the Edgemoor site where it seeks to permit and build a terminal container facility. The DSPC solicited bids for a public/private partnership to help improve, develop, finance, and operate the Port of Wilmington (including development of the Edgemoor site) via a long-term concession agreement. DSPC retained consultants and conducted a detailed review of the several bids received and selected GT. GT is a subsidiary of Gulftainer Company Ltd., headquartered in the United Arab Emirates, and is one of the largest global port operators in the world, including the Canaveral Cargo Terminal near the Cape Canaveral Spaceport in central Florida. As part

of this selection process, DSPC and its representative conducted a review of GT and its parent company, Gulftainer Company Ltd.

DSPC and its representatives visited several of the facilities operated by Gulftainer, including the Canaveral Cargo Terminal and Khorfakkan Container Terminal. Gulftainer also operates Sharjah Container Terminal and Sharjah Inland Container Terminal Depot. The Board of Directors of GT and DSPC approved the transaction.

Additionally, statutory provisions in 29 Del. C. §8784(1) required DSPC to obtain approval from the Delaware General Assembly. Multiple opportunities for public and stakeholder input were provided in advance of approval for this transaction. Before and after entering into the Concession Agreement, DSPC security was and continues to be handled jointly by the U.S. Coast Guard (USCG) and U.S. Customs and Border Protection, both of which are part of U.S. Department of Homeland Security. Similarly, Customs and Border Protection provided, and continues to provide, security with respect to imported cargo leaving the Port of Wilmington.

The USCG has jurisdiction and provides overall security for the Port of Wilmington. All employees working at the Port of Wilmington are required to secure Transportation Workers Identification Credentials, which includes an extensive background check. During the term of the Concession Agreement, DSPC maintains certain oversight and consent rights regarding the operation of the Port of Wilmington, including the safety and security at the Port. The Concession Agreement provides for implementation and operation of safety and security standards applicable to Port operations in accordance with applicable federal, state and local laws. DSPC retains oversight rights regarding the implementation and operation of such safety standards and retains the right to terminate the Concession Agreement for material failures by GT to comply with such standards.

GT has been operating the Port of Wilmington with its 350,000 plus twenty-foot equivalent units (TEUs) per year since 2018 without incident. Some public comments have raised security concerns to DNREC based on the fact GT is a subsidiary of a foreign-owned private company headquartered in the United Arab Emirates. This concern was addressed before the transaction was approved and was found to be unsubstantiated.

2. Comment Subject: The proposed shoaling fans pose a risk to aquatic life and water quality

   DSPC's original permit applications and consistency certification for the Port of Wilmington Expansion Project submitted to DNREC on March 16 and 18, 2020 included the installation and operation of SedCon Technologies, Inc. (SedCon) Turbo System anti-sedimentation devices (shoaling fans) to minimize the need for maintenance dredging.

   DNREC's Division of Fish and Wildlife (DFW) Fisheries Section reviewed the proposed project activities, including the use of shoaling fans. On December 14, 2020, DNREC DFW Fisheries Section provided comments on the project in relation to the proposed use of shoaling fans as an anti-sedimentation technique. The DFW Fisheries Section commented that the

installation and operation of the shoaling fans would increase fish mortality and degrade ecosystem function and aquatic habitat in the project area. Shoaling fans would have adverse impacts on fish directly through impingement and entrainment, and indirectly through increased sedimentation and potential resuspension of contaminants. Adult fishes impinged on the shoaling fans may also be killed. Fan intakes would entrain pelagic fish eggs and larvae. In addition to the entrainment and impingement impacts, spawning runs could be altered by the noise produced by the fan blades. These concerns were passed on to the applicant to be addressed.

In response to the concerns that shoaling fans may pose a risk to aquatic life and water quality, DSPC modified the scope of the project activities to remove the use of shoaling fans. On March 25, 2021, DSPC submitted a letter requesting that DNREC "suspend its consideration of the use of anti-sedimentation devices (shoaling fans)". On July 1, 2021, the consultant for the applicant, Duffield Associates, submitted a revision to the project plans, which reflect the removal of the shoaling fans from the project design. The removal of the shoaling fans from the application, coupled the with proposed compensatory mitigation package, including the habitat restoration/creation work at Fox Point State Park (FPSP) and the enhanced environmental DNA monitoring address the significant portions of concern the Department had regarding the potential impacts to aquatic resources in regard to Subaqueous Lands Regulation Sections 4.7.1.2, 4.7.1.3, 4.7.1.4, and 4.7.4 (7 DE Admin. Code 7504).

3. Comment Subject: The proposed dredging activities will impact water quality

Dredging activities have the potential to increase turbidity in the river around the cutterhead, causing sediment particles and associated contaminants to become suspended in the river water, and thus impact water quality. However, the impacts are expected to be limited in extent, and will be monitored during the entire course of dredging activities to ensure impacts do not extend beyond regulatory boundaries. Per an approved monitoring plan, turbidity/total suspended solids, among other physical parameters, will be measured regularly behind the cutterhead, and at background locations upstream and downstream of the dredging activities. Further, water quality samples and sediment samples will be collected regularly to evaluate water/sediment chemistry and to compare results to modeled predictions. Samples will be analyzed for pH, hardness, organic carbon content, inorganic compounds (metals), pesticides, polycyclic aromatic hydrocarbons (PAHs), dioxins and furans and PCBs.

While previous studies indicate that most (approximately 98%) of the dredged sediments will be captured and retained in Confined Disposal Facilities (CDFs), a small amount may be released back into the water through elutriate discharge. Per the approved monitoring plan, DSPC will be required to conduct monitoring of the CDF influent and effluent. During active dredging, dredge slurry (influent) will be sampled regularly and will be allowed to separate into water and sediment. Sediment and water samples will be analyzed for organic carbon content, inorganic compounds (metals), pesticides, PAHs, dioxins and furans and PCBs. Effluent water samples will be collected at the same frequency as influent samples and will be analyzed for the same chemical parameters. When influent and effluent data is combined with

measurements of flow rate, a mass balance calculation can be done to determine the overall retention of contaminants in the CDF.

If any data collected during the course of active dredging and active discharge from the CDF are outside of applicable Delaware River Basin Commission and DNREC water quality criteria, then corrective actions will be implemented to address non-compliant conditions. The proposed monitoring and responsive corrective actions address the significant portions of concern DNREC had regarding the potential impacts to water quality in regard to Subaqueous Lands Regulation Sections 4.7.1.1 (7 DE Admin. Code 7504).

4. Comment Subject: The activities associated with the proposed project will result in increased air emissions

   The DCMP coordinated with the Division of Air Quality (DAQ) for input on air quality concerns related to the proposed activities included in this project. DAQ supports efforts that preserve public health and safety and promote smart growth. Activities associated with the proposed project must comply with all Delaware Air Quality Regulations to not exceed air quality emission thresholds. To reduce emissions associated with the construction phase of the project, DAQ recommends that retrofitted on-road and non-road diesel engines be used. Existing Delaware Air Quality Regulations require the use of dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement, and use of unpaved roads and the use of covers on trucks that transport material to and from a site to prevent visible emissions (7 DE Admin. Code 1106). Additionally, Delaware Air Quality Regulations require a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the *de minimis* levels (7 DE Admin. Code 1135). Delaware Air Quality Regulations also restrict idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes (7 DE Admin. Code 1145). Compliance with the Air Quality Regulations and incorporation of the DAQ recommendations address the concern the Department had regarding the potential impacts to water quality in regard to Subaqueous Lands Regulation Sections 4.7.1.5 (7 DE Admin. Code 7504).

5. Comment Subject: The proposed project represents a threat to public health, especially in Environmental Justice communities

   DNREC has placed great importance on understanding and addressing Environmental Justice concerns raised by communities in the vicinity of the proposed project site. As such, special consideration was taken to incorporate mitigation requirements that would result in improvements to the local environment and increase recreational opportunities for the residents of neighboring communities.

   As required under the Delaware Regulations Governing Hazardous Waste, and the Resource Conservation and Recovery Act (RCRA), a site Risk Assessment (RA) was conducted which analyzed contaminant data from the upland (former DuPont/Chemours) property for potential

risk to human health and the environment using appropriate guidelines and parameters. The RA considered all routes of potential exposure and determined that no unacceptable risk was posed to human health or the environment from contaminants at the site as long as the impacted media remains buried in place (thereby removing the potential pathway of exposure). Based upon the RCRA Facility Investigation (RFI) in conjunction with the RA and in consideration of the site's future use, the presumptive site remedy of capping, construction management, groundwater monitoring and an environmental covenant, proposed in the Statement of Basis (SB) and enforced by the conditions of the RCRA permit, issued April 29, 2021, work together to assure ongoing protection of both human health and the environment.

DNREC is requiring that the applicant mitigate for potential negative impacts related to the proposed project, including the loss of 5.5 acres of subaqueous habitat. DSPC, as a condition of the Subaqueous Lands Permit and federal consistency certification concurrence, must complete a mitigation plan that includes habitat and recreational enhancements that will benefit the residents of communities adjacent to the proposed project site. Some of these enhancements will occur at FPSP.

FPSP, located on Lighthouse Road in Wilmington, Delaware, is in close proximity to the proposed project site. Communities located near the proposed project site have easy access to FPSP, therefore improvements to this park will also provide enhancements to the communities around the Edgemoor site. DSPC, as a condition of the Subaqueous Lands Permit and federal consistency certification concurrence, is providing habitat and recreational enhancements at FPSP. Habitat enhancements include the creation of approximately 1 acre of intertidal habitat in an area of the park currently occupied by the invasive species *Phragmites australis* (north end of the park). Non-native Phragmites can negatively affect the biodiversity and ecological functions of invaded habitats, impair the recreational use of wetlands and shorelines, decrease property values, and increase fire risk. The removal of this invasive species and creation of intertidal habitat will improve the ecological health of the area. Potential recreational enhancements include the creation of a trail and overlook at the location of the new wetland, clearing of the viewscape to the river along the existing trail, paving of the access road and trail head leading to the north end of the park, and restroom facility repair/improvements. Details of the enhancements are still being developed.

The presumptive remedy and enforcement of the RCRA requirements address the significant portions of concern the Department had regarding the potential impacts to water quality in regard to Subaqueous Lands Regulation Sections 4.7.1.6 (7 DE Admin. Code 7504). The proposed compensatory mitigation package, including the habitat restoration/creation work at FPSP and the enhanced environmental DNA monitoring are considered adequate mitigation pursuant to Subaqueous Lands Regulation Sections 4.7.1.4 and 4.7.4 (7 DE Admin. Code 7504).

6. Comment Subject: The regulatory process needs to be transparent, and members of the public need a voice in the process

DNREC published a joint public notice on August 23, 2020, to announce the receipt of permit applications and a federal consistency certification from the applicant, DSPC, and of a scheduled public hearing. DNREC held a public hearing on September 29, 2020, to provide members of the public with a description of the proposed project, an overview of the regulatory processes associated with reviewing the proposed project, and to allow for the public to submit live comments. In addition, the public comment period was originally scheduled to close on November 1, 2020, which represents a 71-day comment period. On October 30, 2020, at the request of members of the public, DNREC extended the public comment period to December 1, 2020, which represents a 101-day comment period. DNREC values transparency and public engagement, which is why documents were made available to the public for the duration of the 101-day comment period, and why the public was given an extended public comment period to submit questions and comments to DNREC.

The DCMP considers issues raised by network partners, stakeholders and members of the public during a project's public comment period and, where applicable, engages with the applicant to address concerns through project modification.

The statutory requirements for the WSLS that require public notice upon receipt of an application are intended to allow for the public comments and concerns, including those expressed during the public hearing, to be considered during the detailed technical review of the project.

7. Comment Subject: The proposed project is a violation of Delaware House Joint Resolution Ten (HJR-10)

   DNREC requires that solid waste handling and disposal be conducted in a manner and under conditions which will eliminate the dangerous and deleterious effects of improper solid waste handling and disposal upon the environment and upon human health, safety, and welfare (7 DE Admin. Code 1301 Section 1.0). Delaware House Joint Resolution 10 (HJR-10) directed the Department of Transportation (DelDOT) to work with the Delaware Solid Waste Authority (DSWA) to produce a report by September 30, 2020, that compared the financial and environmental impacts to Delaware of the current, uncoordinated trash collection system in New Castle County to the impacts of a coordinated system with 1 vendor collecting all of the trash and recycling in an entire neighborhood. The activities associated with the proposed Port of Wilmington Edgemoor expansion project are not in violation of HJR-10.

8. Comment Subject: The proposed project will create traffic flow and volume problems

   The lead state agency overseeing traffic flow and volume in the state is DelDOT. As such, DelDOT staff responded to the following specific comments and questions that pertain to this topic area:

   a. Will there be any traffic studies related to the project?

DelDOT recently received from its consultant, Century Engineering, a draft Traffic Operational Analysis (TOA). DelDOT anticipates making the final TOA public later this year.

b. Are there upgrades to I-95 Exit 9 planned in anticipation of increased traffic due to the proposed port?

No. The TOA did not examine intersections west of Governor Printz Boulevard. DelDOT predicts that 18% of the port staff and none of the truck traffic would use Edgemoor Road west of Governor Printz Boulevard.

c. Is there anything to keep truck traffic off residential roads such as Edgemoor and Marsh Roads?

Edgemoor Road and Marsh Road are part of the State maintenance system and are open to the traveling public, which includes trucks. However, DelDOT's understanding of the port's planned operations is that the drivers serving the port have no incentive to use those roads.

d. Where will trucks go when I-495 is closed or has traffic jams?

DelDOT anticipates that the drivers serving the port would adapt their schedules to account for partial closures and recurring congestion (peak hour traffic jams) and would stay on I-495. In the event of a longer-term closure, such as occurred when the Christina River Bridge failed in 2014, DelDOT would develop detour routes in response to the specific problem causing the closure.

e. What is anticipated increase in truck traffic on 202 and 141?

DelDOT does not expect truck traffic to increase on U.S. Route 202 or Delaware Route 141 as a result of the proposed port expansion.

9. Comment Subject: The proposed project will result in a loss of recreational fishing and crabbing.

The location of this project on the Delaware River is a known habitat of the Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*), two species that are listed as endangered under the Endangered Species Act (ESA). In order to minimize impacts to sturgeon and other commercially and recreationally valuable species during their spawning periods, DNREC requires that no in-water work occurs from March 15th through June 30th. This "time-of-year restriction" will be observed for all in-water work including, but not limited to, pile driving, construction, installation of temporary bulkhead wall and sheet pile walls, and

all dredging including maintenance dredging. In addition, DNREC requires a soft start on all pile driving activities.

Cherry Island Flats is an important fish habitat and one of the major striped bass spawning areas of the Delaware River. Due to the proximity of the project to Cherry Island flats, DNREC also requires in-situ turbidity monitoring of the flats be conducted during dredging activities associated with the construction of the port to ensure that the activity is not adversely impacting sensitive species.

If granting a permit will result in loss of a substantial resource to the public, DNREC has the authority to require a permittee to take measures which will offset or mitigate the loss (7 Del.C. §7205, 7 DE Admin. Code 7504 subsection 3.4). As such, DNREC has required the applicant to mitigate for the loss of 5.5 acres of subaqueous lands. The applicant submitted a state mitigation plan which includes the creation of approximately 1 acre of intertidal wetland at the north end of FPSP, an expanded environmental DNA (eDNA) monitoring program in the Delaware River and other strategic locations within the basin before, during and after dredging/construction activities, and a FPSP enhancement plan involving landscaping and other upland improvements. The eDNA program will enable monitoring for the presence of endangered species, as well as other species of concern, without the need for actual collection of specimens.

In addition to the State-required compensatory mitigation that includes the habitat and recreational enhancements at FPSP, DSPC is also proposing a habitat improvement project at Brandywine Creek State Park on Adams Dam Road in Wilmington, Delaware as part of their federal compensatory mitigation requirements. As currently proposed, this habitat improvement project consists of the construction of a rock-ramp fish passage structure at Dam #2 on Brandywine Creek, which has the intended purpose of allowing American shad, hickory shad, and other anadromous fish species to migrate further upstream to spawn. This will result in increased opportunities for recreational angling along the banks of the Brandywine between Dam #2 and Dam #4. The proposed federal mitigation at Brandywine Dam #2 is in addition to the mitigation DNREC requires to meet the state's permitting criteria.

The proposed compensatory mitigation package, including the habitat restoration/creation work at FPSP and the enhanced eDNA monitoring are considered adequate mitigation pursuant to Subaqueous Lands Regulation Sections 4.7.1.4 and 4.7.4 (7 DE Admin. Code 7504).

10. Comment Subject: There are concerns regarding sediment and contaminants such as PCBs

DWHS Corrective Action Section (CAS) has been managing/overseeing the environmental cleanup of the upland portion of the former DuPont/Chemours Edgemoor site, where the new port will be constructed, in accordance with the federal RCRA program. CAS indicates that PCBs were a byproduct of facility production, and as a result were detected at several soil sample locations during site assessment activities related to decommissioning of the former DuPont/Chemours Edgemoor plant. However, the concentrations of PCBs present in site soils

were determined to pose no unacceptable risk to human or ecological receptors in the Risk Assessment. From an engineering control and best management practice (BMP) standpoint, surface runoff from the site was sufficiently managed. In addition, a wastewater treatment plant controlled the quality of operational wastewater that was discharged to the river under a NPDES permit. Therefore, it is unlikely that substantial PCBs have been transported to the Delaware River from the plant property in the recent past.

From a proposed future land use perspective, the preliminary construction plans, the proposed remedy in the Statement of Basis, and a proposed Corrective Measures Implementation permit all provide for the minimization of future impacts to river sediments resulting from port construction or subsequent operation.

The majority of the PCBs that were inadvertently produced at the site were concentrated in process sludges that were dried and landfilled at a downriver location. It was shown through multiple environmental studies that contaminants, including PCBs, had been released to the Delaware Estuary and the Shellpot Creek from the former sludge landfill through air transport and storm water runoff.

In February 2009, a Final Plan of Remedial Action was issued by DNREC's [then] Site Investigation and Restoration Branch for the 22-acre landfill site that required the construction of an engineered capping system and vegetative cover to control runoff, placement of a deed restriction to limit site use, and an operation and maintenance plan to ensure the long-term integrity of the remedy. Construction of the cap eliminated further transport of the material to the estuary.

Sampling of sediment from the Delaware River adjacent to the former DuPont Edgemoor facility during previous environmental investigations, and more recently within the proposed area of dredging associated with port expansion, has confirmed the presence of contaminants, including PCBs in the upper layers of sediment. Removal of the mass of contaminated sediment through dredging represents a net benefit to the aquatic ecosystem, including to endangered sturgeon that use this part of the river for spawning, as well as to other species that have been impacted by PCBs.

Critical to long term protection and improvement of human and ecological health from contaminants in the sediment will be proper management of the dredged material and associated CDF elutriate generated during dredging for port construction. A Monitoring Plan for Construction Dredging and Dredged Slurry has been developed by DSPC and approved by DNREC and USACE.

The RCRA remedial actions, detailed sediment characterization, removal of the contaminated sediments during the dredging, associated risk assessment, and proposed monitoring and responsive corrective actions address the significant portions of concern DNREC had regarding the potential contaminated sediment transport in regard to Subaqueous Lands Regulation Sections 4.7.1.1, 4.7.1.6 and 4.7.2 (7 DE Admin. Code 7504).

11. Comment Subject: A hydrogeologic site investigation is needed

    A comprehensive hydrogeologic site investigation was performed as part of the RCRA Facility Investigation (RFI). The RFI identified 29 solid waste management units (SWMUs) across the site. These were areas where environmental impacts from facility operations were known to have or potentially could have occurred.

    A thorough environmental investigation was conducted at the site, which involved: the installation of numerous soil borings to characterize subsurface soil impacts, installation of three lines of monitoring wells to characterize site groundwater, completion of pump tests to determine hydraulic conductivity and connectivity across the site, and collection of numerous media samples (soil, sediment, groundwater, surface water, sludge, etc.) for laboratory analysis for contaminants of concern (COCs).

    In general, the results of the RFI indicated low levels of COCs in shallow subsurface soils and perched groundwater that were consistent with the industrial activities at the site.

    The hydrogeologic site investigation and associated risk assessments indicated that the levels of contaminants posed little threat to site groundwater as both a dissolved-phase source and ongoing adsorbed phase source of contamination. The site is underlain by a thick section of Potomac Formation clay which acts as a local aquitard (impediment to vertical movement of groundwater). Additionally, shallow groundwater underlying the site is primarily perched atop this clay and confined to intermittent sandy zones which are "lenticular and hydraulically disconnected from each other and the Delaware River."

    The RFI report and other supporting documents can be found here: https://dnrec.alpha.delaware.gov/events/joint-public-hearing-diamond-state-port-corporation/

    The RCRA remedial actions, the detailed site characterization, sediment characterization, removal of the contaminated sediments during the dredging, associated risk assessment, and proposed monitoring and responsive corrective actions address the significant portions of concern DNREC had regarding the cumulative and secondary effects on the aquatic ecosystem, natural surface and groundwater hydrology in regard to Subaqueous Lands Regulation Sections 4.7.3 (7 DE Admin. Code 7504).

12. Comment Subject: Incomplete/Insufficient navigational studies, particularly for emergency scenarios

    The application includes a report by the Maritime Institute of Technology and Graduate Studies (MITAGS) that assesses typical expected navigational scenarios and, appears to reasonably, conclude that "*The simulation results indicated the proposed Edgemoor Terminal would have minimal impact on ships as they transit the existing navigation channel.*"

    DNREC received public comments that alleged that the proposed turning basin would negatively impact navigation of vessels on the main channel and that there would be impacts to shipping that may occur in non-typical emergency scenarios (i.e., ships losing power while turning). These concerns were passed on to the applicant to be addressed.

In response, the consultant for the applicant, Duffield Associates, provided additional information to DNREC on March 4, 2021. This additional information included a letter from David K. Cuff, President of The Pilots' Association for the Bay & River Delaware (Pilots' Association) to Mr. Eugene Bailey, Executive Director of the Diamond State Port Corporation. The Pilots' Association reviewed the Navigation Feasibility Study for the Port of Wilmington Edgemoor Expansion project produced by the MITAGS. The Pilots' Association's letter concurred with the above-cited statement in the MITAGS report that the proposed Edgemoor Terminal would have minimal impacts on ships traveling on the existing navigation channel.

DNREC sought input from the USCG on this concern. DNREC coordinated with Lieutenant Commander Andrew Cooke, USCG Sector Delaware Bay, to receive input from USCG on the navigational components of this proposed project. On September 17, 2021, USCG Sector Delaware Bay stated that it does not see this project posing a risk to safe navigation.

The proposed plans meet all appropriate setback and siting criteria pursuant to Subaqueous Lands Regulation Sections 4.9 (7 DE Admin. Code 7504). Additionally, the input that was received from the Pilots' Association for the Bay & River Delaware and the USCG have also adequately addressed the expressed navigational concerns pursuant to Subaqueous Lands Regulation Sections 4.8.4 (7 DE Admin. Code 7504).

13. Comments in Support of Proposed Project

DNREC received numerous comments in support of the proposed project from a variety of individuals and groups including but not limited to: the Delaware Building and Construction Trades Council; the International Longshoremen's Association; Labor, Economics, Education, EmPowerment (LEEP); Wilmington City Council President Hanifa Shabazz; Wilmington Mayor Michael Purzycki; State Senators John J. Walsh III, Nicole Poore and Colin Bonini; and State Representatives Kimberly Williams, Lyndon Yearick, Michael Smith, Edward Osienski and Sean Matthews.

Benefits of the proposed project include the creation of an employment hub that will provide approximately 1,000 new jobs for area residents. The project will help fill the void created by the jobs lost with the closure of area manufacturing plants. These new job opportunities will offset unemployment in Wilmington and Northern New Castle County. Many of these jobs will provide work for local, highly skilled tradesmen and craftsmen. The project will save current jobs for skilled tradesmen and craftsmen and create new jobs for this same category of skilled workers. The proposed project will also provide jobs for blue-collar laborers. In addition to the jobs created directly for dock work, jobs will also be created for the building trades, trucking industry and other support industries throughout the community. These jobs, and the community revitalization they will support, can help address local issues of unemployment and poverty.

The proposed project will also address legacy environmental issues related to the site's previous industrial uses. Construction of the new port would result in a clean, environmentally friendly business on a currently inactive parcel of land previously used for heavy industry.

This project would help revitalize the shipping industry in Delaware. Delaware would be able to accept the larger vessels coming to the east coast as a result of the expansion of the Panama Canal and the Suez Canal. The new port would allow Delaware to accept the larger container ships that are being more widely used to transport cargo. This will allow Delaware to compete regionally and nationally, and to keep up with the evolving needs of the shipping industry.

CONCLUSION

Our review of the information provided by the applicant in both the original application and subsequent submittals in response to the public comments received and DNREC's inquiries, provides adequate justification and detail to support the project. Additionally, DNREC obtained independent confirmation from external agencies (e.g., DelDOT, USCG) where needed to evaluate the concerns expressed beyond our typical regulatory purview. This comprehensive review has provided sufficient detail and assurances to support the issuance of appropriately conditioned RCRA Permit modifications, Subaqueous Lands Permit, and federal consistency certification, as attached.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF WATER
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WETLANDS & SUBAQUEOUS LANDS

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Diamond State Port Corporation
Port of Wilmington
C/o: Eugene R. Bailey, Executive Director
820 N. French Street, 4th Floor
Wilmington, DE 19801
Tax Parcel: 0615300006

Subaqueous Lands Permit: SP-101/20
Date of Issuance: 9/29/2021
Construction Expiration Date: 9/29/2026
Amended Date: N/A

SUBAQUEOUS LANDS PERMIT

GRANTED TO:

Diamond Sate Port Corporation

FOR THE FOLLOWING ACTIVITIES:

To construct a new shipping container port facility on the Delaware River. Initial construction activities include:

- **To remove all existing in-water structures, consisting of three (3) piers, pilings, water intake structure and portions of seawall**
- **To install 3,200 linear feet of new bulkhead, and to place approximately 20,107 cubic yards of backfill material**
- **To construct a 112-foot wide by 2,600-foot-long concrete wharf structure along the new bulkhead, resulting in the loss of approximately 5.5 acres of subaqueous lands**
- **To conduct new hydraulic dredging in an area approximately 4,000 feet in length, extending to the boundary of the federal navigation channel, removing approximately 3.3 million cubic yards of material, to a depth of -45 feet below mean low water to create a shipping access channel and berthing area**
- **To place up to 500,000 cubic yards of dredged material in an upland, onsite beneficial reuse area, and to dispose of the remaining dredged material at the Wilmington Harbor North and/or Wilmington Harbor South confined disposal facilities located in Edgemoor, New Castle County, Delaware**

LOCATED:

In the Delaware River,
At the new Edgemoor Container Port,
4600 Hay Road,
Edgemoor, New Castle County, Delaware

Pursuant to the provisions of 7 Del. C., §7205, and the Department's Regulations Governing the Use of Subaqueous Lands, permission is hereby granted on this 29th day of September, 2021, to conduct the above-referenced activities in accordance with the approved plans (18 sheets), as approved on September 29, 2021; and the application dated March 10, 2020, and received by this Division on March 13, 2020, and with subsequent information received on March 16, 2020, June 11, 2020, June 19, 2020, March 4, 2021, July 1, 2021, and September 24, 2021.

WHEREAS, Diamond State Port Corporation, has applied for permission to conduct the above-referenced activities to construct a new shipping container port facility; and

WHEREAS, pursuant to the provisions of 7 Del. C., §7203, the Secretary of the Department of Natural Resources and Environmental Control through his duly authorized representative finds that it is not contrary to the public interest if this project is approved subject to the terms and conditions herein set forth.

NOW THEREFORE, this Permit is issued subject to the attached Subaqueous Lands Permit General Conditions and the following Special Conditions:

SPECIAL CONDITIONS:

1. This approval is in accordance with the plans and application submitted to the Department of Natural Resources and Environmental Control, a copy of which is attached hereto and made a part hereof.
2. This Permit is granted for the purpose of constructing a new shipping container port facility on the Delaware River. Any other use without prior approval shall constitute reason for this Permit being revoked.
3. In order to protect Atlantic Sturgeon (*Acipenser oxyrinchus*) and Shortnose Sturgeon (*Acipenser brevirostrum*), no in-water work shall occur from March 15th through June 30th of any year.
4. This Permit authorizes the depths below mean low water as specified on page 1, with an allowable, maximum 3-foot over-dredge.
5. Disposal areas shall be inspected prior to dredging and effectively maintained in a manner that prevents the entrance of the dredged material into any surface water or wetland.
6. All dredging activities, including the disposal of materials into any and/or all of the three disposal facilities as well as Cherry Island Flats shall be monitored in accordance with the attached DNREC-approved *Monitoring Plan for Construction Dredging and Dredged Slurry – Port of Wilmington Edgemoor Expansion* dated August 2021. Any observed activities or measured water quality parameters that are likely to result in or do result in exceedances of applicable Surface Water Quality Standards, shall be addressed in accordance with section *6.2 Corrective Action* in the above-referenced plan.
7. Total suspended solids (TSS) in surface water shall be maintained at a maximum of 250 mg/l at a distance 200 feet down current from the cutterhead during active dredging activities. As a means of real-time monitoring, turbidity readings in nephelometric turbidity units (NTU) shall be collected on a continuous basis during active dredging activities. A turbidity reading of 170 NTU or less is expected to meet the 250 mg/L TSS water quality performance standard. Exceedances

of this permit condition shall be addressed in accordance with section 6.2 *Corrective Action* in the DNREC approved monitoring plan.

8. Total suspended solids (TSS) in surface water shall be maintained at an average concentration less than 3,000 mg/L (with and instantaneous maximum concentration of 4,000 mg/l) at any and/or all three CDF effluent discharge points. As a means of real-time monitoring, turbidity readings in NTU shall be collected on a continuous basis during active effluent discharge periods. A turbidity reading less than 1,700 NTU (with an instantaneous maximum reading of 2,200 NTU) is expected to meet the TSS water quality performance standard. Exceedances of this permit condition shall be addressed in accordance with section 6.2 *Corrective Action* in the DNREC approved monitoring plan.
9. The Wetlands and Subaqueous Lands Section (WSLS) shall be notified within 24 hours of any monitoring events where the turbidity levels exceeded the NTU limits specified in Conditions 7 and 8 above.
10. All dredging and disposal shall be conducted in a manner consistent with sound conservation and water pollution control practices.
11. All dredging and construction activities shall be performed in a manner that minimizes impacts to navigation.
12. A post-dredging bathymetric survey of the dredged area, showing depths relative to mean low water, shall be submitted to DNREC WSLS in both digital and plan form within 60 days of the completion of the dredging.
13. There shall be no movement of equipment within subaqueous lands not specifically authorized by this Permit. Any such areas disturbed shall be returned to preconstruction conditions/elevations and appropriately stabilized.
14. Compensatory mitigation for the loss of 5.5. acres of public subaqueous lands shall be provided in accordance with the attached DNREC-approved *Port of Wilmington – Edgemoor Expansion State of Delaware Compensatory Mitigation Plan* dated September 24, 2021. Final construction plans for both the State-required mitigation and the Federally-required mitigation shall be submitted to DNREC WSLS for review and approval prior to construction.
15. DNREC WSLS shall be provided with a copy of all status and/or monitoring reports generated and submitted to the US Army Corps of Engineers (USACE) and/or other federal agencies associated with any approved Federal Compensatory Mitigation Plan for this project.
16. Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook, and any New Castle County-required erosion and sediment control practices to minimize entry and dispersal of sediment and other contaminants in surface waters.
17. The work authorized by this Permit is subject to the terms and conditions of all appropriate USACE authorization.

IN WITNESS WHEREOF, I, Steven M. Smailer, the duly authorized representative of Shawn M. Garvin, Secretary, Department of Natural Resources and Environmental Control, have hereunto set my hand this 29th day of September 2021.

_____

By Steven M. Smailer, Environmental Program Administrator
Division of Water

_____

Katie Esposito, Environmental Scientist
Wetlands and Subaqueous Lands Section

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF WATER
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS LANDS

PHONE
(302) 739-9943

SUBAQUEOUS LANDS PERMIT
CONTRACTOR'S COMPLETION REPORT
POST-CONSTRUCTION

Subaqueous Lands Permit Number: SP-101/20

Name: Diamond State Port Corporation

Project Address: 4600 Hay Road, Edgemoor, New Castle County, DE
Tax Parcel: 0615300006

I hereby certify that I have constructed the project authorized by the above-referenced Subaqueous Lands Permit in accordance with the approved plans for the project.

_____ _____
Printed Name of Contractor **Name of Company**

_____ _____
Contractor's Signature **Date**

_____
Telephone Number

Upon completion of construction, this form shall be completed, signed by the contractor, and mailed to the Wetlands and Subaqueous Lands Section at:

DNREC
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901

Or faxed to the Wetlands and Subaqueous Lands Section at: **302-739-6304**

This form must be received by the Department within ten days of the date that construction is completed.

For official use only

*Compliance inspection date*_____ *Built in accordance with plans* □ *Yes* □ *No*

Scientist: Katie Esposito

_____

_____

_____

Affix
Proper
Postage
Here

Mail to:

DNREC – Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, DE 19901

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WETLANDS AND SUBAQUEOUS LANDS SECTION

PERMIT NO.: SP-101/20 **CONSTRUCTION EXPIRATION DATE: 9/29/2026**

TO CONDUCT THE FOLLOWING ACTIVITIES:

To construct a new shipping container port facility on the Delaware River. Initial construction activities include:

- **To remove all existing in-water structures, consisting of two (2) piers and pilings**
- **To install 3,200 linear feet of new bulkhead, and to place approximately 20,107 cubic yards of backfill material**
- **To construct a 112 foot wide by 2,600 foot long concrete wharf structure along the new bulkhead**
- **To conduct new hydraulic dredging in an area approximately 4,000 feet in length, extending to the to the boundary of the federal navigation channel (87 acres), removing approximately 3.3 million cubic yards of material, to a depth of 45 feet below mean low water to create a shipping access channel and berthing area**
- **To place up to 500,000 cubic yards of dredged material in an upland, onsite beneficial reuse area, and to dispose of the remaining dredged material at the Wilmington Harbor North and/or Wilmington Harbor South confined disposal facilities located in Wilmington, New Castle County, Delaware**

LOCATED:

In the Delaware River,
At the Edgemoor Container Port,
4600 Hay Road,
Edgemoor, New Castle County, Delaware

ISSUED TO: Diamond State Port Corporation

LOCATION OF WORK: Same as above

DISPLAY THIS CERTIFICATE IN A HIGHLY VISIBLE LOCATION ON THE JOB SITE.

Authorized by: _____

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

OFFICE OF THE SECRETARY

PHONE
(302) 739-9000

September 29, 2021

Mr. Eugene R. Bailey
Executive Director
Diamond State Port Corporation
820 N. French Street, 4th Floor
Wilmington, DE 19801

RE: Delaware Coastal Management Program — Federal Consistency Certification for Port of Wilmington Edgemoor (FC 2020.0043)

Dear Mr. Bailey:

The Delaware Department of Natural Resources and Environmental Control (DNREC), through the Delaware Coastal Management Program (DCMP), has completed its review of the above referenced project. This letter is in response to the federal consistency certification dated and received on March 18, 2020, submitted by you on behalf of Diamond State Port Corporation (DSPC). The review period was extended to six months on June 10, 2020. Additionally, the DCMP and DSPC entered a stay agreement for a period of 6 months, from August 3, 2020 to February 3, 2021, bringing the end of the review period to March 18, 2021. The DCMP and DSPC entered a second stay agreement for a period of one year, from February 26, 2021 to February 26, 2022, bringing the end of the review period to March 18, 2022.

PROPOSED ACTION

DSPC proposes to construct a new shipping container port facility on the Delaware River at DSPC's Edgemoor property, 4600 Hay Road, Edgemoor, New Castle County, DE 19809, Tax Parcel ID 0615300006 and 0615300003. This project would include the removal of existing in-water structures; the construction of an approximately 2,600-foot-long, pile-supported concrete wharf structure; new hydraulic dredging to remove approximately 3.3 million cubic yards of river sediments and underlying soil; excavating the berth and access channel to a depth of -45feet mean low water; and bulkheading 3,200 linear feet of shoreline. Dredged materials would be stored at the Wilmington Harbor North and/or Wilmington Harbor South confined disposal facilities (CDFs) and a portion of the dredged materials would be used as fill. The use of shoaling fans, proposed in the original application materials, was removed from the scope of the proposed activities after consultation with the applicant.

FEDERAL CONSISTENCY WITH STATE COASTAL MANAGEMENT PROGRAMS

Pursuant to the Coastal Zone Management Act (CZMA) of 1972, as amended, any applicant for a required federal license or permit to conduct an activity, in or outside of the coastal zone, that can have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone of that state, shall provide a certification that the proposed activity complies with the enforceable policies of the state's approved program and that such activity will be conducted in a manner consistent with the program. The National Oceanic and Atmospheric Administration (NOAA) is required to review and approve a proposed state management program for it to become effective. Under the CZMA implementing regulations, Federal Consistency with Approved Coastal Management Programs (15 CFR 930), subpart D, state agencies are directed todevelop a list of federal license or permit activities to be included as part of the management program, with the federal license or permit activities described in terms of the specific licenses or permits involved. Any applicant for a federal license or permit selected for review by a state agency should obtain the views and assistance of the state agency regarding the means for ensuringthat the proposed activity will be conducted in a manner consistent with the management program.

During the period when the state agency is reviewing the consistency certification, the applicant and the state agency should attempt, if necessary, to agree upon conditions, which, if met by the applicant, would permit state agency concurrence.

PUBLIC PARTICIPATION

In accordance with 15 CFR §930.61, the public was invited to participate in the review of the Port of Wilmington Edgemoor expansion project. On August 23, 2020, DNREC published a joint public notice in the Delaware State News, The Wilmington News Journal, and the DNREC public notices list service that included the federal consistency certification received from DSPC and notice of a joint public hearing to be held by DNREC on September 29, 2020. The public comment period was originally scheduled to close on November 1, 2020, which represents a 71-day comment period. On October 30, 2020, at the request of members of the public, DNREC extended the public comment period to December 1, 2020, which represents a 101-day comment period.

During the public comment period DNREC received 196 comments, 3 of which were submitted live during the September 29, 2020 public hearing, 193 of which were submitted in writing before or after the public hearing.

DNREC received comments of opposition and support. Comments opposing the proposed structure included the following topics of concern: homeland security, impacts of the proposed shoaling fans, community engagement and transparency, public health/environmental justice, violation of House Joint Resolution Ten (HJR-10), fishing/crabbing, natural resources, air quality, navigational concerns, and water quality. Comments in favor of the proposed project noted the benefit to Delaware from building a port of call for larger container ships, job creation and economic development, and the cleanup and redevelopment of a currently inactive parcel.

At the request of the Hearing Officer, DNREC generated a Technical Response Memorandum (TRM) to address comments and questions submitted to DNREC during the project's public comment period, from August 23, 2020 to December 1, 2020 (see DNREC Public Hearing Docket #2020-P-Multi-0024).

FEDERAL CONSISTENCY ANALYSIS

The DCMP coordinates the review of consistency certifications with agencies administering the enforceable and advisory policies of the program. The following agencies participated in this review:

DNREC, Division of Air Quality (DAQ)
DNREC, Division of Fish and Wildlife (DFW)
DNREC, Division of Waste and Hazardous Substances (DWHS)
DNREC, Division of Water (DW)
DNREC, Division of Watershed Stewardship (DWS)
Department of Transportation (DelDOT)
Department of State, State Historic Preservation Office (SHPO)

The location of this project on the Delaware River is known habitat of the Atlantic sturgeon (*Acipenser oxyrinchus*) and shortnose sturgeon (*Acipenser brevirostrum*), two species that are listed as endangered under the Endangered Species Act (ESA). In order to minimize impacts to sturgeon and other commercially and recreationally valuable species during their spawning periods, DNREC requires that no in-water work occurs from March 15th through June 30th. This time-of-year restriction will be observed for all in-water work including, but not limited to, pile driving, construction, installation of temporary bulkhead wall and sheet pile walls, and all dredging including maintenance dredging. In addition, DNREC requires a soft start on all pile driving activities. (7 DE Admin. Code 2201, subsections 5.11.2.1, 5.11.3.2)

Cherry Island Flats is an important fish habitat and one of the major striped bass spawning areas of the Delaware River. Due to the proximity of the project to Cherry Island flats, DNREC also requires in-situ turbidity monitoring of the flats during dredging activities associated with the construction of the port to ensure that the activity is not adversely impacting sensitive species. (7 DE Admin. Code 2201, subsections 5.11.2.1, 5.11.3.2)

To ensure long term protection of human and ecological health from contaminants in the sediment, DSPC is required to properly manage the dredged material and associated CDF elutriate generated during dredging for port construction. As such, DNREC required that DSPC generate a monitoring plan for construction dredging and dredged slurry. On August 18, 2021, DNREC received a final monitoring plan from DSPC; this plan was reviewed and approved by both DNREC and the U.S. Army Corps of Engineers (USACE). (7 DE Admin. Code 2201, subsections 5.3.1.4, 5.3.1.17)

Mitigation is required by the State of Delaware for the loss of 5.5 acres of subaqueous lands. DNREC requires that the applicant implement the DNREC-approved mitigation plan which includes the creation of approximately one acre of intertidal wetland at the north end of Fox Point State Park (FPSP), an expanded environmental DNA (eDNA) monitoring program in the Delaware River and other strategic locations within the basin before, during and after dredging/construction activities, and a FPSP enhancement plan involving landscaping and other upland improvements. (7 DE Admin. Code 2201, subsection 5.4.18)

In addition to the state-required compensatory mitigation, DSPC is also proposing additional mitigation measures as part of their federal compensatory mitigation requirements. These additional mitigation measures will include habitat improvement that will benefit American shad, hickory shad, and other anadromous fish species. The proposed federal mitigation is in addition to the mitigation DNREC requires to meet the state's permitting criteria. (7 DE Admin. Code 2201, subsection 5.4.18)

Please be advised that coordination with the NOAA National Marine Fisheries Service (NMFS) should be considered for protection of endangered species. (7 DE Admin. Code 2201, subsection 5.11.3.2)

Additionally, the DCMP received input from United States Coast Guard (USCG) on the navigational components of this proposed project. On September 17, 2021, USCG Sector Delaware Bay stated that it does not see this project posing a risk to safe navigation. (7 DE Admin. Code 2201, subsection 5.4.22.3)

The proposed activity is to be implemented in a manner consistent with the enforceable policies of the DCMP under 7 DE Admin. Code 2201, Section 5.0 including but not limited to: Coastal Waters Management, Subaqueous Lands and Coastal Strip management, Port of Wilmington, Historic and Cultural Areas, Living Resources, Transportation Facilities, Air Quality Management, and Pollution Prevention (7 DE Admin. Code 2201, subsections 5.3.1.4, 5.3.1.17, 5.4.18, 5.4.22.3, 5.8.1.1, 5.8.1.3, 5.8.1.4, 5.10.1.4, 5.11.2.1, 5.11.3.2, 5.19.1.1, 5.19.2.6, 5.20.2, 5.20.2.2, 5.20.2.6, 5.20.2.8, 5.20.2.9, 5.20.2.12, 5.24.1.1).

CONDITIONAL CONCURRENCE

Based on its review, the DCMP conditionally concurs that the Port of Wilmington Edgemoor as proposed above is consistent with Delaware's enforceable policies.

To protect living resources of the state, DFW recommended a specific time of year restriction for all in-water work including, but not limited to, pile driving, construction, installation of temporary bulkhead wall and sheet pile walls, and all dredging, including maintenance dredging, as well as requiring a soft start on all pile driving activities. DFW also requires in-situ turbidity monitoring of Cherry Island Flats during dredging activities associated with the construction of the port to ensure that the activity is not adversely impacting sensitive species. DW Wetlands and Subaqueous Lands Section (WSLS) requires mitigation for the loss of subaqueous lands. Additionally, the DWS Watershed Assessment & Management Section and the DWHS Remediation Section conducted a review of the sediment analysis. On August 18, 2021, the applicant submitted a final monitoring plan for construction, dredging and dredged slurry as a condition of this concurrence.

As such, to be consistent with the DCMP's enforceable policies, the following conditions must be satisfied as they relate to the Coastal Waters Management, Subaqueous Lands and Coastal Strip Management, and Living Resources policies (7 DE Admin. Code 2201, subsections 5.3.1.17, 5.4.18, 5.11.2.1, and 5.11.3.2):

1. A time-of-year restriction from March 15th to June 30th for all in-water work including, but not limited to, pile driving, construction, installation of temporary bulkhead wall and sheet pile walls, and all dredging including maintenance dredging;
2. A soft start on all pile driving activities;
3. The initiation and implementation of the DNREC-approved monitoring plan for construction, dredging and dredged slurry, and in-situ turbidity monitoring of Cherry Island Flats, as described above;
4. The initiation and implementation of the DNREC-approved mitigation package to mitigate the loss of 5.5 acres of subaqueous lands, as described above; and
5. Submittal of the construction plans for the federally-required mitigation for review and approval prior to construction.

Failure to comply with 15 CFR §930.4 as it relates to the conditions above will result in this conditional concurrence being deemed an objection. Under this scenario, the applicant is advised that pursuant to 15 CFR part 930, subpart H, and within 30 days from receipt of this letter, a request may be submitted to the Secretary of Commerce to override this objection. In order to grant an override request, the Secretary of Commerce must find that the activity is consistent with the objectives or purposes of the CZMA or is necessary in the interest of national security. A copy of the request and supporting information must be sent to the DCMP and the federal permitting or licensing agency. The Secretary of Commerce may collect fees for administering and processing your request.

Pursuant to 15 CFR 930.66, DSPC shall notify the DCMP of any proposed modifications to activities after receiving a decision from the DCMP. Modifications will be subject to supplemental federal consistency review if effects to any coastal use or resource will be substantially different than originally described.

Please be advised that this federal consistency review does not negate the need for any other authorizations that may be required.

Thank you for the opportunity to review and respond to the Port of Wilmington Edgemoor federal consistency certification. If you have any questions, please contact me or Laura Mensch of my staff at (302) 739-9283.

Sincerely,

Shawn M. Garvin
Secretary

cc: Todd Schaible, USACE

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF WATERSHED STEWARDSHIP
ENTERPRISE BUSINESS PARK
285 BEISER BOULEVARD, SUITE 102
DOVER, DELAWARE 19904

WATERSHED ASSESSMENT AND MANAGEMENT SECTION

PHONE: (302) 739-9939
FAX: (302) 739-6140

Memorandum

To: Lisa Vest, Hearing Officer

Through: Steven Smailer, DW Program Administrator

From: John Cargill, DWS Hydrologist

Date: September 26, 2021

Subject: Components of State Compensatory Mitigation Plan for the Diamond State Port Corporation Expansion Project

---

Components/phases of the State of Delaware Compensatory Mitigation Plan, submitted by the Diamond State Port Corporation (DSPC) on September 24, 2021, are summarized below. Compensatory mitigation is required for the filling of 5.5 acres of subaqueous lands of the State of Delaware related to the proposed construction of a new container port at Edgemoor, Delaware.

Phase one - Intertidal Wetland Mitigation Project at Fox Point State Park. DSPC will construct approximately 1 acre of intertidal wetland located along the Delaware River at the north end of Fox Point State Park as an "in-kind" component of habitat replacement to partially compensate for what is being lost through the construction of the port. DSPC shall be responsible for all aspects of the project. This will include obtaining any necessary authorizations, construction of the wetland, and three (3) years of monitoring, maintenance and reporting to ensure that the wetland habitat creation is a success.

Phase two – Environmental DNA (eDNA) Monitoring and Research Program. To provide additional compensatory mitigation, the DSPC will provide funding to establish an Environmental DNA (eDNA) Fisheries Monitoring Program under the operation and

management of the Delaware Department of Natural Resources and Environmental Control (DNREC). The first project administered through the program will focus on monitoring around the Edgemoor expansion project area and the surrounding Christina River watershed before, during and after dredging. Fish species of interest include Atlantic Sturgeon, Shortnose Sturgeon, Striped Bass, American Shad, Blueback Herring and Alewife (collectively, river herring), Hickory Shad and American Eel. In addition, DNREC will expand their eDNA monitoring to other rivers, creeks, and ponds in the State to monitor endangered species, invasive species, and other species of interest. DSPC will fund up to $750,000 for establishment of the DNREC eDNA Program, and for sampling/analysis associated with the projects described above for a three (3) year monitoring period. The data will help DNREC to evaluate and understand potential impacts of the proposed port expansion project on resident and transient fish species that utilize the Delaware River and will help to supplement traditional data collection methods used by DNREC fisheries managers in other water bodies throughout the state.

Phase three – Increased Public Access at Fox Point State Park to Natural Resources of the Delaware River. The DSPC will consult with DNREC to produce landscape designs for an improved walking trail around the newly created intertidal wetland, a viewing/observation platform that will facilitate associated education opportunities, and substantial vegetation removal to restore the view of the river along the length of the park. Additional enhancements under consideration include roadway and lighting improvements, restroom repairs, and other amenities aimed at increasing public access to the natural resources of the park and the Delaware River.

EXHIBIT C

MANKO | GOLD | KATCHER | FOX LLP

AN ENVIRONMENTAL AND ENERGY LAW PRACTICE

Jill Hyman Kaplan
484-430-2315
jkaplan@mankogold.com

Admitted in PA

401 CITY AVENUE, SUITE 901
BALA CYNWYD, PA 19004
TEL: 484-430-5700
FAX: 484-430-5711
WWW.MANKOGOLD.COM

A LIMITED LIABILITY PARTNERSHIP
FORMED IN PENNSYLVANIA

Partner responsible:
John F. Gullace (NJ)
Brenda H. Gotanda (HI)

October 30, 2020

Via Email to DNRECHearingComments@delaware.gov
Lisa A. Vest, Hearing Officer
Office of the Secretary
Department of Natural Resources and Environmental Control
89 Kings Highway
Dover, DE 19901

Re: Docket #2020-P-MULTI-0024
Comments on Application for Subaqueous Lands Permit and Water Quality Certification for Port of Wilmington Edgemoor Delaware
(Tax Parcels: 0615300006 and 0615300003)
4600 Hay Road, Edgemoor, New Castle County, Delaware, 19809

Dear Hearing Officer Vest:

On August 23, 2020, the Department of Natural Resources and Environmental Control (DNREC) provided pubic notice (the "DNREC Public Notice") of permit applications, including a Subaqueous Lands Permit application, and federal consistency certification which had been received from Diamond State Port Corporation ("DSPC") to construct a new container port on the Delaware River at DSPC's Edgemoor property (the "Edgemoor project"). The DNREC Public Notice stated that written comments could be submitted to the Hearing Officer through November 1, 2020. This letter and the attached expert memos are being submitted as the written comments of Greenwich Terminals LLC ("Greenwich"), who operates the Packer Avenue Marine Terminal in Philadelphia PA, and Gloucester Terminals LLC ("Gloucester"), who operates the Gloucester Marine Terminal in Gloucester City NJ and the Paulsboro Marine Terminal in Paulsboro NJ (hereinafter collectively referred to as the "Port Operators"). The Port Operators have an interest in ensuring that the Edgemoor project does not negatively impact the Delaware River Main Navigation Channel, including impacts to navigation and sediment transport.

In this letter and attached expert memos, the Port Operators are providing comments on three problematic aspects of the Edgemoor project: (1) the proposed use of 13 large sedimentation fans; (2) the placement of a turning basin in the Delaware River Main Navigation

Channel; and (3) the impact on the Delaware River and aquatic habitats without any commensurate mitigation.

The Port Operators' comments on these three areas are as follows:

Sedimentation Fans

1) DSPC represented in its Subaqueous Lands Permit Application that it had performed modeling "to project likely changes in shoaling patterns due to the initial dredging of the berth and approach channel and ***due to the anti-sedimentation devices that will be used to maintain the bottom depth,***" citing Appendix 10 (Hydrodynamic Analysis) of the Environmental Assessment Technical Document ("EATD"). Subaqueous Lands Permit Application, Appendix S at p. 3 (emphasis added). However, this statement is false as the Hydrodynamic Analysis, dated October 3, 2019 and prepared by Mott MacDonald, does not mention sedimentation or shoaling fans or any similar devices, and does not analyze their impact on sediment transport. Pursuant to the Delaware Administrative Code, "[p]roviding false or inaccurate information shall be grounds for denial or revocation of a permit or lease." 7 *Del. Admin. C.* § 7504-3.1.1.2. Accordingly, the current application contains false information and should be denied.

2) DSPC is proposing utilizing sedimentation fans on a scale not previously studied in the United States. According to the documentation available to the Port Operators through DNREC's Public Notice and through Freedom of Information Act (FOIA) requests to the U.S. Army Corps of Engineers, DSPC has performed two sedimentation studies concerning the proposed Edgemoor project, the 2019 Mott MacDonald study (Appendix 10 to EATD) and the Preliminary Modeling in Support of Port of Wilmington Expansion Study, dated May 9, 2020 and prepared by Moffatt & Nichol (obtained through a FOIA request to the Army Corps but apparently not provided by DNREC with its Public Notice). Neither of these sedimentation studies analyzes the impacts of the sedimentation fans. According to the EATD, the effective sedimentation prevention distance covered by each of the Edgemoor site's 13 sedimentation fans is anticipated to be approximately 160 feet channel-ward from the breasting line of the berth. *See* EATD at 34. Of particular concern to the Port Operators is the significant amount of sediment that is proposed to be projected from the berthing area toward the Main Navigation Channel. It does not appear that DSPC has performed any analysis to assess the extent to which sediment from the Edgemoor project area will be blown into the Main Channel by these sedimentation fans.

3) In order to reduce the amount of maintenance dredging that will be required at the Edgemoor site, DSPC is proposing using 13 sedimentation fans that, four times per day, would blow sediment away from the proposed Edgemoor wharf and toward the Main Navigation Channel. The EATD specifies that the fans operate as follows: "water is drawn into the top of a 48-inch diameter ('J-shaped' tube), passes through a hydraulically powered pump impellor, and is discharged as a jet along the bottom of an area being protected." EATD at 33. The use of this type of sedimentation fan on this large a scale warrants separate environmental study for many

reasons, including that the fans have the potential to: (a) constantly and permanently disturb aquatic habitat along the bottom of the Delaware River; (b) impact aquatic life when water is drawn into the top of the thirteen 48-inch diameter tubes; (c) impact the turbidity of the Delaware River on a daily basis; and (d) result in increased sediment in the Main Navigation Channel and other ports and harbors. Pursuant to 7 *Del. Admin. C.* § 7504-4.7.1, DNREC must consider all of these impacts on the environment from the proposed sedimentation fans, including "the extent to which the proposed project may adversely impact natural surface and groundwater hydrology and sediment transport functions."

4) Notably, the only support that has been cited by DSPC that indicates there are not negative impacts from the proposed sedimentation fans is from the manufacturer of the fans, SedCon Technologies. *See* Biological Assessment (Appendix 13 to the EATD) (prepared by Environmental Research and Consulting, Inc. ("ERC"), revised May 12, 2020) at 13-49. A manufacturer's study that has not been subject to any independent review should not be relied on by DNREC. DSPC also contends that the impact of the fans on aquatic life "should be evaluated ***after the berth area has been created***." Essential Fish Habitat Assessment (Appendix 11 to the EATD) (prepared by Duffield Associates, dated January 2020) at 11-42 (emphasis added). Pursuant to the Delaware Administrative Code, the impact to benthic organisms and natural aquatic habitat much be studied and considered before the proposed dredging and construction of berth structures are allowed to proceed. *See* 7 *Del. Admin. C.* § 7504-4.7.1.3 & 7504-4.7.1.4.

5) According to the website of DSPC's consultant on the Edgemoor project (Duffield Associates), Duffield performed much more extensive assessments and sampling before deploying sedimentation fans at another location on a smaller scale than is being proposed at Edgemoor. Similar assessments and sampling must be performed for the Edgemoor project that include collection and analysis of site-specific data and consider the size and scope of the sedimentation fans being proposed.

6) As additional support for the Port Operators' comments and concerns regarding the lack of analysis of the proposed sedimentation fans and the likely negative consequences from the daily blowing of sediment toward the Main Navigation Channel, the Port Operators have attached a memorandum prepared by Craig Jones, Ph.D., Director Marine Science and Engineering at Integral Consulting Inc. **(Dr. Jones's memorandum is attached as Exhibit A.)**

Navigation

7) The proposed turning basin for the Edgemoor project occupies the entire Delaware River Main Navigation Channel. Placing a turning basin so that it occupies the entire Main Navigation Channel is contrary to recognized industry and government best practices and standards, including recommendations by the World Association for Waterborne Transport Infrastructure (PIANC) Maritime Navigation Commission. The proposed Edgemoor project and turning basin is also located at a critical turn in the main channel, and so is likely to affect visual navigational aids and vessel maneuverability. Pursuant to 7 *Del. Admin. C.* § 7504-4.6, DNREC

must consider the public interest in any proposed activity which might affect the use of subaqueous lands, including "[t]he potential effect on the public with respect to commerce [and] navigation …" *Id*. at 4.6.3; *see also* 7 *Del. Admin. C.* § 7504-4.7.4 (In determining whether to approve an application, "[t]he Department shall also consider … [t]he degree to which the project represents an encroachment on or otherwise interferes with public lands, waterways or surrounding private interests"). Moreover, pursuant to 7 *Del. Admin. C.* § 7504-4.11.1.2, for all activities involving dredging and filling, such projects shall be designed to "[m]aintain the navigability of channels." Thus, efforts must be made to relocate the proposed turning basin.

8) Appendix 23 to the EATD, entitled "Full Mission Ship Simulation for Edgemoor Navigation Feasibility Study," prepared by the Maritime Institute of Technology and Graduate Studies (MITAGS), dated August 22-24, 2018 (the "Navigation Simulation Report"), purports to determine the impact of the Edgemoor project on the ships transiting the deep draft main channel, but in fact fails to adequately study the impact of the terminal and turning basin on the range of ships that use the main channel. The Navigation Simulation Report does not include any simulations involving the impact of a turning ship in the turning basin on other ships that are traveling in the main navigation channel at that time. In connection with safety of other ships in the main channel, MITAGS only conducted simulations of two ships passing in the main channel under favorable conditions. A ship that is turning in the main channel would prevent use of this section of the main channel for a significant period of time resulting in potential delays to upbound and downbound traffic and could force other ships to slow down or have to stop, thereby affecting these other ships' maneuverability and safety. The Navigation Simulation Report also failed to consider the wide range of types of ships that utilize the main channel, and the full range of tide and weather conditions that will likely be encountered. Since the ports further north on the Delaware River rely on ships being able to reach them unimpeded, much more study and planning needs to be done before the Edgemoor project and proposed turning basin is allowed to move forward.

9) The Navigation Simulation Report recommends that inbound transits only be allowed at the Edgemoor terminal during high tide and when the wind is 20 knots or less. It is not clear if DSPC is adopting these recommended limitations on operations at the proposed Edgemoor terminal and, if so, how such limitations might impact ships destined for Edgemoor or other terminals further up the Delaware River.

10) Neither the Navigation Simulation Report nor any of DSPC's application materials address the potential emergency situations that ships could encounter in connection with the Edgemoor project and turning basin.

11) The Navigation Simulation Report and DSPC's application materials fail to satisfy 7 *Del. Admin. C.* § 7504-4.7.4 as they do not allow DNREC to consider the encroachment and interference that the Edgemoor project and proposed turning basin will have on the "waterways or surrounding private interests," including ports and ship-dependent businesses north of the Edgemoor project. DSPC's proposed turning basin is also contrary to 7 *Del. Admin.*

C. § 7504-4.11.1.2 in that projects involving dredging or filling shall be designed to meet specified objectives, including to "[m]aintain the navigability of channels."

12) As additional support for the Port Operators' comments and concerns regarding the impact of the proposed Edgemoor project and turning basin on navigation on the Delaware River, the Port Operators are submitting a report prepared by retired U.S. Coast Guard Captain Jerzy Kichner, P.E., of KSEAS Consulting. **(Captain Kichner's report is attached hereto as Exhibit B).**

Aquatic Life and Habitat and the Need for Compensatory Mitigation

13) As indicated in the DNREC Public Notice, the Edgemoor project includes building a 2600-foot long wharf structure, dredging the berth and access channel to a depth of 45 feet below mean lower low water (which involves dredging over 80 acres of river bed and approximately 3.3 million cubic yards of river sediments and underlying soil), installing a bulkhead along 3,200 feet of shore line, and permanently filling in over 5.5 acres of subaqueous lands.[1] Thus, there can be no question that the Edgemoor project involves the permanent disturbance and filling of subaqueous lands.

14) Pursuant to 7 *Del. Admin. C.* § 7504-3.1.2.2, application materials must include a scaled drawing which shows, among other things, the exact location of aquatic habitats. However, a drawing that identifies the exact location of aquatic habitats impacted by the Edgemoor project does not appear to be included with DSPC's application materials. Since this is a required attachment under the regulations, DSPC's current application should be denied or required to be supplemented.

15) The conclusory statements in the Essential Fish Habitat Assessment (Appendix 11 to the EATD) and Biological Assessment (Appendix 13 to the EATD) regarding the insignificance of the loss of habitat in connection with the Edgemoor project result from a failure to appreciate that habitat has value even if not perceived as unique or high-quality habitat – if aquatic life is using the habitat, then it is serving a purpose. The Edgemoor project work will result in the permanent loss of intertidal and subtidal benthic habitat relied upon by a variety of benthic organisms and fish. For example, the Biological Assessment (Appendix 13 to the EATD) acknowledges that the project will disturb soft substrate, including the removal of the existing shallow water shelf, which will harm or eliminate benthic organisms that may be used as forage by sturgeon and other fish species. Biological Assessment (Appendix 13 to the EATD) at 13-59 – 13-60. In considering DSPC's application, pursuant to 7 *Del. Admin C.* § 7504-4.6 (Public Use Impact) and 7504-4.7 (Environmental Considerations), the Department must

[1] The EATD seems to indicate that more than 5.5 acres may be filled and/or permanently disturbed. The EATD states that the wharf would be 325,000 square feet in size – 325,000/43,560 = 7.46 acres. Also, it is unclear whether DSPC is including in their calculations the area impacted by the 4,500 20"-24"diameter steel pipe pilings filled with concrete that will be supporting the wharf. *See* EATD at 32 and Army Corps Public Notice revised and issued on July 30, 2020.

consider that there will be a permanent loss of at least 5.5 acres of subaqueous land, that no compensatory mitigation has been proposed, and that this involves the loss of and harm to natural aquatic and benthic habitats and organisms.

16) Areas immediately adjacent to the Edgemoor project area have been identified as having critical habitat for endangered species (Atlantic sturgeon) and important habitat for striped bass and shad, and the Edgemoor project area has 3 out of 4 physical or biological features (PBFs) that are essential to the conservation of Atlantic sturgeon. *See* American Shad Habitat Plan for the Delaware River, Delaware River Basin Fish and Wildlife Management Cooperative (2014); *see also* Essential Fish Habitat Assessment (Appendix 11 to the EATD) at 11-32; EATD at 72-73 ("Fish sampling performed by others in the vicinity of the project site has indicated use of this section of the estuary by a variety of species, most notably striped bass, river herring and alewife. …. [A]lewife and river herring have been designated as Species of Concern by NOAA." As a result, the limited survey performed to support the absence of any sturgeon in any life stage or of other aquatic life has to be questioned. Pursuant to 7 *Del. Admin. C.* § 7504-4.11.2.1, DNREC should consider impacts both "at and surrounding the dredging site(s)."

17) DSPC's analysis of aquatic habitat and life focuses on too small an area and should be focused on the cumulative impacts resulting from both the Edgemoor project and completion of the Delaware River deepening project. *See* 7 *Del. Admin. C.* § 7504-4.7.3.1 (requiring DNREC to consider cumulative effects). The analysis should also consider the impacts the Edgemoor dredging and fill work will have on neighboring deep water habitats. *See* 7 *Del. Admin. C.* § 7504-4.7.3.2 (requiring DNREC to consider secondary effects). In addition, the DSPC's application materials do not account for the cumulative and secondary effects of the permanent alteration of the marine environment caused by the constant operation of the 13 proposed sedimentation fans.

18) The permanent loss of intertidal and subtidal benthic habitat, relied upon by a variety of benthic organisms and fish, resulting from filling in 5.5 acres of a navigable public waterway necessitates that the Edgemoor project include compensatory mitigation. DNREC has required compensatory mitigation for similar projects. "An application may be denied if the activity could cause harm to the environment, either singly or in combination with other activities or existing conditions, which cannot be mitigated sufficiently." 7 *Del. Admin. C.* § 7504-4.2; *see also* 7 *Del. Admin. C.* § 7504-3.3 (burden is on applicant that the loss of subaqueous lands has been offset or mitigated) and § 7504-4.7.3.3 (requiring DNREC to consider whether significant impacts or potential harm can be offset or mitigated). DSPC's application makes no attempt at providing any mitigation for the Edgemoor project, and so should be denied as currently presented.

19) As additional support for the Port Operators' comments concerning the need for compensatory mitigation in connection with the Edgemoor project, the Port Operators are submitting a memo prepared by Damian Preziosi, Principal Ecologist at Integral Consulting Inc.

and the Principal-in-Charge of assessments associated with the Fox Point State Park located on the Delaware River just north of the Edgemoor site. **(Mr. Preziosi's memo is attached hereto as Exhibit C.)**

The Port Operators appreciate the opportunity to provide the foregoing comments to the DNREC Public Notice. We reserve the right to submit additional comments if appropriate.

Sincerely,

Jill Hyman Kaplan
For MANKO, GOLD, KATCHER & FOX, LLP

Exhibits:

Exhibit A – Memorandum from Craig Jones, Ph.D., Director Marine Science and Engineering at Integral Consulting

Exhibit B – Report from retired U.S. Coast Guard Captain Jerzy Kichner, P.E., KSEAS Consulting

Exhibit C – Memorandum from Damian Preziosi, Principal Ecologist at Integral Consulting

EXHIBIT A

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MEMORANDUM

To:	Hearing Officer Delaware Department of Natural Resources and Environmental Control
From:	Craig Jones, Ph.D. Director Marine Science and Engineering
Date:	October 30th, 2020
Subject:	Comments on **Docket #2020-P-MULTI-0024**

The Delaware Department of Natural Resources and Environmental Control (DNREC) is evaluating an application for a Subaqueous Lands Permit and Water Quality Certification for Diamond State Port Corporation (DSPC) to conduct dredging and disposal activities within, and adjacent to, the Delaware River at the Port of Wilmington Edgemoor Expansion project site outlined in the Public Notice published August 23, 2020. I have been asked to provide comments regarding the project's proposed design, particularly use of sedimentation fans and their potential impact on the surrounding environment, including the main navigation channel. I am the Director of the Marine Science and Engineering Group of Integral Consulting, Inc. In that role, I have been engaged as a technical expert on sediment, dredging, and environmental matters on all of the large estuaries in the northeastern United States including the Delaware River. In the review of this project application, I have relied on over 20 years of experience as a practicing scientist and engineer as well as consideration of Delaware's Regulations Governing the Use of Subaqueous Lands (Delaware Adminstrative Code, Title 7, Chapter 7504).

The in-water project includes hydraulic dredging of 3.3 million cubic yards (cy) of sediment. The dredging consists of over 40 vertical feet (ft) of material removal along the natural subtidal river. Approximately 90% of the material is to be disposed of at USACE Confined Disposal Facilities (CDF). Only 10% of the material to be dredged from the DSPC is planned for beneficial use as fill into the river at the adjacent construction site.

Sedimentation Fans

In the operations and maintenance of the constructed project, a significant level of ongoing sedimentation must be managed (Environmental Assessment Technical Document, 2020). The project description states that an annual 500,000 cy of maintenance dredging will be

required. The large volume of annual dredging will have continuing water quality impacts. In addition to the large amount of annual dredging, thirteen sedimentation fans are proposed at a spacing of 200 ft along 2600 ft (~ 0.5 mi) of wharf. These 48 inch (in.) J-shaped fans will rotate at speeds on the order of 275 revolutions per minute during ebb and flood tides to move sediment away from the wharf. For 30 minutes four times per day, the fans are intended to resuspend fine deposited sediment towards the channel to prevent deposition in an area extending 160 ft out from the wharf.

While sedimentation and shoaling fans have been deployed in the U.S. on a very limited basis, deployment at the scale of thirteen large fans has never been permitted, studied, or monitored as a long-term sediment management practice. The applicant's application materials, specifically the Biological Assessment (Revised 2020) (Appendix 13), rely only on studies prepared by the manufacturer of the fans (Bryant and Moseley, 2007) and sales literature for the finding that there will be no impact as a result of the fans. However, the manufacturer's studies (which were not published in peer reviewed literature) were conducted at the Columbus Street Terminal in South Carolina with only four fans that were 25% smaller in diameter than the fans proposed here. The small size of the project makes any comparison to the present project dubious. The studies also were not conducted in the Delaware River, which also makes them of little value in assessing the impacts of the fans for this project.

The Duffield website indicates a Magellan facility in Wilmington, Delaware was evaluated for sedimentation fan deployment. As part of that project, Duffield states that ecological evaluations and sedimentation assessments were performed, including sampling to develop estimates of potential entrainment impacts to spawning striped bass and river herring, and potential impacts to endangered species. Also, as part of the assessments for that site, Duffield says that methods of mitigating potential adverse environmental impacts were developed (https://duffnet.com/projects/magellan-midstream-shoaling-fans/). This description shows that before deployment of sedimentation fans at this other site, much more assessment and mitigation was performed compared with the lack of assessment conducted for the DSPC project.

In review of the redacted Entrainment Impact Assessment[1] for a site in Wilmington Delaware, submitted for the record by the Delaware Coastal Management Program during the DNREC September 29, 2020 public hearing, it is reasonable to assume this is the same site referenced on the Duffield website. The findings of that assessment are for a much smaller project, 7 fans over only 1,000 ft of berth as opposed to 13 fans over 2,600 ft of wharf, and rely on site specific data for species in a different waterway. Overall, it is not valid to apply the site specific findings for a much smaller project in a different waterway

[1] http://www.dnrec.delaware.gov/Admin/Documents/dnrec-hearings/2020-P-MULTI-0024/DCMP/DCMPExhibit6.pdf

to the DSPC project. An independent assessment of the DSPC project site must be performed based on specific DSPC site data and proposed sedimentation fan deployment.

Numerical Modeling Assessment

The Environmental Assessment Technical Document (2020) Hydrodynamic Analysis (Appendix 10) contains a numerical hydrodynamic and sediment transport modeling study conducted by Mott Macdonald to assess sedimentation. The modeling study contains no mention of nor assessment of sedimentation fans at the site. After the Mott Macdonald study, Moffat and Nichol (MN) was engaged to perform another sedimentation modeling study for the proposed Edgemoor terminal area using an alternate modeling approach. The MN study was not available through DNREC's website and links, but was provided by the U.S. Army Corps of Engineers in response to a Freedom of Information Act (FOIA) request. The MN study predicted a range of sedimentation in the project area under the Preferred Alternative between approximately 450,000 and 610,000 cubic yards per year. Further, a maximum of between 6 and 10 feet of sedimentation over a year was predicted along the shoreward end of the project area. The MN predictions illustrate the large quantity of sedimentation expected over the course of a year.

Neither the MN study nor the previous Matt Macdonald study modeled the impacts to sedimentation caused by the proposed use of 13 large sedimentation fans. As part of the MN modeling study, the authors state that a previous 2009 study for the Philadelphia District, US Army Corps of Engineers, investigated a number of active methods to reduce sedimentation in the Port of Wilmington including the SedCon Turbo System proposed here. However, the results of this previous investigation are not reported or evaluated in the MN study or DSPC's Environmental Assessment, and so a modeling study of the potential impacts of the fans on the Delaware River should be performed.

Modeling the sedimentation impacts of the fans is appropriate for this project because deployment of sedimentation fans at the scale proposed for the DSPC project has never been permitted, studied, or monitored as a long-term sediment management practice. As noted above, the DSPC Biological Assessment (Revised 2020) (Appendix 13) relies only on studies prepared by the manufacturer of the fans (Bryant and Moseley, 2007) for the findings of no impact. However, the manufacturer's studies were conducted at a site where the deployment was significantly smaller than proposed here. The studies are of little value in assessing the impacts of the fans for this project site where substantial sedimentation is anticipated over short time periods.

Environmental Stressors

An initial evaluation of the stressors posed by the sedimentation fans in the Delaware River yield several areas of likely impacts. Some of the key areas of impact that are likely include:

- *Sediment Transport* – An important aspect of deposition prevention by the fans is their ability to keep sediment that would otherwise deposit in the area moving and resuspend sediment that has deposited during the 22 hours a day of non-operation. While the velocities generated by the fans is not reported in the Public Notice, the velocities at the intake for the smaller 36 in. fans studied in the Bryant and Moseley report (2007) were 2.5 ft/s, so it is likely that the larger fans for this project will generate greater velocities. An array of fans generating velocities of many ft/s arrayed over approximately 0.5 miles of wharf would create a significant alteration to the natural sediment transport patterns in the river. Further, the daily resuspension and transport of deposited sediment over at least 416,000 square feet of sediment bed would have a direct impact to sediment transport in nearby regions. The nearest adjacent region is the federally authorized navigation channel which is presently being deepened to 45 ft for navigation. The additional sediment forced into the channel will likely cause channel deposition either increasing the need for maintenance dredging or decreasing the life of the project. Further, nearby ports and harbors already conducting permitted maintenance dredging will likely be required to increase maintenance dredging volumes due to the additional mobilized sediment load. Although the manufacturer's conference paper (Bryant and Moseley, 2007) claims there were no adverse effects in the nearby channels, the present project includes over three times as many fans that are 25% larger and will therefore likely have a substantial impact on sediment transport in the main navigation channel as well as other sites in the area.

- *Water Column Biota* – While 4 in. mesh will be placed over the intake of the sedimentation fans, there will still be significant risk to larval and juvenile stage organisms that are not only smaller than 4 inches, but also more vulnerable to physical agitation. The intake of larval and juvenile stage organisms into a sedimentation fan at a velocity of 2.5 ft/s or greater and fans rotating at 275 - 500[2] revolutions per minute (at least 4.5 revolutions per second) leaves little opportunity for an organism to either escape the intake velocity or pass through the system without harm. Unlike the initial and annual maintenance dredging, which will occur only during certain seasonal windows to protect life stages of sturgeon and other anadromous fish, the fans will operate indefinitely, year-round. The seasonal windows where these organisms are particularly vulnerable must be considered (e.g., Sturgeon spawning and early life stages). The Biological Assessment (Revised 2020) (Appendix 13) states that the early-life stage biota are unlikely to occur in the water column; however, the standard for biological risk evaluation under the

[2] The application states 275 revolution per minute, and page 42 of the Biological Assessment (Revised 2020) states "275 to 500 rpm depending on the installation".

Endangered Species Act requires assessment beyond a simple statement saying risk is unlikely.

- *Water Quality* – The sedimentation fans are intended to prevent sediment deposition and they do so by moving and resuspending sediment that has settled during the 22 hours of non-operation. The Biological Assessment (Revised 2020) (Appendix 13) nevertheless states:

  > "Field studies have shown that shoaling fans do not increase turbidity, but simply keep sediment suspended in the water column (SedCon Technologies, Inc., 2019) and, therefore, water quality will not be negatively affected."

  As mentioned, the manufacturer's conference paper (Bryant and Moseley, 2007) that is the basis of the above claim is based on a project with four 36 in. fans. The present project includes over three times as many fans that are 25% larger and is located in the Delaware River turbidity maximum where sedimentation rates are high (Environmental Assessment Technical Document, 2020, Table 5.3-1, p. 131); therefore, one can readily assume that a significant amount of sediment will be suspended when the fans are operational.

  Based on the findings of the Environmental Assessment Technical Document (2020), it is reasonable to assume that ¼ inch (~0.6 cm) of sediment could deposit during slack tides between the times of sedimentation fan operation. The resuspension of a ¼ inch of low density surface sediment deposited on the sediment surface results in a significant increase in suspended solids. A simple calculation shows that a thickness of ¼ inch of fine sediment suspension results in an over 100 mg/L suspended solids increase in 40 ft deep water. A 100 mg/L increase in suspended solids is a significant elevation that would cause the water to appear opaque (high turbidity), reduce light penetration into the water column, adversely affect fish in all stages of life, affect dissolved oxygen concentrations, and decrease local habitat quality. These and other deleterious water quality consequences must be fully investigated before the use of sedimentation fans is allowed. The State of Delaware 7401 Water Quality Standards limit exceedances of turbidity to 10 Nephelometric Turbidity Units (NTU) above background and the Delaware River Basin Commission limits exceedance to 40 NTU. An increase of 100 mg/L in suspended sediment concentrations would be expected to exceed these turbidity standards.

- *Benthos* – The four-time daily disturbance of the sediment bed by the sedimentation fans would preclude the establishment of benthic habitat that is a fundamental component of the local ecosystem. Further, any essential fish habitat is reliant on stable benthic communities. The Biological Assessment (Revised 2020) (Appendix

13) states that "[c]hanges in the benthic community within the Dredging Area will likely be temporary, with recovery taking a few months to a few years …", but this conclusion does not appear to account for the regular disturbance caused by the sedimentation fans. The sedimentation fans would create conditions under which no stable benthic habitat would be able to develop, negatively impacting aquatic life up through the food chain.

Summary

As part of DNREC's review of DSPC's application and consideration of the public use and environmental impacts (7 Del. Admin. Code Sections 7504-4.6, 4.7 and 4.11), the harm caused by both the construction and operation of the proposed DSPC project must be fully considered. As discussed, the stressors due to dredging large amounts of sediment, lack of beneficial reuse, and the reliance on sedimentation fans are key components of the project that would have significant negative impacts.

Under the Delaware Administrative Code regulations the areas that could be expected to have significant impacts are:

- Conservation – Essential fish habitat in the region would be adversely impacted by the removal of 3.3 million cy of sediment, 40 ft deepening of natural subtidal river channel, and regular operation of sedimentation fans.

- Economic Development – Four-time daily resuspension of sediment toward the federally authorized channel is expected to cause significant increase in deposition in the federally authorized channel and in the channels of ports and harbors nearby. The increase in need for maintenance dredging and possible reduction in use has direct negative consequences on the local economic resources.

- Environmental impacts – The local water, sediment, and habitat quality would all be adversely affected by the operation of the sedimentation fans. Further, the four-time daily operation of the fans has the potential to cause fish injury and mortality, particularly for early life-stage fish.

- Navigation – The increased potential for sediment deposition from sediment mobilized from the DSPC project area in the navigation channel and other local ports and harbors could decrease the navigability in these facilities.

Beyond the potential for the impacts listed above, sedimentation fans have never been used at this scale in the Delaware River. In order to satisfy its obligations to consider public use and environmental impacts, DNREC must carefully study and review a project of this scale with such unprecedented technology and potentially wide-ranging impacts. Before

approving any request for permit, a full evaluation of the above considerations must be fully considered and, where appropriate, addressed.

Thank you for your consideration of these comments.

Sincerely,

Craig Jones
Principal – Marine Sciences and Engineering
Integral Consulting Inc.

EXHIBIT B

KSEAS LLC

Comments on Navigational Safety Concerns for Edgemoor Terminal

Prepared for:

Manko, Gold, Katcher, Fox LLP
401 City Avenue, Suite 900
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Prepared by:

Captain Jerzy J. Kichner, USCG (ret)

Kseas

2711 SW 43rd TER Cape Coral FL 33914

Project	Date	Status
EDGEMOOR	1 October 2020	FINAL

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1. Overview

I am a retired United States Coast Guard (USCG) Captain with over 28 years' experience in port and commercial vessel safety and in navigation and safety matters. As a previous Captain of the Port for what is now USCG Sector Mobile, AL it was my responsibility to promote commerce while ensuring the safety of navigation for commercial vessel traffic. In that position I regularly had to evaluate and provide input and decisions concerning U.S. Army Corp of Engineers (USACOE) permit applications for construction of piers, wharfs and waterfront facilities and evaluate their impact on the waterway and navigational safety for all users of the waterway. Since my retirement, as a consultant, I have 19+ years' experience in risk management for marine projects which includes the construction of new facilities throughout the United States. I have been heavily involved in chartering and evaluating a multitude of different ship simulation and other studies that were necessary to fully quantify risks associated with particular projects to ports or waterways. This included projects in the United States, Europe, Mexico, the Middle East and North Africa.

I was asked to evaluate the proposed plans for the Edgemoor Terminal and turning basin to assess whether the new terminal and turning basin would pose a risk to navigation and safety on the Delaware River. In conducting my evaluation, I focused on the Full Mission Ship Simulation for Edgemoor Navigation Feasibility Study (2018) prepared by MITAGS. The MITAGS study claims that the focus of the simulation was to determine the impact of the terminal on ships transiting the deep-draft navigation channel, but the study is inadequate for this purpose. It is my view that the MITAGS study was too limited and did not fully encompass the conditions, vessel types, and traffic impacts that would be expected for a terminal and turning basin in this location. In light of the proposed location of the turning basin in a highly trafficked part of the main and only deep draft channel servicing a plethora of critical upstream ports (Philadelphia), refineries and terminals, and the grave consequences of a ship casualty affecting the use of the channel, a more careful and thorough evaluation of the actual impacts of the terminal/turning basin on ship safety and navigation is warranted.

2. Navigation on the Delaware River

The Delaware River is an important, highly trafficked river and only has one deep draft channel that services a number of critical ports.

In 2018, the United States Coast Guard prepared a Ports and Waterways Safety Assessment (PAWSA)[1] for the Delaware River. The USCG as part of its duties is responsible for developing and implementing policies and procedures that facilitate commerce, improve safety and efficiency, and inspire dialogue within the port complex that will make waterways as safe, efficient, and commercially viable as possible. USCG PAWSAs are conducted on what is considered to be "critical waterways".

According to the USCG PAWSA, the maritime industry along the Delaware River contributes approximately $85 billion dollars to the economy. Similarly, the PAWSA states that with regards to shipping and use of the federal channel, there were approximately 2,400 discrete commercial cargo vessel arrivals, not including towing vessels, calling on the ports and terminals along the Delaware River. Vessels shifting berths or moving between facilities results in approximately 200 additional discreet vessel movements.

The USCG PAWSA confirms and emphasizes the criticality of the Delaware River federal channel and the need to ensure that it is never obstructed. The following is taken directly and verbatim out of the USCG report:

- *A major marine casualty would have a significant impact on the port complex. Shutting down the waterway would have a major impact to the oil refiners who rely upon daily imported crude oil shipments to keep the refineries operating.*
- *Shore-side infrastructure would also be impacted by a port closure. Outbound shipments of refined products by railroad tank car would be disrupted.*
- *There are several railroads that could be utilized to bring in and ship out limited amounts of cargo, but the capacity of the rail lines could not sustain long term operations.*
- *Shore side facilities that rely upon daily and weekly cargo transfers (crude oil for example) would be greatly impacted by a port closure. The larger refineries receive in some cases 1 million-gallon shipments of crude oil daily; an extended port closure could result in the refinery running out of crude oil to processes and having to shut-down refining operations. Facilities that receive vessels every few weeks would be less impacted by a port closure.*

3. The Location of the Edgemoor Terminal and Turning Basin

The proposed turning basin for the Edgemoor terminal encompasses the entire federal channel, the only deep draft channel that services the major ports and terminals located

[1] https://www.navcen.uscg.gov/?pageName=pawsaFinalReports

north of Edgemoor. Turning a vessel involves the use of multiple resources (tugs) and extraordinary coordination accounting for a complex set of factors including the ship's maneuvering characteristics, draft, sail area, wind and currents, to maintain position in a tight designated area of sufficient depth to keep a vessel from going aground. While a vessel is being turned, no other deep draft traffic constrained by draft can use the channel and must remain clear until the turning vessel is oriented for travel up or down the channel. Vessels using the proposed turning basin, whether due to environmental conditions, human error or mechanical malfunction, could easily and potentially ground and block the federal channel for days or weeks on end. Any disruption, blockage, grounding, collision or allision in the federal channel by a container vessel using Edgemoor would have a severe and adverse impact on those ports and terminals located north of Edgemoor as noted in the USCG PAWSA.

The proposed terminal/turning basin is also positioned in a critical turn in the channel for both upbound and downbound vessels that influences/impacts vessel maneuverability on turns from the Bellevue Range onto the Marcus Hook Range. Ranges are essential visual navigational aids. While most Pilot organizations use highly accurate personal electronic aids for navigation (i.e. PilotMate), the use of all available means of navigation is prudent and practiced by responsible mariners. Ranges have long since been used as navigational aids to provide for precise visual navigation in critical turns and in maintaining proper position in channels. Use of ranges is critical to the safe navigation of any vessel and more so for deep draft vessels constrained by draft and limited by the depth of the channel. The USCG PAWSA states that there are already visibility impediments by background shore side lighting, and it is difficult to see vessels berth alongside or tow vessels with barges as well as other smaller vessels that may be in the channel. Any obstruction, such as a cargo ship in the turning basin, that would diminish the ability of a vessel to use the range at the turn at Edgemoor could impact safe navigation.

PIANC (Permanent International Association of Navigation Congresses)[2] is a recognized international industry and government standards body that publishes information on best practices, standards and procedures for the design and analysis of navigational channels. PIANC in concert with the International Association of Ports and Harbors (IAPH), the International Maritime Pilots Association (IMPA) and the International Association of Lighthouse Authorities (IALA) published a document titled *Harbour Approach Channels Design Guidelines (2014).*[3] It is the world class standard for recommendations on good practice in the design and analysis of navigational channel and port design and operations. PIANC recommends that no Turning Basin intrude on a deep draft channel. In many ports in the United States, turning basins are part of the port infrastructure but are designed and

[2] https://www.pianc.org/about
[3] https://www.pianc.org/publications

placed so as not to impede or intrude on existing and critical deep draft navigational channels.

4. MITAGS Study

The MITAGS study was done by the applicant to support the USACOE and project stakeholders' desire for a ship navigation study to ensure that container ships anticipated to use the terminal are able to safely transit the waterway to the proposed Edgemoor Terminal on a regular basis, with minimum impact on existing vessel traffic. The primary purpose of the study was to determine the impact of the terminal on the ships transiting the deep-draft navigation channel, although as described below, the study was too limited to adequately evaluate this issue. The study used a full mission simulator to represent the transit and mooring of vessels at the Edgemoor Terminal under a narrow set of conditions. The study primarily processed 9300 TEU Container ships through a 3-day simulation, although the study also performed a preliminary assessment of the feasibility of a 12000 TEU container ship. The conclusion from the simulation was that the ships tested and Terminal design "*…would have minimal impact on ships as they transit the existing navigational channel*." However, the study recommended restrictions on transit to high tide and wind conditions less than 20 knots.

The MITAGS study is incomplete. The simulation study concluded that there would be no adverse effects from vessels using the terminal, but this conclusion was based on six passing vessel tests under very limited test conditions. What this conclusion fails to mention is that it is only applicable to container vessels and only the two container vessel models used in the simulation. Although MITAGS acknowledged in the study that the "*navigation channel handles oil tankers up to the Suezmax class, container ships up to 14,000 TEUs, and other vessel classes,"* the passing test failed to account for the different types of vessels using the channel and transiting past Edgemoor. A fully laden Suezmax class tanker or a light Suezmax tanker may handle much differently than the modeled container ships used in the passing study. By the report's own admission "*Model behavior is highly dependent on the accuracy of the bathymetry, the current, and wind flows. In real world situations, such forces could vary significantly over the operating area. In addition, the models used in these tests were representative of vessel classes similar in size and displacement. Vessels of the same class may have significant differences in handling characteristics in real-word conditions*." This fact is even more relevant to deep draft vessels of a different class (tankers etc.). Also, the study was limited to container vessels and did not take into account other types of vessels using the channel, including tugs and barges.

Further, no simulations were conducted to assess the impact of a turning basin that occupies the entire deep draft channel on transiting ship traffic. A ship using the proposed turning basin would prevent the use of this section of the main channel by transiting vessels for a significant period of time resulting in potential delays to upbound and downbound traffic. In addition, as stated by the USCG in the PAWSA, *"Vessels with high wind-profile areas (car carriers, larger container ships) are most impacted by winds and must maintain sufficient speed in order to maintain vessel maneuverability."*[4] This means that large vessels constrained to the confines of the channel (constrained by draft) cannot slow down without themselves potentially impacting their own navigational safety under certain weather conditions. Therefore, if a vessel using the main channel were to have to slow for a vessel obstructing the channel in the turning basin, it could impact the transiting vessel and cause it to ground or collide with the maneuvering vessel and thereby block the channel. It is therefore imprudent to conclude that construction and location of the Edgemoor Terminal as proposed would not have an effect on passing traffic or that passing traffic would not have an effect on vessels moored at the Edgemoor Terminal without additional study.

The MITAGS study's simulations were only conducted in "clear visibility." No simulation runs were done under adverse or restricted visibility conditions. Certainly, the maneuvering of vessels under good visibility, with all of the visual navigation aids available, would achieve better results in the simulation. A complete simulation to adequately assess the safety of these maneuvers needs to be done under adverse conditions of night transits, sudden squalls, and restricted visibility so as to determine the safe limits of vessel navigation and maneuvering alongside the Terminal. The USCG PAWSA report states that fog routinely occurs year-round but is more prevalent in the spring and fall. Spring and fall are traditionally low visibility times of year. An additional question that needs to be explored is how the studied vessels would react in the middle of a turn during a sudden squall and/or change in visibility. Without simulating such adverse conditions, the study cannot reliably conclude that ship traffic can safely use the terminal and turning basin.

The study also indicated that "*No maximum ebb currents were used during the inbound runs.*" Unless the turning and mooring of <u>any and all</u> container vessels that may call on Edgemoor will never take place during max ebb, simulation of turning and mooring a vessel under those conditions needs to be explored.

In addition, simulations were conducted during what were claimed to be "worst case" conditions of spring max flood of 1.6 -1.7 knots and spring max ebb of 1.3 – 1.5 knots. However, according to the USCG PAWSA, "*significant rain events in the spring and snow melt*

[4] USCG Sector Delaware River PAWSA 2018

run-off from the winter increases water flow movement and can increase current speeds from the normal 1-2 knots, to over 4 knots." There were no simulation runs for passing vessels or for turning vessels to moor at Edgemoor under those conditions or conditions that combine high current and higher wind speeds.

Further, it is also not clear in the simulation conducted whether the tugs modeled and used would be of the same type, number and bollard pull that would be available for actual operations. The availability, type and adequate number of tugs to guide and turn a container vessel within a confined area as proposed and simulated is crucial. This is especially the case when impacted by weather and current and other factors. A tug's bollard pull and maneuverability are critical factors in determining the adequate number necessary to safely handle a vessel especially in a situation that rapidly develops and may not be planned for. Although the MITAGS study included a letter from Wilmington Tug certifying that "*the simulated tug service [in the study] appears consistent with our experience and expectations*," it is unclear whether the letter by Wilmington Tug confirmed that the tugs used in the simulation were the ones that will be used for actual mooring of the container vessels at Edgemoor, or if the tugs used in the simulation responded accurately as the tugs owned and operated by Wilmington Tug. In any case, the Simulation Report stated that future work was needed to determine the berthing procedures, tug power required, and emergency procedures to be developed.

Finally, in the Pilot Recommendations section, the Delaware Pilots recommended high tide and winds less than 20 knots for inbound transits. It is assumed that this restriction is applicable only to the vessels used in the simulation. This is a very broad and general statement. Further clarification is needed as to what this actually means and where and how it is applicable. Is it required that the vessel moor at the terminal at high tide or is the requirement for high tide transit applicable in initiating the transit to Edgemoor from the sea buoy or anchorage? Restricting vessels to high tide transits confines the window of opportunity to certain parts of the day or night and may impact the ability for other vessels to transit the River. Similarly, the transit may start on high tide with favorable winds, but prior to reaching the destination, winds have increased beyond the threshold limit recommended. The applicant should identify appropriate measures for such a scenario to ensure that navigational safety can be maintained.

5. Conclusion and Recommendations

Given the criticality of the federal channel to upstream industry and ports and the impact if the channel was blocked for any reason, the MITAGS study is incomplete and additional simulations and analyses are recommended. PIANC recommends that a full analysis be

conducted to determine the risks associated with the design of new terminals and modification of navigational channels. Risk can be defined as the probability of some occurrence multiplied by the financial and port impact consequences. A probabilistic simulation of this potential using a "Monte Carlo" simulation should be conducted. A "Monte Carlo" simulation (random combinations) is a method used to generate a large number of navigation scenarios and their probabilistic outcome. Factors considered would be collisions between vessels calling on the terminal and channel; collisions between a passing vessel and a vessel at the Terminal, groundings or allisions due to environmental conditions (winds, currents, visibility, mechanical casualty (loss of power)) and inadequate tug availability and horsepower. Scenarios involving the use of the turning basin in the main channel must also be included. The analysis should not only include interaction between the Edgemoor container vessels and other deep draft vessels but also their effect on the tugs and barges that use the waterway for commerce. As part of the analysis, the impact on other vessel traffic from limiting inbound transit for container vessels to high tide and winds less than 20 knots as recommended by the MITAGS study should be assessed.

In addition, the USCG PAWSA states that one of the mitigating factors, among others, associated with safe navigation on the Delaware River is the use of a transit plan. As part of the application evaluation process and completion of the full navigational safety analysis that addresses the issues raised, a solid navigation transit plan should be prepared by the project applicant which incorporates the issues learned and mitigation strategies employed to ensure safe navigation and minimize risk to the other critical users of the waterway. Any transit plan must specify how such limitations will be implemented without unduly impairing other ship traffic or commerce on the Delaware River.

Signed: _____ Date: October 1, 2020

J. J. Kichner, PE

EXHIBIT C

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Berlin, MD 21811

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MEMORANDUM

To:	Hearing Officer Delaware Department of Natural Resources and Environmental Control
From:	Damian V. Preziosi Principal Ecologist
Date:	October 28, 2020
Subject:	Comments on **Docket #2020-P-MULTI-0024**

The Delaware Department of Natural Resources and Environmental Control (DNREC) is evaluating an application for a Subaqueous Lands Permit and Water Quality Certification for Diamond State Port Corporation (DSPC) to conduct dredging and disposal activities within, and adjacent to, the Delaware River at the Port of Wilmington Edgemoor Expansion project site outlined in the Public Notice published August 23, 2020. I have been asked to provide comments regarding the project's proposed design, particularly with respect to habitat and aquatic life in the vicinity of the project and my technical opinion related to the need for compensatory mitigation to offset potential impacts.

I am a Principal in the Toxicology, Health and Environmental Science practice for Integral Consulting Inc. I received a Master's of Science degree from Bucknell University in 1994, and my area of study was biology and ecology of fish. I previously worked at the Congressional Research Service of the Library of Congress, where I provided consultation on federal fisheries regulation and policy. Over the last 25+ years, I have worked as an environmental consultant specializing in ecological risk assessment, and risks specifically associated with cumulative impacts of physical and chemical stressors in aquatic habitats at local and regional scales. My area of expertise includes risk assessment of rare, threatened and endangered species using population, community and ecosystem models, including use of population viability analysis. Since 2010, I have served as Principal-in-Charge of a Remedial Investigation and Natural Resource Damage Assessment of the river and shoreline adjacent to the Fox Point State Park, located along the western side of the Delaware River immediately to the north of the Edgemoor property. Prior to this I served as a key technical lead and co-author of the first regional risk assessment ever performed

for the Delaware Estuary.[1] I am a Certified Senior Ecologist of the Ecological Society of America, and am the immediate past Chair of the Board of Professional Certification of this society.

The in-water portion of the Edgemoor project includes hydraulic dredging of 3.3 million cubic yards (cy) of sediment over a combined area of approximately 87 acres. The dredging consists of over 40 vertical feet (ft) of material removal along the natural subtidal river. The project will include the construction of an approximately 2600-foot (~ ½ mile) long wharf and steel sheet pile retaining wall. The wharf will be constructed by permanently filling approximately 5.5 acres of the Delaware River. The in-water work will result in the permanent loss of intertidal and subtidal benthic habitat relied upon by a variety of aquatic species. These include benthic organisms (e.g., polychaetes, mysid shrimp, amphipods, molluscs and crabs) and fish (e.g., sturgeon, striped bass, blueback herring, and alewife[2]) that rely on this habitat.

The connection between benthic habitat, benthic organisms and fish is important to view holistically, because each is required to operate in unison in order that the ecosystem functions as a whole. With the loss caused by filling of any one individual habitat or biological resource, there is the potential for concomitant loss to dependent resources with some proportional loss of function. The overall position presented in the Essential Fish Habitat (EFH) Assessment (Appendix 11) and Biological Assessment (Appendix 13) is that a loss of intertidal and subtidal habitat from filling is not important because the habitat is not unique or considered otherwise special, and because the construction of the wharf will require that only 5.5 acres be filled. From an ecological perspective, this position is flawed for two reasons.

- *First*, the uniqueness, specialness, or quality of habitat and the organisms living there is a subjective and largely irrelevant matter. As suggested in the report titled "Delaware Estuary Benthic Inventory - An Enhanced Understanding of Bottom Ecology in the Delaware Bay and River 2008-2010[3]," quality of habitat and species is a relative consideration influenced by human values. Of equal importance, in fact,

[1] Iannuzzi, T.J., J.L. Durda, D.V. Preziosi, D.F. Ludwig, R.G. Stahl Jr., A.A. DeSantis, and R.A. Hoke. 2010. Development of a preliminary relative risk model for evaluating regional ecological conditions in the Delaware River Estuary, USA. *IEAM* 6(1):164–179.
[2] Duffield Associates. January 2020. Essential Fish Habitat, Proposed Berth and Approach Channel Port of Wilmington Edgemoor Expansion, Edgemoor, Delaware. Project No. 11139.LH.
[3] D. Kreeger, A.T. Padeletti, and D.C. Miller. September 2010. Delaware Estuary Benthic Inventory (DEBI) An exploration of what lies beneath the Delaware Bay and River. Partnership for the Delaware Estuary, PDE Report No. 11-06. 1 –X pp. https://s3.amazonaws.com/delawareestuary/pdf/ScienceReportsbyPDEandDELEP/PDE-Report-11-06_Delaware%20Estuary%20Benthic%20Inventory.pdf

is the wide variation of habitat types present in the Delaware River. This variation in habitat is responsible for the great diversity and numbers of species present in the Delaware River. Arguing that any one benthic habitat is of lesser quality or not special, or is "common," fails to acknowledge the overarching importance of maintaining the variety of all habitats and species that comprise the Delaware River ecosystem. This very kind of variety exists in the area of the Edgemoor project location. Separate data collected during investigation of the Fox Point State Park shows the presence of benthic habitat that varies widely from silt and muds to sand, pebbles and shell. This variety contributes to not only the differing types of benthic organisms occurring across these habitats, but also to the types of prey made available to different species of fish.

In the case of sturgeon, the Biological Assessment (Appendix 13) minimizes the potential for effects based on an apparent lack of quality (i.e., deeper water) habitat in the planned footprint of the wharf. Literature relevant to the Delaware River does show some preference by juvenile and adult shortnose and Atlantic sturgeon for deeper water. However, the project will involve impacts to some deeper water habitat, and although sturgeon may "prefer" deeper water, that does not mean that sturgeon at different life stages are not present in shallow water.

Under current conditions at the project location, water depths (outside the boundaries of the channel) range from a couple feet deep at the shoreline and rapidly drop off to a depth of approximately 15-35 feet. This deeper water is shown generally on nautical charts for the project location, and is depicted in detail in the Biological Assessment (see bathymetric contours presented on p. 13-84). The Biological Assessment also presents a depiction of the footprint for the planned wharf (see figure presented on p. 13-85). While the Biological Assessment concludes filling of shallow water habitat will not effect sturgeon that prefer deeper water, it fails to acknowledge that construction of the wharf is planned in an area immediately adjacent to deep water habitat, the very habitat type that the same assessment references sturgeon preferring. Further, individual sturgeon showing a preference to deeper water does not mean that use of more shallow areas, including along the shoreline where the filling will take place, does not occur. The National Marine Fisheries Service (NMFS) specifies waters greater than 1.2 meters (~ 4 feet) providing continuous flow as an appropriate depth for all life stages of Atlantic sturgeon traveling between spawning, nursery, bay and ocean complexes.[4] A

[4] NMFS. 2017. Designation of critical habitat for the Gulf of Maine, New York Bight, and Chesapeake Bay Distinct Population Segments of Atlantic Sturgeon. ESA Section 4(b)(2) impact analysis and biological source document with the economic analysis and final regulatory flexibility analysis. National Marine Fisheries Service, Greater Atlantic Regional Fisheries Office, Gloucester, MA.

compilation of telemetry data assembled for the Delaware River shows the presence of multiple life stages throughout the entire year in the immediate vicinity of the project location (see Table 1, DRBC Zone 5A, RM 69.5-78.5, presented in Moberg and DeLucia [2016][5]). This information strongly suggests the possibility that multiple life stages may exploit not only deeper waters, but also shallower waters, both of which occur at or in proximity to the wharf.

NMFS' critical habitat rule for Atlantic Sturgeon identified four critical habitat units (referred to as physical or biological features [PBFs]) that are essential to the conservation of the species and may require special management considerations or protections. The Edgemoor project site, including the area of the proposed wharf, contains elements of 3 of 4 habitat units, with the 4th (i.e., hard bottom substrate in low salinity waters that can be used for spawning) believed to be occurring approximately 4 miles to the north. The presence of critical habitat at and in close proximity to the project affirms the need for DNREC and the Army Corps to seek additional Endangered Species Act (ESA) Section 7 consultation with NMFS.

In addition, collection of data on the presence and distribution of larval sturgeon has not been performed to date for the Delaware River, and specifically not at the project location. While lower salinity is generally believed to be preferred by larval sturgeon, during certain years and seasons (i.e., Spring) opportunities arise for long periods of suitable freshwater conditions. It is conceivable that larval fish may utilize shallow, nearshore areas, including the 5.5 acre area that will be lost from filling during construction of the wharf. Until data are collected, the actual distribution of this important life stage at the project location remains an uncertainty.

- *Second*, though only a relatively small area may be impacted (when compared to the Delaware River at large), it does not mean that the loss of the area has no material consequence. The 5.5 acres that will be filled represents one patch of regional habitat among a finite number of patches available in this section of the Delaware River. The argument that the small size of an area gives grounds to its loss does not stand, because any one - and ultimately all - individual patches can be judged of no consequence following the same thinking. At some point in time, if the logic stands, all patches in total can be lost because no one patch was considered of consequence. As the patch that will include the wharf contains 3 of 4 PBFs that define critical

[5] Moberg, T. and M. DeLucia. 2016. Potential Impacts of Dissolved Oxygen, Salinity and Flow on the Successful Recruitment of Atlantic Sturgeon in the Delaware River. The Nature Conservancy. Harrisburg, PA.

habitat for Atlantic sturgeon, this area warrants special management considerations consistent with the ESA.

To avoid the pitfall of only assessing individual sites in this type of vacuum, standard practice under NEPA is to examine the project in the context of other regional impacts. This is accomplished through detailed and thorough assessment of potential cumulative effects. Given the context of the ongoing and larger-scale Deepening Project, and in view of the standard of practice, the Biological Assessment's 3-sentence discussion of cumulative effects (Section 8.1) is wholly inadequate. DNREC must require a more comprehensive cumulative effects assessment be performed that, at a minimum, looks at the combined effects of the Edgemoor Project and the Deepening Project.

Loss of habitat and biological resources will occur with the filling of intertidal and subtidal habitats during construction of the wharf. The loss will be permanent, not temporary. Terms of reference such as quality, specialness, commonness or size of habitat have limited ecological meaning absent a more through discussion beyond that currently provided in the Biological Assessment and EFH Assessment. Until these assessments are updated to provide suitable discussion, the terms should not be used for asserting no, insignificant, or otherwise *de minimis* impact. In the interim, the data provided in the Assessments indicating the presence of EFH and PBFs confirm the loss of these habitats following construction of the wharf.

Because some loss will occur, the Army Corps and DNREC must require a compensatory project that mitigates the filling of intertidal and subtidal habitat during construction of the wharf. Clearly, both the regulatory language (i.e., Compensatory Mitigation for Losses of Aquatic Resources [33 CFR Part 322 and 40 CFR Part 230]) and project precedents exist. In parallel with federal requirements, the State of Delaware requires mitigation or offset to address both environmental (individual and cumulative impacts) and public use impacts for projects occurring in tidal underwater lands below the mean low water line (i.e., Delaware's Subaqueous Lands Act [7 *Del. C.* §§ 7201 *et seq.*] and Regulations Governing the Use of Subaqueous Lands [7 *Del. Admin. C. §§ 7504 et seq.]*). As a point of reference, the Fox Point State Park project is currently examining the need to perform a compensatory restoration project under Delaware's Hazardous Substance Cleanup Act and federal CERCLA statutes as a result of the potential ecological service loss of 0.47 acres of intertidal and subtidal habitat. While the regulatory construct and regulatory agencies may differ, it is inconceivable that a compensatory project should be performed to address less than ½ acre of potential habitat loss at Fox Point State Park, but DSPC's nearly 90 acre project a few hundred feet downstream, that includes filling 5.5 acres of the Delaware River containing critical habitat for an endangered species, will occur without *any* compensatory mitigation.

In order to satisfy its obligations to consider public use and environmental impacts, DNREC must carefully study and review a project of this scope that will result in the loss of intertidal and subtidal habitat, including loss of critical habitat to Atlantic sturgeon. Before approving any request for permit, a full evaluation of the above considerations must fully be considered and, where appropriate, addressed.

Thank you for consideration of these comments,

Sincerely,

Damian V. Preziosi

Principal Ecologist – Toxicology, Health and Environmental Sciences
Integral Consulting Inc.

EXHIBIT D

Declaration of Captain Jerzy J. Kichner

I, Captain Jerzy J. Kichner, U.S.C.G. (ret.) do hereby declare and state as follows:

1. I am a retired United States Coast Guard (USCG) Captain with over 28 years' experience in port and commercial vessel safety and in navigation and safety matters having been the Captain of the Port for five major Gulf Coast ports, and with an additional 20 years' experience as a consultant in this area. A further description of my background and experience is contained in the attached "Comments on Navigational Safety Concerns for Edgemoor Terminal," dated October 1, 2020 (the "Kichner Report"), included as Attachment 1 to this Declaration. I understand that a copy of the Kichner Report was submitted by Greenwich Terminals LLC and Gloucester Terminals LLC to the Department of Natural Resources and Environmental Control ("DNREC") Hearing Officer, Lisa Vest, on October 30, 2020, regarding permit applications from Diamond State Port Corporation ("DSPC") for a proposed container port on the Delaware River at DSPC's Edgemoor property (the "DSPC project").

2. The Kichner Report is based on my review of the study entitled "Full Mission Ship Simulation for Edgemoor Navigation Feasibility Study," prepared by the Maritime Institute of Technology and Graduate Studies ("MITAGS"), dated August 22-24, 2018 (the "Navigation Simulation Report").

3. I have reviewed the DNREC Secretary's Order No.: 2021-W/CCE-0026, the accompanying Hearing Officer's Report, the Technical Response Memorandum and Subaqueous Lands Permit attached to the Hearing Officer's Report, and the Federal Consistency Certification for Port of Wilmington Edgemoor dated September 29, 2021. I have also reviewed the letter from David K. Cuff, President of The Pilots' Association for the Bay and River Delaware, which

appears to be the letter from the Pilots' Association referenced in the Hearing Officer's Report. None of these documents fully address the issues and concerns raised in the Kichner Report regarding impacts to navigation and safe use of the Delaware River and Main Navigation Channel. Further, I cannot tell from the information in the Hearing Officer's Report and Technical Response Memorandum whether either the Pilots' Association or the USCG were provided with a copy of the Kichner Report before they were asked to comment on the DSPC project.

4. The issues and concerns identified in the Kichner Report are still presented by the DSPC project as approved by the Secretary's Order and have not been addressed or resolved based on my review of the information in the Hearing Officer's Report or the Technical Response Memorandum.

5. I have reviewed the Declaration of Craig Jones, Ph.D. and understand that there is anticipated to be a significant amount of annual maintenance dredging for this proposed project in the neighborhood of 500,000 – 600,000 cubic yards. In my experience, maintenance dredging operations of this magnitude that take place near or adjacent to a main navigation channel are likely to impede vessel traffic using the main channel. Nearby maintenance dredging necessitates slowdowns or travel restrictions, sometimes imposed by the USCG, similar to when road construction crews conduct repairs near a highway. This size maintenance dredge operation, and its associated limitation on the useable area of the Delaware River and Main Navigation Channel, increases the risk of a collision, allision or another type of ship casualty. Accordingly, it is industry best practice to analyze and study potential impacts from the expected maintenance dredging and to plan for such impacts.

Pursuant to 10 *Del. C.* § 3927, I declare under penalty of perjury under the laws of Delaware that the foregoing is true and correct.

Jerzy J. Kichner (Printed Name)


(Signature)

Captain Jerzy J. Kichner, U.S.C.G. (ret.)

Executed on the 20th day of October 2021.

ATTACHMENT 1

KSEAS LLC

Comments on Navigational Safety Concerns for Edgemoor Terminal

Prepared for:

Manko, Gold, Katcher, Fox LLP
401 City Avenue, Suite 900
Bala Cynwyd, PA 19004

Prepared by:

Captain Jerzy J. Kichner, USCG (ret)

Kseas

2711 SW 43rd TER Cape Coral FL 33914

Project	Date	Status
EDGEMOOR	1 October 2020	FINAL

TABLE OF CONTENTS

1. Overview

I am a retired United States Coast Guard (USCG) Captain with over 28 years' experience in port and commercial vessel safety and in navigation and safety matters. As a previous Captain of the Port for what is now USCG Sector Mobile, AL it was my responsibility to promote commerce while ensuring the safety of navigation for commercial vessel traffic. In that position I regularly had to evaluate and provide input and decisions concerning U.S. Army Corp of Engineers (USACOE) permit applications for construction of piers, wharfs and waterfront facilities and evaluate their impact on the waterway and navigational safety for all users of the waterway. Since my retirement, as a consultant, I have 19+ years' experience in risk management for marine projects which includes the construction of new facilities throughout the United States. I have been heavily involved in chartering and evaluating a multitude of different ship simulation and other studies that were necessary to fully quantify risks associated with particular projects to ports or waterways. This included projects in the United States, Europe, Mexico, the Middle East and North Africa.

I was asked to evaluate the proposed plans for the Edgemoor Terminal and turning basin to assess whether the new terminal and turning basin would pose a risk to navigation and safety on the Delaware River. In conducting my evaluation, I focused on the Full Mission Ship Simulation for Edgemoor Navigation Feasibility Study (2018) prepared by MITAGS. The MITAGS study claims that the focus of the simulation was to determine the impact of the terminal on ships transiting the deep-draft navigation channel, but the study is inadequate for this purpose. It is my view that the MITAGS study was too limited and did not fully encompass the conditions, vessel types, and traffic impacts that would be expected for a terminal and turning basin in this location. In light of the proposed location of the turning basin in a highly trafficked part of the main and only deep draft channel servicing a plethora of critical upstream ports (Philadelphia), refineries and terminals, and the grave consequences of a ship casualty affecting the use of the channel, a more careful and thorough evaluation of the actual impacts of the terminal/turning basin on ship safety and navigation is warranted.

2. Navigation on the Delaware River

The Delaware River is an important, highly trafficked river and only has one deep draft channel that services a number of critical ports.

In 2018, the United States Coast Guard prepared a Ports and Waterways Safety Assessment (PAWSA)[1] for the Delaware River. The USCG as part of its duties is responsible for developing and implementing policies and procedures that facilitate commerce, improve safety and efficiency, and inspire dialogue within the port complex that will make waterways as safe, efficient, and commercially viable as possible. USCG PAWSAs are conducted on what is considered to be "critical waterways".

According to the USCG PAWSA, the maritime industry along the Delaware River contributes approximately $85 billion dollars to the economy. Similarly, the PAWSA states that with regards to shipping and use of the federal channel, there were approximately 2,400 discrete commercial cargo vessel arrivals, not including towing vessels, calling on the ports and terminals along the Delaware River. Vessels shifting berths or moving between facilities results in approximately 200 additional discreet vessel movements.

The USCG PAWSA confirms and emphasizes the criticality of the Delaware River federal channel and the need to ensure that it is never obstructed. The following is taken directly and verbatim out of the USCG report:

- *A major marine casualty would have a significant impact on the port complex. Shutting down the waterway would have a major impact to the oil refiners who rely upon daily imported crude oil shipments to keep the refineries operating.*
- *Shore-side infrastructure would also be impacted by a port closure. Outbound shipments of refined products by railroad tank car would be disrupted.*
- *There are several railroads that could be utilized to bring in and ship out limited amounts of cargo, but the capacity of the rail lines could not sustain long term operations.*
- *Shore side facilities that rely upon daily and weekly cargo transfers (crude oil for example) would be greatly impacted by a port closure. The larger refineries receive in some cases 1 million-gallon shipments of crude oil daily; an extended port closure could result in the refinery running out of crude oil to processes and having to shut-down refining operations. Facilities that receive vessels every few weeks would be less impacted by a port closure.*

3. The Location of the Edgemoor Terminal and Turning Basin

The proposed turning basin for the Edgemoor terminal encompasses the entire federal channel, the only deep draft channel that services the major ports and terminals located

[1] https://www.navcen.uscg.gov/?pageName=pawsaFinalReports

north of Edgemoor. Turning a vessel involves the use of multiple resources (tugs) and extraordinary coordination accounting for a complex set of factors including the ship's maneuvering characteristics, draft, sail area, wind and currents, to maintain position in a tight designated area of sufficient depth to keep a vessel from going aground. While a vessel is being turned, no other deep draft traffic constrained by draft can use the channel and must remain clear until the turning vessel is oriented for travel up or down the channel. Vessels using the proposed turning basin, whether due to environmental conditions, human error or mechanical malfunction, could easily and potentially ground and block the federal channel for days or weeks on end. Any disruption, blockage, grounding, collision or allision in the federal channel by a container vessel using Edgemoor would have a severe and adverse impact on those ports and terminals located north of Edgemoor as noted in the USCG PAWSA.

The proposed terminal/turning basin is also positioned in a critical turn in the channel for both upbound and downbound vessels that influences/impacts vessel maneuverability on turns from the Bellevue Range onto the Marcus Hook Range. Ranges are essential visual navigational aids. While most Pilot organizations use highly accurate personal electronic aids for navigation (i.e. PilotMate), the use of all available means of navigation is prudent and practiced by responsible mariners. Ranges have long since been used as navigational aids to provide for precise visual navigation in critical turns and in maintaining proper position in channels. Use of ranges is critical to the safe navigation of any vessel and more so for deep draft vessels constrained by draft and limited by the depth of the channel. The USCG PAWSA states that there are already visibility impediments by background shore side lighting, and it is difficult to see vessels berth alongside or tow vessels with barges as well as other smaller vessels that may be in the channel. Any obstruction, such as a cargo ship in the turning basin, that would diminish the ability of a vessel to use the range at the turn at Edgemoor could impact safe navigation.

PIANC (Permanent International Association of Navigation Congresses)[2] is a recognized international industry and government standards body that publishes information on best practices, standards and procedures for the design and analysis of navigational channels. PIANC in concert with the International Association of Ports and Harbors (IAPH), the International Maritime Pilots Association (IMPA) and the International Association of Lighthouse Authorities (IALA) published a document titled *Harbour Approach Channels Design Guidelines (2014).*[3] It is the world class standard for recommendations on good practice in the design and analysis of navigational channel and port design and operations. PIANC recommends that no Turning Basin intrude on a deep draft channel. In many ports in the United States, turning basins are part of the port infrastructure but are designed and

[2] https://www.pianc.org/about
[3] https://www.pianc.org/publications

placed so as not to impede or intrude on existing and critical deep draft navigational channels.

4. MITAGS Study

The MITAGS study was done by the applicant to support the USACOE and project stakeholders' desire for a ship navigation study to ensure that container ships anticipated to use the terminal are able to safely transit the waterway to the proposed Edgemoor Terminal on a regular basis, with minimum impact on existing vessel traffic. The primary purpose of the study was to determine the impact of the terminal on the ships transiting the deep-draft navigation channel, although as described below, the study was too limited to adequately evaluate this issue. The study used a full mission simulator to represent the transit and mooring of vessels at the Edgemoor Terminal under a narrow set of conditions. The study primarily processed 9300 TEU Container ships through a 3-day simulation, although the study also performed a preliminary assessment of the feasibility of a 12000 TEU container ship. The conclusion from the simulation was that the ships tested and Terminal design "*…would have minimal impact on ships as they transit the existing navigational channel*." However, the study recommended restrictions on transit to high tide and wind conditions less than 20 knots.

The MITAGS study is incomplete. The simulation study concluded that there would be no adverse effects from vessels using the terminal, but this conclusion was based on six passing vessel tests under very limited test conditions. What this conclusion fails to mention is that it is only applicable to container vessels and only the two container vessel models used in the simulation. Although MITAGS acknowledged in the study that the "*navigation channel handles oil tankers up to the Suezmax class, container ships up to 14,000 TEUs, and other vessel classes,"* the passing test failed to account for the different types of vessels using the channel and transiting past Edgemoor. A fully laden Suezmax class tanker or a light Suezmax tanker may handle much differently than the modeled container ships used in the passing study. By the report's own admission "*Model behavior is highly dependent on the accuracy of the bathymetry, the current, and wind flows. In real world situations, such forces could vary significantly over the operating area. In addition, the models used in these tests were representative of vessel classes similar in size and displacement. Vessels of the same class may have significant differences in handling characteristics in real-word conditions*." This fact is even more relevant to deep draft vessels of a different class (tankers etc.). Also, the study was limited to container vessels and did not take into account other types of vessels using the channel, including tugs and barges.

Further, no simulations were conducted to assess the impact of a turning basin that occupies the entire deep draft channel on transiting ship traffic. A ship using the proposed turning basin would prevent the use of this section of the main channel by transiting vessels for a significant period of time resulting in potential delays to upbound and downbound traffic. In addition, as stated by the USCG in the PAWSA, *"Vessels with high wind-profile areas (car carriers, larger container ships) are most impacted by winds and must maintain sufficient speed in order to maintain vessel maneuverability."*[4] This means that large vessels constrained to the confines of the channel (constrained by draft) cannot slow down without themselves potentially impacting their own navigational safety under certain weather conditions. Therefore, if a vessel using the main channel were to have to slow for a vessel obstructing the channel in the turning basin, it could impact the transiting vessel and cause it to ground or collide with the maneuvering vessel and thereby block the channel. It is therefore imprudent to conclude that construction and location of the Edgemoor Terminal as proposed would not have an effect on passing traffic or that passing traffic would not have an effect on vessels moored at the Edgemoor Terminal without additional study.

The MITAGS study's simulations were only conducted in "clear visibility." No simulation runs were done under adverse or restricted visibility conditions. Certainly, the maneuvering of vessels under good visibility, with all of the visual navigation aids available, would achieve better results in the simulation. A complete simulation to adequately assess the safety of these maneuvers needs to be done under adverse conditions of night transits, sudden squalls, and restricted visibility so as to determine the safe limits of vessel navigation and maneuvering alongside the Terminal. The USCG PAWSA report states that fog routinely occurs year-round but is more prevalent in the spring and fall. Spring and fall are traditionally low visibility times of year. An additional question that needs to be explored is how the studied vessels would react in the middle of a turn during a sudden squall and/or change in visibility. Without simulating such adverse conditions, the study cannot reliably conclude that ship traffic can safely use the terminal and turning basin.

The study also indicated that "*No maximum ebb currents were used during the inbound runs.*" Unless the turning and mooring of <u>any and all</u> container vessels that may call on Edgemoor will never take place during max ebb, simulation of turning and mooring a vessel under those conditions needs to be explored.

In addition, simulations were conducted during what were claimed to be "worst case" conditions of spring max flood of 1.6 -1.7 knots and spring max ebb of 1.3 – 1.5 knots. However, according to the USCG PAWSA, "*significant rain events in the spring and snow melt*

[4] USCG Sector Delaware River PAWSA 2018

run-off from the winter increases water flow movement and can increase current speeds from the normal 1-2 knots, to over 4 knots." There were no simulation runs for passing vessels or for turning vessels to moor at Edgemoor under those conditions or conditions that combine high current and higher wind speeds.

Further, it is also not clear in the simulation conducted whether the tugs modeled and used would be of the same type, number and bollard pull that would be available for actual operations. The availability, type and adequate number of tugs to guide and turn a container vessel within a confined area as proposed and simulated is crucial. This is especially the case when impacted by weather and current and other factors. A tug's bollard pull and maneuverability are critical factors in determining the adequate number necessary to safely handle a vessel especially in a situation that rapidly develops and may not be planned for. Although the MITAGS study included a letter from Wilmington Tug certifying that "*the simulated tug service [in the study] appears consistent with our experience and expectations*," it is unclear whether the letter by Wilmington Tug confirmed that the tugs used in the simulation were the ones that will be used for actual mooring of the container vessels at Edgemoor, or if the tugs used in the simulation responded accurately as the tugs owned and operated by Wilmington Tug. In any case, the Simulation Report stated that future work was needed to determine the berthing procedures, tug power required, and emergency procedures to be developed.

Finally, in the Pilot Recommendations section, the Delaware Pilots recommended high tide and winds less than 20 knots for inbound transits. It is assumed that this restriction is applicable only to the vessels used in the simulation. This is a very broad and general statement. Further clarification is needed as to what this actually means and where and how it is applicable. Is it required that the vessel moor at the terminal at high tide or is the requirement for high tide transit applicable in initiating the transit to Edgemoor from the sea buoy or anchorage? Restricting vessels to high tide transits confines the window of opportunity to certain parts of the day or night and may impact the ability for other vessels to transit the River. Similarly, the transit may start on high tide with favorable winds, but prior to reaching the destination, winds have increased beyond the threshold limit recommended. The applicant should identify appropriate measures for such a scenario to ensure that navigational safety can be maintained.

5. Conclusion and Recommendations

Given the criticality of the federal channel to upstream industry and ports and the impact if the channel was blocked for any reason, the MITAGS study is incomplete and additional simulations and analyses are recommended. PIANC recommends that a full analysis be

conducted to determine the risks associated with the design of new terminals and modification of navigational channels. Risk can be defined as the probability of some occurrence multiplied by the financial and port impact consequences. A probabilistic simulation of this potential using a "Monte Carlo" simulation should be conducted. A "Monte Carlo" simulation (random combinations) is a method used to generate a large number of navigation scenarios and their probabilistic outcome. Factors considered would be collisions between vessels calling on the terminal and channel; collisions between a passing vessel and a vessel at the Terminal, groundings or allisions due to environmental conditions (winds, currents, visibility, mechanical casualty (loss of power)) and inadequate tug availability and horsepower. Scenarios involving the use of the turning basin in the main channel must also be included. The analysis should not only include interaction between the Edgemoor container vessels and other deep draft vessels but also their effect on the tugs and barges that use the waterway for commerce. As part of the analysis, the impact on other vessel traffic from limiting inbound transit for container vessels to high tide and winds less than 20 knots as recommended by the MITAGS study should be assessed.

In addition, the USCG PAWSA states that one of the mitigating factors, among others, associated with safe navigation on the Delaware River is the use of a transit plan. As part of the application evaluation process and completion of the full navigational safety analysis that addresses the issues raised, a solid navigation transit plan should be prepared by the project applicant which incorporates the issues learned and mitigation strategies employed to ensure safe navigation and minimize risk to the other critical users of the waterway. Any transit plan must specify how such limitations will be implemented without unduly impairing other ship traffic or commerce on the Delaware River.

Signed: _____ Date: October 1, 2020

J. J. Kichner, PE

EXHIBIT E

Declaration of Craig Jones, Ph.D.

I, Craig Jones, Ph.D. do hereby declare and state as follows:

1. I am the managing principal of Marine, Coastal, Climate, and Technology services at Integral Consulting, Inc. In that role, I have been engaged as a technical expert on sediment, dredging, and environmental matters on most of the large estuaries in the northeastern United States including the Delaware River. I have been involved in technical support for numerous phases of dredging operations including for the San Francisco-Oakland Bay Bridge East Span, Port of San Francisco, Lower Passaic River, Delong Mountain Terminal, Santa Cruz Harbor, Savannah Harbor, Ashtabula River, and feasibility studies for environmental dredging operations worldwide. I hold a Ph.D. and M.S. in Mechanical and Environmental Engineering from the University of California, Santa Barbara and a B.S. in Maritime Systems Engineering from Texas A&M, Galveston.

2. I am familiar with the proposal by Diamond State Port Corporation ("DSPC") to construct a container port on the Delaware River at DSPC's Edgemoor property (the "DSPC project"). During the Fall of 2020, I reviewed the permit application and supporting studies concerning the DSPC project that DSPC submitted in connection with its application for a Subaqueous Lands Permit and Federal Consistency Certification from the Delaware Department of Natural Resources and Environmental Control ("DNREC"), as well as its permit application for a Section 10/Section 404 permit from the United States Army Corps of Engineers ("USACE"). Based on my review of these materials, I prepared comments concerning the project's proposed dredging operations and use of sedimentation fans (also referred to as

shoaling fans). I understand that my comments were submitted by Greenwich Terminals LLC and Gloucester Terminals LLC to DNREC on October 30, 2021.

3. I understand that DNREC issued the Subaqueous Lands Permit and Federal Consistency Certification for the DSPC project on September 30, 2021. I have since reviewed the Permit and Certification as well as the corresponding Secretary's Order authorizing these approvals. I have also reviewed the Hearing Officer's Report and the Technical Response Memorandum dated September 29, 2021.

4. The Secretary's Order and Hearing Officer's Report reference the fact that "the use of shoaling fans (as proposed by DSPC in the original Application) was removed from the scope of the proposed activities…" This is a significant change to the design of the DSPC project that was not available for consideration when I reviewed the application materials and prepared my comments for submittal to DNREC last year. While shoaling fans had to my knowledge never been deployed to the scale originally proposed for this project, removing the fans from the project presents significant new questions and potential problems that are not addressed in DSPC's permit application for a Subaqueous Lands Permit. The application reflects that the shoaling fans were intended by DSPC to significantly reduce the frequency of maintenance dredging. Based on my review of the Secretary's Order, Hearing Officer's Report, and accompanying Technical Response Memorandum, it is not clear what, if any, measures are being required of DSPC to reduce the frequency of maintenance dredging and/or address the volume of maintenance dredging now that the fans have been removed from the project's design.

5. As I noted in my original comments to DNREC, the volume and frequency of maintenance dredging anticipated for the DSPC project was already significant; without the shoaling fans, the anticipated amount of maintenance dredging is massive. DSPC's permit

application materials reference up to 500,000 cubic yards of annual maintenance dredging per year. At least one study prepared by DSPC's consultants suggests that the maintenance dredging needs for the project might even be greater. According to a May 2020 study prepared on behalf of DSPC by Moffat and Nichol (MN), MN predicted as much as 610,000 cubic yards of sedimentation per year across the dredged area for the project. Between 6 and 10 feet of sedimentation over a year was predicted along the shoreward end of the project area. The MN study noted that "maintenance dredging in the proposed terminal area may be required at a frequency higher than what the range of predicted annual sedimentation might suggest." An excerpt from the MN study is attached as Attachment 1. Whether the amount is 500,000 cubic yards per year or potentially more as the MN study predicts, maintenance dredging upwards of 500,000 cubic yards per year in a relatively small waterfront area is a massive maintenance dredging operation.

6. Neither the permit application materials that I reviewed, nor the Hearing Officer's Report and Technical Response Memorandum contain a detailed assessment of or planning for the required maintenance dredging for the DSPC project. Nevertheless, certain conclusions can be reached regarding the maintenance dredging operations that will be required based on the information provided by DSPC to date.

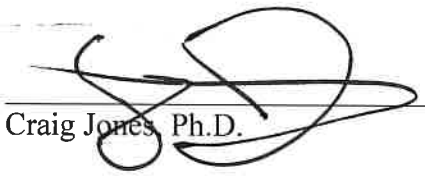
7. Generally, it is anticipated that a hydraulic dredge for 15 hour a day operation would be used for the maintenance dredging, as outlined for construction dredging in the Environmental Assessment Technical Document (2020). Assuming a large hydraulic dredge of 22" diameter, a production rate of 500 cubic yards per hour can be assumed (USACE EM 1110-2-5025, 2015) yielding continuous dredging for approximately 65 days (not including holidays and equipment down time) based on DSPC's anticipated volume of sedimentation. While DSPC

could reduce the anticipated dredging time by using more than one dredge, this would require a corresponding increase in the equipment and support vessels utilized during the maintenance operation. During the maintenance dredging, operations would include the dredge barge, tender vessels, and survey vessels. Further, dredge piping including floats, booster pumps, and additional maintenance vessels would likely be required. This maintenance dredging operation would need to be repeated indefinitely at least annually for as long as DSPC intended to maintain the berth and access channel depths to 45 feet below mean lower low water, as authorized in the Subaqueous Lands Permit.

8. With the size and scope of this anticipated maintenance dredging operation and its proximity to the main channel of the Delaware River, it is anticipated that at least some of the activities associated with the operation will need to take place in or directly adjacent to the main channel. The large dredge, associated tender and survey vessels, and piping to a disposal facility all require exclusive use of the areas of the Delaware River that they occupy with a reasonable safety radius. The dredging operation would result in excluding these areas of the Delaware River and pose significant hinderance and hazard to vessels transiting near the area, including in the main channel. I would anticipate that, if the project moves forward as designed and approved by DNREC, the annual maintenance dredging operation for this project, which could take as long as three to four months to complete each year, will impede or limit ship traffic moving in the main channel.

Pursuant to 10 *Del. C.* § 3927, I declare under penalty of perjury under the laws of Delaware that the foregoing is true and correct.

_____Craig Jones_____(Printed Name)



_____(Signature)
Craig Jones, Ph.D.

Executed on the _19th__ day of October 2021.

ATTACHMENT 1

Preliminary Modeling in Support of Port of Wilmington Expansion Study

Presented to:

Duffield Associates, Inc.

May 9, 2020

Revision		Description	Issued By	Date	Checked
V0		First Draft for internal QC	Dinesh Manian & Chris Siverd	May 5, 2020	Oleg Mouraenko
V1		Updated Draft	Dinesh Manian	May 7, 2020	Santiago Alfageme
V2		Final Draft for submittal	Dinesh Manian	May 9, 2020	Fernando Gonzalez Chana

Prepared by:

moffatt & nichol

* * *

4. Conclusions

A depth-averaged two-dimensional sediment transport (ST) model was developed and calibrated to simulate the expected sedimentation over the proposed Edgemoor Terminal area. The model setup consisted of a local grid nested within a regional model grid. Model simulations using the regional grid were used to provide the hydrodynamic boundary conditions for the local model grid. The sediment transport and morphological changes were simulated using the local model grid. Average sediment loads based on measurements were applied at the ST model boundaries. Only cohesive sediments were included in the model. Suspended sand and bed-load were not modeled since they together are expected to constitute less than 10% of the total long term sediment transport.

The morphological model was calibrated to the general trend of sedimentation in the channels immediately adjacent to the proposed terminal. The calibrated model was assessed to compare reasonably well with the observed large scale morphological trends including the relatively low level of net sedimentation in the adjacent Cherry Island range, the high magnitude of sedimentation in Wilmington Harbor, and the general stability of the river bed with the lack of any significant erosional areas. The model predicted suspended sediment concentrations were also in line with expected values from available measurements.

Sediment transport and morphological changes were simulated with the model continuously over a 1-year period to evaluate long-term morphological changes during low, average, and high river flows. The evaluated future with-project conditions include Alternative 1 (43 ft NAVD dredge), Alternative 2 (47 ft NAVD dredge), and the Preferred Alternative (48 ft NAVD dredge) scenarios. In addition, existing (undredged) conditions were simulated to serve as a baseline for model predictions. The cumulative net sedimentation over the dredged areas evaluated over time showed a high initial rate of infill, which then tends to plateau over time. The predicted range of sedimentation over the dredged extents under the Preferred Alternative is between approximately 450,000 and 610,000 cubic yards per year depending on river flow. The corresponding model predicted range of sedimentation over the same footprint with Alternative 1 is 400,000 to 550,000 cubic yards per year, and with Alternative 2 is 420,000 to 580,000 cubic yards per year.

Based on model results, most of the sedimentation over the Project Area occurs in the first 5–6 months following dredging, with the predicted rate of sedimentation falling as the channel infills. The predicted rate of subsequent infill appears to grow more sensitive to river discharge events. Almost 50% of the annual sedimentation is predicted to occur within the first couple of months following dredging depending on the environmental conditions. Moreover, analysis of the predicted cross-section profiles shows most of the sedimentation in the dredged terminal occurring towards the bank, and relatively less inwards, with the model cross-sections generally tending toward an inward sloping bottom. Approximately, a maximum of between 6 and 10 feet of sedimentation over a year could be observed at the shoreward end of the model predicted sections depending on the exact location along the terminal and the meteorological conditions in any given year. The thickness of the predicted infill however falls to almost zero towards the inner part of the profile within the Harbor Area. Model predictions of cumulative net sedimentation over the footprint of the Harbor Area range from only 135,000 to 210,000 cubic yards under the Preferred Alternative. The rate of infill in the Harbor Area also tends to fall over time with higher bed elevations.

It should be noted that owing to the generally decreasing rate of sedimentation over time, as well as the uneven distribution of the sediment infill over the dredged area, maintenance dredging in the proposed terminal area may be required at a frequency higher than what the range of predicted annual sedimentation might suggest. This should be informed by operational and safety depth/draft requirements.

Several caveats accompany this modeling analysis of sedimentation at the proposed terminal. The model appears to overestimate sedimentation in the relatively flat shoal areas, which is higher than expected. This is probably a result of one or more of several simplifications made in the modeling analysis, which most likely includes the omission of wind wave and ship wake induced erosion. In addition, sediment transport beyond the modeled area and generally within the Delaware Estuary is affected by a complex set of processes, all of which are not presently included in the local model. But despite these inadequacies, the presented model results are expected to provide a reasonable approximation of the expected sedimentation in channel or dredged areas, owing to the model calibration to morphological changes in the adjacent channel areas.

Subsequent work may focus on analyzing and improving model performance in the shoals near the Project Area which may currently be over-estimated. The inclusion of wave and ship-wake induced shear stresses may be evaluated as a mechanism for improving model predicted bed-changes in these areas. A sensitivity analysis may also be performed to the assumed initial bathymetry in these shoal areas by evaluating sedimentation starting from a model spun-up bathymetry in such areas to assess any impact on the model results. The extent of possible sedimentation due to suspended sand and bed-load, especially during high river-flow events, may also be further evaluated by adding those processes to the modeling analysis. Future bathymetric surveys and sedimentological data may be used to inform and improve the current analysis by refining existing model inputs or as additional data points for model calibration and validation.