Response to Comments Document
Applicant: Delaware River Partners, Dock 2
File No.: 0807-16-0001.2 WFD190001

This document provides responses to the comments received by the following individuals and organizations:

Delaware Riverkeeper Network (DRN)
Sierra Club, New Jersey Chapter (SC)
Surfrider Foundation, South Jersey (SRF)
Clean Air Council (CAC)
Food and Water Watch (FWW)
Dr. Barbara Cuthbert
38 Individual Email Mails (Form Letter Format) (38 Individuals)

The comment response document has been developed to group similar comments by subject matter to ensure a comprehensive response to the interested parties.

Comment: There was no published notice for public comment, which was indicated to extend 15 days after this 06/05/2019 public notification of this application. "Adequate opportunity for public comment" is certainly not provided by this published letter since there was no apparent outreach to the public other than posting this letter and finally listing the application that was received by the NJDEP on 03/05/2019 in the 06/05/2019 DEP Bulletin. Posting the notice after granting a permit is not an acceptable way to ensure that the public has an opportunity to provide meaningful comments. Providing only 15 days for comments, when an OPRA request for documents to review usually takes longer to process than 15 days, also denies the public the opportunity for meaningful engagement. Given that the NJDEP fails to post applications for permits so that people have an opportunity to access the information electronically is an issue that certainly needs to be rectified. Both NY and PA post applications on their websites. (Dr. Barbara Cuthbert)

Comment: A commenter stated that the requirement at N.J.A.C. 7:7-26.6 to provide notice of the decision on an application for authorization under a general permit or waterfront development permit was not followed at the time when it should have been done and publishing the receipt and administratively complete status of this application after the fact, only then providing an opportunity for public comment for a short 15 days, is not acceptable. (Dr. Barbara Cuthbert)

Response: The publication of the Delaware River Partners' (DRP) Waterfront Development Individual permit application was inadvertently omitted from the DEP Bulletin when the application was originally submitted on March 5, 2019 and declared administratively complete by the Department on March 20, 2019. The notice of the application in the June 5, 2019 DEP Bulletin and the Department's notice of suspension of DRP's Waterfront Development Individual Permit issued on May 20, 2019 served to rectify this issue and afford the public an opportunity to comment on the application during the 15-day comment period required under the Department's Coastal Zone Management (CZM) rules. Additionally, DRP's Waterfront Development Individual Permit application was filed with the municipal clerk's office and DRP provided or published notice to adjacent property owners, municipal and county officials, and in the South Jersey Times on February 20, 2019. Currently, the Department is developing a process for the electronic submission of all permit applications that will allow for greater public access to pending applications.

As stated above, DRP's Waterfront Development Individual permit application was inadvertently omitted from the DEP Bulletin when the application was originally submitted on March 5, 2019 and declared administratively complete on March 20, 2019. The notice of the application in the June 5, 2019 DEP Bulletin and the Department's notice of suspension of DRP's Waterfront Development Individual Permit issued on May 20, 2019 served to rectify this issue and afford the public an opportunity to comment on the application in accordance with the Department's CZM rules. Additionally, the DRP's Waterfront Development Individual Permit application was filed with the municipal clerk's office and DRP provided notice to adjacent property owners, municipal and county officials.

Comment: There is no indication in the DEP Bulletin that this application was declared to be "technically complete" (needed to determine that it was complete for review). What was the date that the DEP declared this application to be "complete for review"? (Dr. Barbara Cuthbert).

Response: As stated above, DRP's Waterfront Development Individual permit application was inadvertently omitted from the DEP Bulletin when the application was originally submitted on March 5, 2019. DRP's application was deemed administratively and technically complete on March 20, 2019.

Comment: The application materials submitted lack critical information for New Jersey to make a reasoned determination in issuing a permit for the installation of a dock handling the international export of liquified natural gas (LNG) - a Dept. of Transportation class 2 explosive –through the Delaware River and under the Delaware Memorial Bridge. Moreover, Delaware River Partners has failed to file a complete application as it has omitted listing LNG as cargo to be processed through this dock. New Fortress Energy has publicly stated that it plans to truck in LNG for export through these Delaware River ports and the U.S. Army Corps of Engineers (ACE), in its Public Notice of April 4, 2019, listed LNG as being transloaded through the Gibbstown Logistics Center, yet the applicant did not include this in the new draft docket for Dock 2. As such, the application as filed is fundamentally deficient and must be denied. (FWW)

Comment: We are very concerned about the apparent obfuscation of the true usage of the Project in official descriptions in permit applications and in public notifications. Please deny any permits DRP is requesting. (SC)

Response: As set forth in the regulations applicable to the Department's decision, the standards the applicant must meet to qualify for the Waterfront Development Individual permit do not consider or otherwise depend on the type of cargo processed at the site. Notwithstanding, the subject application specifically mentioned that the proposed structure would be used for the "export of liquid energy commodities" and/or the "export of liquid bulk products." While the export of liquid natural gas (LNG) was not specifically referenced in the application, the original land use permits issued on April 10, 2017 (DEP File Number 0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001) approved a port facility including the use of the marine terminal for the handling of "bulk-liquid products" which DRP identified as liquid gases, energy liquid products. Additionally, in an August 24, 2018 request for a major technical modification of those initial land use permits, DRP provided notice, beyond what would have otherwise been required under the applicable regulations, to Greenwich municipal officials and the Gloucester County Planning Department by letter dated August 24, 2018 indicating that the proposed operational changes at the marine terminal were "planned to include uses such as an automobile import and export and processing facility, *a bulk liquid storage and handling facility for the transfer of liquified natural gas and other materials*, as well as perishables and bulk cargo handling and logistics." Additionally, to address safety concerns within the Department's jurisdiction, a condition of the

original permits (DEP File Number 0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001), as modified on November 29, 2018, requires the permittee to comply with DEP's Toxic Catastrophe Prevention Act (TCPA) Program rules, N.J.A.C. 7:31 et seq., which mandate an extensive risk analysis and demonstration through a TCPA risk management plan prior to the introduction of LNG products onto the site. Absent this approval, DRP is not authorized to conduct LNG transloading at the site. As DRP has not yet begun this process, this analysis has yet to be completed. Finally, DRP is subject to the jurisdiction of the United States Coast Guard regarding the transport of LNG via ships on the Delaware River.

Comment: Comments were submitted that expressed concerns with potential impacts to Atlantic Sturgeon from pile driving related noises, vessel strikes, and impacts to Atlantic sturgeon larvae and spawning areas. (Dr. Barbara Cuthbert, CAC, DNR)

Comment: How will the essential habitat in the area of this project be maintained to protect its important characteristics and conservation requirements? (Dr. Barbara Cuthbert)

Comment: Public comments were received expressing concern with the continued dredging of new deep-water areas will further impact Atlantic sturgeon spawning by accelerating the intrusion of brackish water into the hard-bottom spawning grounds, and thus forcing Atlantic sturgeon to spawn further upstream in the zone of depressed dissolved oxygen where spawning may not be successful and eggs and larvae may not survive. (DRN)

Response: For the in-water construction activities associated with the construction of Dock 2, the Department determined the project would not impact marine fisheries and provided a timing restriction to protect the migration of Atlantic sturgeon and shortnose sturgeon, and other anadromous fish in the Delaware River. Specifically, the Department imposed an environmental window that prohibits any in-water construction activities from March 15 to June 30 of each year. This condition has been imposed in the land use permits to date for the project.

Comment: The remobilization (and dewatering of dredged sediments) will create higher exposure to PCBs and other contaminants, and the Atlantic Sturgeon spawning and rearing that begins in June and extends the early-life-stages through July and August, with increasing evidence for high aggregations of young-of-year in the Proposed Project vicinity, means that elevated exposure will occur for larval and juvenile stages of this endangered species in the Delaware River. The currently proposed BMPs, methods such as avoidance, minimization, and mitigation and timing are insufficient to protect this endangered species habitat and the surrounding area, and more evidence and analysis would be required to comply with this subsection. The application materials indicate that adverse water quality impacts will occur with the use of an environmental clam shell bucket. (DRN)

Comment: The potential for the suspended solids to contain contaminants that are in the dredged materials or are carried to the 45-acre area to be dredged with the stormwater and runoff pollutants or the groundwater base flow to the river and shallows from the Repauno Superfund site is not examined or discussed. Considering the long history of industrial use of the DuPont Repauno site and the use of the property for other industrial operations as well, there is a risk of stirring up and re-suspending contaminants through dredging and day-to-day operation at the berths and landside facilities that can in turn effect migrating finfish. This needs further analysis. (DRN)

Comment: Dredging activities remove, disturb, dispose of and resuspend river sediments, modifying the river bottom substrate and impacting the community of benthic microfauna. Dredging operations can remove or bury organisms and destroy benthic feeding areas. Dredging operations can create noise and disturbances and can disrupt spawning migrations. Dredging activities can resuspend contaminants, affect

turbidity and siltation, and deposit fine sediments in spawning habitats. Dredging activities alter the hydrodynamic regime, alter physical habitats, and create the loss of riparian habitat. The disturbance of benthic fauna, elimination of deep holes and alteration of rock substrates have been identified as of concern for Atlantic sturgeon. Atlantic sturgeon is substrate-dependent and as such have been shown to avoid soil dumping grounds. Source: The Atlantic Sturgeon (Acipenser oxyrinchus) of the Delaware River – A Story of Plenty and Decline. (DNR)

Comment: The draft Docket No. D 2017- 009 2 (Delaware River Basin Commission) states that an estimated 72,000 cubic yards of "fine grained" sediments that are planned to be dredged are so contaminated that they don't meet the standards for disposal at the White Basin CDF. The dredging activities themselves will mobilize and increase exposure to these highly contaminated near-shore sediments. The dredging exclusion between March 15 and July 15 does not eliminate exposure to critical early life stages of the federally-endangered Atlantic sturgeon. Figure 2-2 from the DRBC docket application shows the zone of highly contaminated sediments immediately adjacent to the shore and port facility. The remobilization (and dewatering of dredged sediments) will create higher exposure to PCBs and other contaminants, and the Atlantic Sturgeon spawning and rearing that begins in June and extends the early-life-stages through July and August, with increasing evidence for high aggregations of young-of-year in the Proposed Project vicinity, means that elevated exposure will occur for larval and juvenile stages of this endangered species in the Delaware River. There is no evidence offered that it would be otherwise. The currently proposed methods and timing are insufficient to protect this endangered species, and more evidence and analysis would be required in order to claim that the project does not impair NOAA Trust Resources, fish and wildlife, and the water resources of the Basin. (DRN, SC, Dr. Barbara Cuthbert).

Response: DRP performed an extensive sediment testing and analysis of approximately 665,000 cubic yards of dredged material to be removed from the Dock 2 berthing area. The Sediment Sampling and Analysis Plan (SSAP) was approved by the Department on December 24, 2019. The SSAP consisted of the collection of 50 cores samples taken to a project depth of -45 feet plus 2 feet over dredge. The 50 core samples were composited into 17 composite samples and analyzed for chemical concentrations as per the approved SSAP. The results of the analysis of the material were provided in a document entitled "Dredged Material Management Plan, DRP Gibbstown Logistic Center – Dock 2" dated March 2019 and submitted with the March 5, 2019 Waterfront Development Permit application for Dock 2. The results of the bulk sediment chemistry analysis of the material indicates that the material meets the Department's "Residential and/or Non-Residential Soil Remediation Standards" and was deemed acceptable to be placed at Fort Mifflin Upland Confined Disposal Facility located in Philadelphia, or the Weeks Marine Whites Rehandling Basin located in Logan Township, New Jersey.

Regarding the concern related to turbidity concentrations during dredging, the Department routinely imposes conditions in any dredging permit in the Delaware Estuary that requires the use of a closed clamshell environmental bucket and other Best Management Practices (BMPS) to reduce the turbidity concentrations during the dredging operation. In turn, reducing the turbidity concentrations will reduce the resuspension of contaminated sediments into the water column during dredging. Various studies in the NY/NJ Harbor complex have demonstrated that use of this type of bucket when dredging in waterbodies where contamination is present has demonstrated minimal turbidity concentrations, essentially reduced to background concentrations of TSS in the estuary, in proximity to the dredging operation.

As stated above, the Department determined the project would not impact marine fisheries and provided a timing restriction to protect the migration of Atlantic sturgeon and shortnose sturgeon, and other anadromous fish in the Delaware River. Specifically, the Department imposed an

environmental window that prohibits any in-water construction activities from March 15 to June 30 of each year. This condition has been imposed in the land use permits to date for the project.

Comment: The submerged aquatic vegetation (SAV) habitat is prohibited from being developed to protect these special habitats. A bed of submerged aquatic vegetation (American eelgrass) is in the active project area but the applicant states it is being avoided. Appendix C shows the extensive bed within the project area. A survey of the SAV bed immediately prior to the planned dredge operations must be done to accurately identify the SAV's location during the spring growing season. The applicant's consultant (Matrix) performed the survey in September 2018. Accurate location of the SAV bed is essential. The potential for damage to the SAV from shading from the trestle structure and ships is not explored and must be. (DRN)

Response: The location of Dock 2 and dredge area has been situated to avoid the existing submerged aquatic vegetation (SAV) beds in proximity to the dock that were surveyed by DRP in September 2018. The dredge area is entirely within water that is deeper than -6 feet below mean low water (MLW). DRP is continuing to evaluate the project area for the presence of SAV to ensure that impacts to this resource are minimized.

Comment: A report dated August 26, 2016 that was submitted to the Department prepared by James Schmid and Company stated that bald eagles and ospreys' nest on site. Further analysis would need to be done to show that the nearest bald eagle nest is on Monds Island, as the application states, and that the osprey nest on the relic piling at the Repauno site will not be disturbed by any environmental changes including noise, air emissions, construction, site activities and storage, shipping and related activities at Gibbstown Logistics Center. Additionally, other wildlife species and plant species have been identified over recent years at the Repauno site and further analysis is required to accurately map all relevant habitat and the surrounding area that may be impacted by the Dock 2 activities and operations. (DRN)

Comment: Development that would negatively affect critical wildlife habitats is discouraged. The applicant states that the NJ Natural Heritage Database and the NJ Landscape Project identified foraging habitat for the great blue heron. The applicant additionally states that a breeding colony of heron is located on Monds Island, one mile from the project site. Is this mile measured to the dock? Is the measurement from the Federal Navigation Channel where the ships would travel? It should be to accurately assess the impacts to these birds. The many species that may visit the site include the twenty-six bird species in the list provided by the applicant including the federally threatened Red Knot (Calidris canutus rufa), and Cooper's Hawk. Also identified for the site is the federally threatened bog turtle and a vernal pool habitat. It is stated that no critical habitat has been designated for Red Knot or the bog turtle. There must be field surveys to accurately identify habitat and individual species that are located on the site. Appendix B does not provide a comprehensive picture of the natural conditions on the larger property and the development site, to give context to the project area. The large contiguous acreage of the Repauno site and the area used by species has developed over approximately 30 years, as the former industrial Repauno site remained largely fallow. It is an 1,856-acre site located along the Delaware River in Gloucester County, NJ. The site is bounded to the north by the Delaware River, to the east by a former Hercules Chemical manufacturing plant, to the south by the city of Gibbstown, and to the west by wetlands and Repauno Creek. The western half of the site consists almost entirely of surface water bodies and wetlands. The eastern half of the site also consists of some upland and wetland ecological communities. Altogether, the site contains approximately 1,500 acres of wetlands. The Gibbstown Logistics Center is planned to use 218 acres on the northeastern portion of the site. The largely natural area that had grown up on this property is ripe for the many species that could live here and must be fully investigated before the conclusions that the applicant draws can be considered valid and in compliance with this subsection of the CZM rules. (DRN)

Response: The Department reviewed the entire Gibbstown Logistic Center site for potential impacts to state threatened and endangered species during the land use permit review process for the rehabilitation of Dock 1 and the upland marine terminal development (DEP File Number 0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001). The existing land use permits issued April 10, 2017 and June 30, 2017 for this aspect of the project contain specific conditions that serve to minimize impacts to osprey nests and other potential impacts to threatened and endangered species. The review of the subject application, Dock 2, confirmed the presence of the osprey in the vicinity of the project. To minimize any adverse impacts on any nesting ospreys, the permit contained a condition that restricted the use of heavy equipment within 1000 feet of any active osprey nest during the seasonal nesting season from April 1 to September 30 of each year.

Comment: This subsection [N.J.A.C. 7:7-9.39, Special Hazard Rule] discourages development within or proximate to areas that pose special hazards. This subsection requires evaluation based on the LNG activities, including transloading, transporting into the site and shipping and the potential for hazards related to the transport into, loading, handling and storage of LHG, crude oil, and refined bulk liquids at the Gibbstown Logistics Center. LNG is not mentioned and, as discussed earlier in this comment, poses many special hazards (DNR).

Comment: The former use of the site for munitions, the possible presence of hazardous residues or contaminants in the soil, sediment, materials on site, groundwater or surface water of the site must be evaluated for potential hazards (DNR).

Comment: This superfund site may pose a hazard applicable to this subsection of the CZM rules. DuPont operated the site as an explosive manufacturing facility from 1880 to about 1950. All explosive manufacturing and ammonia production were discontinued during the 1960s. Repauno is a Superfund site undergoing remediation (https://cumulis.epa.gov/supercpad/CurSites/calinfo.cfm?id=0200783). The area previously used by DuPont as a terminal location for anhydrous ammonia began being cleaned for reuse in 2002, according to the 2002 Annual Groundwater Progress report. One of the dangerous contaminants on the site is nitrobenzene, a highly toxic chemical classified by the Centers for Disease Control as "Immediately Dangerous to Life or Health" if people are exposed at specific concentrations. Nitrobenzene is a likely human carcinogen according to the US Environmental Protection Agency (EPA) and is linked to several carcinomas and cancers as well as other dangerous human health effects. The area where the logistics center would operate is the area most likely exposed to aniline, a toxic chemical with adverse health effects; aniline is involved with the processing of benzene to make nitrobenzene. The area where acids were used is also at least partly included in the logistics center active project area. Whether they are in the areas adjacent to or effected by the Dock 2 activities needs to be evaluated through onsite sampling and mapping. In 1985, DuPont installed a system to pump contaminated groundwater and to treat it. The groundwater interceptor system has been in operation since, in conjunction with a groundwater monitoring program, owned and operated by Chemours, DuPont's spinoff company, since 2015. Chemours is required to continue the groundwater interceptor system together with the sitewide groundwater monitoring program to confirm that contaminated groundwater is under control. The current plans show that some monitoring wells that are part of the Gibbstown Logistics Center parking area will be paved over, jeopardizing the continued use of these wells for monitoring the cleanup. This disruption of the sampling record must be avoided. In addition, several different companies have leased areas at the Repauno facility. In 1998, Repauno Products LLC purchased the manufacturing operation that produced sodium nitrite and nitrosylsulfuric acid. In 1999, Spring AG purchased the industrial diamond refining operation, which ceased in late 2002. Industrial diamond processing may have used chemical vapor deposition or other dangerous processes that are used to manufacture industrial and synthetic diamonds, contributing additional contaminants to the site's environment that require investigation prior to use of the property. Furthermore, it is stated in the

application that fill was placed on the property at some point. What was this fill, and has it been fully tested and characterized? Has it been accurately mapped so sampling and analysis can be done? Contaminants in fill placed on the site from somewhere else, whether dredge spoils, imported material, or other fill, must be found, sampled for, and identified in order to fully answer the question of whether existing programs or plans for the site for Dock 2 have adequately addressed this subsection of the CZM rules. (DRN, SC)

Comment: What toxics in the waters and/or soils where the proposed construction of the project is planned? What proof was reviewed about the current status of contamination and potential future runoff into the river? (Dr. Barbara Cuthbert)

Response: The Department does not agree that its Special Hazard Area Rule at N.J.A.C. 7:7-9.39 discourages all development within or proximate to special hazard areas but refers specifically to residential and labor-intensive developments. The Department notes that the former E.I. DuPont Repauno site is listed on USEPA's National Priority List (NPL) as "NPL Status: Not on the NPL" and is therefore not identified as a Superfund site. The ongoing remediation of the site is being conducted by the former owner of the site, Chemours with oversight by the Department's Site Remediation Program (SRP). The comments received during the public comment period related to the remediation of the site will be referred to the SRP for additional response.

Comment: New dredging is considered acceptable if certain conditions are met. Particularly important for this site is the condition that requires a demonstrated need that cannot be satisfied by existing facilities (NJAC 7:7-12.7(c)1.) and that special water areas not be significantly disturbed. The applicant does not satisfy these conditions through its application. The Alternatives Analysis (Appendix E) relies heavily on the former use of the DuPont Repauno property and other industrial activities in the region to justify the Dock 2 additional activities and development. The proximity to Monds Island, Little Tinicum Island, the John Heinz National Wildlife Refuge at Tinicum and the naturally restored contiguous habitat on the Repauno property and some other fallow properties in the surrounding area is an important context not recognized or assessed in terms of impact of the activities that would be approved and enabled by the WFD permit and the Water Quality Certificate. This important setting must be considered under this subsection to assess the impacts of new dredging on these natural resources and features. (DRN)

Response: The Department reviewed DRP's comprehensive Alternatives Analysis during the initial permit process for the development of the site into a multi-use deep water port facility, which provided an additional evaluation of other potential locations for the new facility. An Alternatives Analysis was also reviewed by the Department as part of DRP's current Waterfront Development Individual Permit application for Dock 2. In evaluating the potential alternative sites in the region, the Department did discuss the potential environmental impacts associated with these other locations when compared to the E.I. DuPont Repauno former industrial site. It is noted that the above referenced natural islands and John Heinz Wildlife Refuge are in proximity to other industrial facilities on the Delaware River and Schuylkill River, and are still recognized as successful habitat for threatened and endangered species in the Delaware Estuary by state and federal natural resource agencies. DRP's Alternatives Analysis did also take into the consideration the expansive freshwater wetlands adjacent to the site as reflected in the on-site alternative analysis which minimized impacts to these resources by limiting the redevelopment of the site to the existing upland areas of the former industrial site and limited impacts to freshwater wetlands in the central portion of the site only to that necessary for the operation of the multi-port facility.

DRP's Alternatives Analysis for the construction of Dock 2 considered various dock configuration to minimize impacts to special areas as required by the new dredging rule. During the design stage of the Dock 2, the NJDEP required DRP to revise 1) the dock configuration to move the dock

structure into deeper water, thus minimizing the area and volume of dredging, 2) locate the dock structure within the footprint of the former timber pier on the site 3) to locate the trestle structure adjacent to the surveyed SAV beds in the area and 4) the landing area of the structure on land must be in previously disturbed areas of the site. The preferred alternative for the configuration resulted in the avoidance of impacts to intertidal/subtidal shallows and submerged aquatic vegetation and has reduced the volume of dredging of deep-water areas to only that necessary for the berthing needs at this dock. The proposed Dock 2 and associated port facility satisfy the location requirements for special water's edge areas and is in an area of existing marine commerce. The dredge area will not have an adverse impact to special water's or water's edge areas. The impacts from the dredging have been minimized by the reconfiguration of the dock to deeper water, will not have an impact on groundwater, and is at least 10 feet from a wetland. Finally, the dredging shall be consistent with the requirement for having an acceptable dredge material placement site, had pre-dredging chemical and physical analysis, and will employ Best Management Practices to control and manage turbidity concentrations and water quality parameters.

Comment: The location for development can be rejected or conditionally approved by the Department to provide public health, safety and welfare, to protect wildlife and marine fisheries, and to preserve, protect, and enhance the natural environment. The applicant fails to consider the important naturally restored condition of the Repauno property and adjacent, local and regional natural resources that would greatly benefit from preservation and protection. The loss of the natural condition, habitats and quality of the Gibbstown Logistics Center site and the fragmentation of the natural systems in the surrounding area will be great. However, the applicant does not discuss, measure, or assess this impact. The applicant simply relies on the 100-year historic use of the Repauno property prior to its abandonment as an industrial location. It has been decades since heavy industrial use of the property has occurred, and the natural environment has subsumed the location and should be considered as a natural asset of great value. (DNR)

Response: It is appropriate for the Department to consider the historical use of a site as it is a goal of its CZM rules to encourage the redevelopment of inactive and under-utilized waterfront facilities for port, water-dependent and maritime uses and to conserve waterfront sites for water-dependent uses. In addition, the Department's Port Rule at N.J.A.C. 7:7-15.9 encourages port-related development and marine commerce in and adjacent to established port areas. The proposed dock will not result in any habitat fragmentation.

Comment: The applicant's Alternatives Analysis does not consider the natural assets at the site. In fact, the applicant states in the Alternatives Analysis a circular justification for the project at this location stating that because the site is undergoing redevelopment as a marine terminal with Dock 1 and the associated landside development, it is "the most feasible alternative for the proposed project". Simply because the Gibbstown Logistics Center is being constructed does not provide justification or rationale for further impacting natural resources and assets for Dock 2. The subsection of the CZM rule requires consideration and analysis in the determination by the Department on the [Waterfront Development] WFD permit and the Water Quality Certificate. (DNR)

Response: The subject application is for the construction of a new dock and dredging at the Gibbstown Logistic Center port facility. The Alternatives Analysis included in the Waterfront Development Permit application was required by the Department's New Dredging Rule at N.J.A.C. 7:7-12.7. The land use applications for the overall port development and rehabilitation of the Dock 1 also included an alternative analysis for impacts to freshwater wetlands and other special areas. The Department reviewed this Alternatives Analysis and determined that impacts to the natural resources surrounding the site had been minimized to the extent practicable and limited

development of the port facility to essentially previously disturbed areas of the site. Mitigation was required for the impacts to natural resources in the land use permits issued for this development.

Comment: Citing the Port Use Rule in the Coastal Zone Management Rules, a commenter said that ports are expected to be placed where other ports are or adjacent to other ports. The applicant maps regional port facilities but does not give full information about the ability of those ports to include the planned uses for Dock 2. (DRN)

Comment: A commenter stated that the need for the activities related to LNG has not been addressed and the LNG export has not been justified as a beneficial activity that would warrant the environmental, health and safety impacts of an LNG project at this location. As previously stated, this location has great benefit for natural resource reasons and, in a natural condition, has compatibility with surrounding land uses in this area. The residential nature of Gibbstown located right up against the Gibbstown Logistics Center, the day care center, playground and other community assets and attributes that make up the municipal setting of this community are not compatible with the industrial uses related to Dock 2 that are proposed at the site. In fact, the projected enormous increase of new truck traffic (200-220 trucks per day, at least), the new and increased railroad operations into and from the site, the industrial transformation of the site from a now largely natural condition at the site and on the rest of the Repauno property, the lights, noise, odors, air emission, water quality degradation, and the health and safety threats from LNG as well as the additional LHG and other bulk liquids that are planned to be handled related to the approval of Dock 2 by the WFD permit, is a liability for the local community and will work against the protection, quality of life and community values of Gibbstown. Many people who live in Gibbstown and the surrounding area have never experienced industrial activity at this site due to at least one generation of the local population only knowing the site as a natural resource. (DRN)

Response: The Gibbstown Logistic Center does not meet the definition of an LNG facility under the Department's CZM rules N.J.A.C. 7:7-15.4(s). The subject application is for the construction of a new dock and dredging at the Gibbstown Logistic Center port facility. In accordance with the Department's Port Rule at N.J.A.C. 7:7-15.9, the Gibbstown Logistic Center port facility is in the existing Delaware River Waterfront Areas. The Port Rule encourages the reuse of former port facilities which the E.I. DuPont facility is, and to concentrate port related development in and adjacent to established port areas. During the review of the land use permits for the port development and rehabilitation of Dock 1, the applicant provided a comprehensive Alternatives Analysis for the port facility to be constructed in the region and various configurations on the site to minimize impacts to natural resources.

DRP has demonstrated the need for expanded port capacity to meet market demands for products within the Delaware River Estuary as detailed in the Alternative Analyses submitted with DRP's previous land use permit applications for the overall port development project and the need for the two berthing facilities. DRP evaluated alternate land and waters areas in the Delaware River, as well as expansion of existing port facilities, and demonstrated that suitable alternate areas are not available. The new port facility is being constructed on a former port industrial facility and is within the Delaware River Port District. The existing berthing structures at the site previously had access to the adjacent Delaware River federal navigation channel, and DRP is proposing to deepen and expand the berthing areas to accommodate larger vessels. The dredging footprint has been minimized to the maximum extent practicable.

Comment: The applicant also does not explore what the property value impacts will be for people who own homes and property adjacent to the property and in the surrounding area. Those people and businesses that were required to be notified of the project were not given the full story and do not know about the LNG Project at the Gibbstown Logistics Center, making those notifications invalid.

Notifications to the public and adjacent properties must be reissued with full and comprehensive information about the LNG Project included. (DRN)

Response: As stated above, DRP's Waterfront Development Individual Permit application for construction of its Dock 2 and dredging of the berthing facility was not published in the DEP bulletin when originally received. The Department is correcting that error through the June 5 publication of the application in the DEP bulletin and the opportunity for public comment on the application. DRP provided notice to adjacent property owners, municipal and county officials and published its application in the South Jersey Times newspaper on February 20, 2019, indicating that the dock would be used "to accommodate transloading operations for liquid products." Additionally, in an August 24, 2018 request for a major technical modification of those initial land use permits, DRP provided notice to Greenwich municipal officials and the Gloucester County Planning Department by letter, indicating that the proposed operational changes at the marine terminal were "planned to include uses such as an automobile import and export and processing facility, a bulk liquid storage and handling facility for the transfer of liquified natural gas and other materials, as well as perishables and bulk cargo handling and logistics." Therefore, the property owners adjacent to the project were notified.

Comment: The project is required to comply with the NJ Stormwater regulations to prevent runoff, encourage infiltration of precipitation, and reduce flooding and adverse water quality and receiving stream impacts from increased volume and rate of stormwater and polluted runoff. The project has a general permit covering stormwater management but does not have a permit covering the industrial stormwater generated by the site. A NJ Pollution Discharge Elimination System (NJPDES) permit is required for the property, as confirmed by the Delaware River Basin Commission (DRBC) in its docketing of the Docket 1 original project in 2017 and the Dock 2 expansion in June 2019. It is essential that the release of PCBs from the Repauno property, including the Gibbstown Logistics Center site, be controlled to enable the cleanup of PCB contamination in the Delaware Estuary and Bay under the current TMDL. The control of the release of other contaminants that are in the groundwater and may be in soils and sediments at this site through effective stormwater management is also essential to provide the needed environmental protection and prevention of the migration and release of hazardous pollution. The planned handling, transfer, and storage of LHG, crude oil, other bulk liquids, and the presence and transloading of LNG at Gibbstown Logistics Center require effective stormwater management to prevent pollution and increased runoff resulting from the large increase in impervious surfaces and the handling and storage of hazardous materials on the site. (DRN)

Response: The Department's Stormwater Management Rule is not applicable to the construction of Dock 2 and the associated dredging of the berthing area. The stormwater management system for the upland portion of the Gibbstown Logistic Center has been reviewed and approved by the Department on April 10, 2017 (DEP File #0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001) and in the application for these land use permits, DRP demonstrated compliance with the Stormwater Management Rule.

Comment: A commenter stated that Appendix G PHASE IA HISTORICAL & ARCHAEOLOGICAL RESOURCE IMPACT SURVEY and reports including the Phase I Underwater Archaeological Investigations, Thompson Point, Repauno Site, Delaware River, Greenwich Township, Gloucester County, New Jersey and the Phase I Underwater Archaeological Investigations, Thompson Point, Repauno Site, Delaware River, Greenwich Township, Gloucester County, New Jersey document historic and prehistoric resources at Thompson's Point. Concerns were expressed that these resources could be impacted by the proposed project. DRN advocates that Thompson Point not be allowed to be further destroyed because of a guess and that a Phase 2 study be required to further investigate this important location. (DNR)

Response: The Department has evaluated Gibbstown Logistic Center upland development area and adjacent water areas for potential impacts to historic features as part of the ongoing issuance of the land use permits for the project. The existing permit issued April 10, 2017 (DEP File #0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001) imposed conditions which required DRP to perform additional survey work for historic resources. In a letter, dated May 31, 2017, the State Historic Preservation Office concluded that no further investigation was necessary and that impacts to those historic resources were not anticipated during the construction of the port facility.

Comment: The New Jersey Sierra Club opposes Delaware River Partners, LLC application for their LNG dock proposal at the DRP Gibbstown Logistics Center. This area is prone to flooding. This area has flooding problem, development will cause runoff and make flooding much worse. (SC)

Response: The Department has reviewed the Gibbstown Logistics Center project for compliance with its Flood Hazard Area Act Rules at N.J.A.C. 7:7-13, and as designed will not result in the flooding of adjacent property owners. The stormwater management system for the upland portion of the Gibbstown Logistic Center has been reviewed and approved by the Department on April 10, 2017 (DEP File #0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001) and in the application for these land use permits, DRP demonstrated compliance with the Department's Stormwater Management Rule.

Comment: The applicant erroneously answered "no" as to the applicability of the Energy Facility Rule (N.J.A.C. 7:7-15.4) but should have answered "yes" to the applicability of 7:7-15.4(p), (q), and (s). These sections address new Tanker terminals, the storage of crude oil, gases and other potentially hazardous liquid substances and Liquefied Natural Gas (LNG). (DRN)

Response: The subject Waterfront Development Individual Permit (DEP File No. 0807-16-0001.2 WFD190001) is for the construction of Dock 2 and dredging of the berthing facility. The Gibbstown Logistic Center port facility does not meet the definition of an LNG facility under N.J.A.C. 7:7-15.4(s). DRP intends to transload LNG from truck and railroad transport vehicles to marine vessels at the facility. During the land use permitting for the overall port development, the DRP did address the Energy Use Rule related to the storage of crude oil or other hazardous substances (N.J.A.C. 7:7-15.4(p)) and tanker terminal (N.J.A.C. 7:7-15.4(q)) and demonstrated compliance with these rules. Specifically, these rules speak to concentrating these types of industries in existing port areas, like the Delaware River region, and locating these types of industries at existing port facilities which currently handle the storage of crude oil, gases and other hazardous substances.

Comment: There is no description of the LNG Project, which is the most significant use at the facility in terms of potential environmental, public health and safety impacts that would result from the WFD activities. LNG handling and export from the terminal would be substantial. In a Letter of Inquiry submitted by the applicant to the U.S. Coast Guard in November 2017 the applicant states that 200-220 trucks will travel each day to the facility carrying LNG and will transload 12 LNG trucks simultaneously to shipping vessels, which would be docked at the two new berths. The LNG shipping vessels could be as many as 24 each year, according to the Letter of Inquiry, carrying 1.5 MTPA (20 MM BBL). It is important to note that the Letter of Inquiry was written when only one berth was planned; the additional two berths will increase the shipping traffic, the transport to the site, the transloading activity and supplemental support services such as electricity and other infrastructure required for LNG. It will also increase environmental impacts including adverse impacts on the river's water quality, air emissions and deposition of emitted pollutants on water, land, soil, and vegetation, and other impacts such as the carbon footprint. The WFD permit application states that the expected volume of "new" liquid cargo ships to

Dock 2 is 37 vessels per year. It is unknown if this includes LNG, which is not mentioned in any description of the project or is based only on the LHG shipments or "other liquids" such as crude oil and refined products". The dangers and environmental implications of LNG handling, transit, transfer, and export are discussed later in this comment. The impacts of the full scope of the LNG project and the LNG- specific issues must be analyzed and considered to comply with this subsection of the CZM rules. (DRN)

Response: As stated above, the Gibbstown Logistic Center port facility does not meet the definition of an LNG facility under the Department's CZM rules at N.J.A.C. 7:7-15.4(s). DRP intends to transload LNG from truck and railroad transport vehicles to marine vessels at the facility. Notwithstanding, the permittee is required to obtain approval for current and future operations to comply with the requirements under the Department's TCPA rules requirements at N.J.A.C. 7:31. In addition, in a separate project that is not part of the proposed Dock 2, Gloucester County and the Gloucester County Improvement Authority (GCIA) are undertaking the development of a public bypass road to serve as a commercial bypass for traffic that currently travels through downtown Gibbstown (Greenwich Township) via State Route 44 (locally designated as Broad Street). This segment of Route 44 through Gibbstown presently accommodates traffic to the Site and adjoining industrial parks in West Deptford and Paulsboro, New Jersey. This bypass will allow truck and other traffic bound for the Site to bypass residential areas in downtown Gibbstown. The land use permits for the proposed Route 44 bypass have been submitted to the Department and are currently under review, including but not limited to review of the submitted traffic study. Additionally, truck access to the previously permitted Gibbstown Logistics Center has been designed to provide efficient ingress and egress from the Site for the transportation of all types of cargo. Therefore, increased traffic volumes are not anticipated to cause a significant burden to off-site roadways.

Comment: The Dock 2 expansion of the terminal triples the number of the berths available for ships and ship traffic to and from the deepwater port. The WFD permit application states that the expected volume of "new" liquid cargo ships to Dock 2 is 37 vessels per year with 370 total dock days for Dock 2. This is in addition to 100 vessels of other cargo from Dock 1, which includes some additional bulk liquids, with 290 total dock days for Dock 1. Clearly, these "new vessels" must be carefully considered and the potential impacts to shipping and the Delaware River must be assessed in order to satisfy the implementing rule. NEPA prohibits segmentation of projects for purposes of NEPA review. This subsection is clearly applicable to the Gibbstown Logistics Center (DRN)

Comment: LNG is flammable, volatile, and hazardous product with numerous examples of accidents and safety issues. The added complexity of LNG truck transport only adds to the safety concerns for any communities along the trucking route and near the Project main facility. Additionally, the Project is located a few hundred feet from the main Delaware River shipping channel and any LNG ships would have to pass under the Commodore Barry, and Memorial bridges. (SRF)

Response: As stated above the Gibbstown Logistic Center port facility does not meet the definition of an LNG facility under the Department's CZM rules at N.J.A.C. 7:7-15.4(s). The facility only intends to transload LNG from truck/rail to vessels. Additionally, to address safety concerns within the Department's jurisdiction, a condition of the original permits (DEP File Number 0807-16-0001.2 WFD160001, WFD160002, FHA160001, FHA160002 and CSW160001), as modified on November 29, 2018, requires DRP to comply with the Department's TCPA rules, which mandate an extensive risk analysis and demonstration through a TCPA risk management plan prior to the introduction of LNG products onto the site. Absent this approval, DRP is not authorized to conduct LNG transloading at the site. As DRP has not yet begun this process, this analysis has yet to be completed. Finally, DRP is subject to the jurisdiction of the United States Coast Guard regarding

the transport of LNG via ships on the Delaware River. Furthermore, in a separate project that is not part of the proposed Dock 2, Gloucester County and the Gloucester County Improvement Authority (GCIA) are undertaking the development of a public bypass road to serve as a commercial bypass for traffic that currently travels through downtown Gibbstown (Greenwich Township) via State Route 44 (locally designated as Broad Street). This segment of Route 44 through Gibbstown presently accommodates traffic to the Site and adjoining industrial parks in West Deptford and Paulsboro, New Jersey. This bypass will allow truck and other traffic bound for the Site to bypass residential areas in downtown Gibbstown. and as stated above, the land use permits for a proposed Route 44 bypass have been submitted to the Department and are currently under review.

Comment: The planned storage of Liquefied Hazardous Gas (LHG) in the on-site cavern, in tanks, sphere tanks, rail cars, trucks, and ships in the berths while they are being loaded for 10 to 15 days clearly requires the applicant to address the issues of the storage of gases and other hazardous bulk liquids under this subsection. While the terminal at the deepwater port is water-dependent, the amount and scope of storage, including the volumes that would be contained in all storage vessels at one time on the site (including the cavern, tanks, rail cars, trucks, ships and other containers on the site) must be fully disclosed, assessed in terms of management, handling, emissions and environmental impacts and must be justified due to proximity to the residential community of Gibbstown, the day care center and playground adjacent to the site. In a Letter of Inquiry submitted by the applicant to the U.S. Coast Guard in November 2017, the description of the LHG project, which includes butane and other natural gas liquids, states that the LHG will arrive by rail cars and be transloaded to storage from a 20-rail car unloading rack with as many as 24 shipping vessels each year. It is important to note that the Letter of Inquiry was written when only one berth was planned; the additional two berths will increase the shipping traffic and the transport to the site, the storage in mobile containers and the activity on the site. As previously stated, the WFD permit application states that the expected volume of "new" liquid cargo ships to Dock 2 is 37 vessels per year with 370 total dock days for Dock 2. The volume of LHG, the full scope of the LHG project, the operations considering other operations on the site, the management and the potential impacts of the LHG must be analyzed and considered. This subsection of the CZM Rules may also be considered to apply to the LNG project operations. (DRN)

Response: DRP has not sought permit authorization to store LNG in an on-site cavern, or in tanks, sphere tanks, or rail cars. As stated above, LNG will be transloaded directly from truck and railroad transport vehicles to marine vessels pending approval by the Department. DRP has obtained an approval from the Department pursuant to its TCPA rules for current operations related to storage and transloading of butane. As a condition of the November 29, 2018, major technical modification of the land use existing permit(s) issued April 10, 2017, DRP is required to comply with all TCPA rule requirements. Until such time as DRP demonstrates compliance with the TCPA rules, LNG transloading is not authorized to occur. Lastly, DRP has stated that it will seek all required permits and approvals for proposed operations required under New Jersey and applicable federal statutes and regulations, including but not limited to all reviews and approvals required for construction and operation.

Comment: The project, by the applicant's own admission, has substantially changed from when the plans were designed for one dock with one berth, for which the original NJDEP permits were issued. (DRN)

Response: The Department acknowledges that the scope of DRP's project has changed since its initial permit application. Accordingly, DRP applied for the subject Waterfront Development Individual Permit for the addition of Dock 2 at the port facility.

Comment: There are questions regarding the need for other permitting and/or approvals by the project including, naming a few, approvals from the U.S. Coast Guard, the Federal Energy Regulatory Commission, the Pipeline and Hazardous Materials Safety Administration (PHMSA), U.S. Department of Transportation, and the Federal Railroad Administration. It is not disclosed whether any pipelines will be used, constructed, renovated, repurposed, or accessed through the project or for the project, which is important information that must be provided. A Department of Energy permit is listed as a needed permit in the application, but it is not discussed in the application, demonstrating further subterfuge by the applicants about the veiled plan to export LNG from Gibbstown Logistics Center. (DNR)

Response: The application in question does not propose or otherwise reference the use of pipelines at the facility. The permittee is responsible for obtaining any all local, state and federal permits that may be required. It is noted that a standard condition of any land use permit issued for the Gibbstown Logistic Center project requires that the DRP shall obtain all applicable Federal, State and local approvals prior to commencement of regulated activities authorized under the permit.

Comment: It is essential that the application and compliance statement include all relevant details about the LNG project. LNG has significant ramifications environmentally, for public safety, and for shipping on the Delaware River System. (DNR)

Response: As stated above, the Gibbstown Logistic Center port facility does not meet the definition of an LNG facility under the Department's CZM rules at N.J.A.C. 7:7-15.4(s). Furthermore, the regulations applicable to DEP's decision as to whether the applicant's proposed dock meets the standards to qualify for the Waterfront Development Individual permit do not consider or otherwise depend on the type of cargo processed at the site. Notwithstanding, DRP has indicated in its compliance statement that it intends only to transload LNG from truck/rail to vessels at the Gibbstown Logistic Center. Regarding safety concerns, as discussed more fully above, the permittee is required to obtain approval from the Department for current operations and future operations to comply with the Department's TCPA rule requirements and is not permitted to conduct LNG transloading without such approval. DRP has also submitted a November 16, 2017 Letter of Intent/Preliminary Water Suitability Assessment to the United States Coast Guard in which they notified all state and federal agencies of their intent to "site, construct, and operate a multi-use, deep-water port and logistics center . . . liquid energy products, including, but not limited to liquified petroleum gas (LPG) and liquified natural gas (LNG)." The review process is ongoing with the US Coast Guard and other federal, New Jersey's Office of Emergency Management and local emergency management agencies. Lastly, there are federal agencies reviewing the project's potential impacts on the environment and the steps DRP will take to mitigate any such impacts.

Comment: The project could also negatively impact a wide variety of riverine and marine recreation in the area, including, fishing, boating, hiking, wildlife viewing, swimming, photography, beach going, surfing, diving, kayaking, and standup paddle boarding. Delaware and New Jersey's coastal economies and communities are dependent on the tourism and recreation industry. The project would put that economy, as well as coastal communities' quality of life, in jeopardy. (SRF)

Response: The Department does not agree that the project would have a negative impact on riverine and marine recreation. The Delaware River presently supports a variety of industrial and recreational uses. The project will not create any new restrictions or impediments to the existing recreational uses.

Comment: In its application, Delaware River Partners LLC characterizes its Gibbstown Logistics Center project as little more than installation of a new dock along the riverfront, however it fails to mention the ultimate purpose of this facility: providing international markets for shale gas produced via

hydraulic fracturing in Pennsylvania, liquified in Bradford County, PA, and shipped via trucks to the proposed Gloucester County facility. This project seeks to expand infrastructure supporting further fossil fuel development within the Utica and Marcellus shales of Pennsylvania despite Governor Murphy's calls for a full fracking ban within the Delaware River Basin. In a letter to the Delaware River Basin Commission (DRBC), Governor Murphy states that "prohibiting all fracking activity in the basin is vital to avoid injury and preserve the waters of the basin and protect public health." This same logic should apply for preservation of the Great Lakes and Mississippi River watersheds on the other side of the eastern continental divide as well.

This is significant because the Marcellus and Utica shale plays are some of the largest fossil gas operations under development in the world— and the gas industry is looking for an east coast export terminal to move tremendous volumes of potent GHGs to foreign markets. This project, though posing as a simple dock modification, is just that – an export terminal for vast amounts of LNG. It is part of one of the largest fossil fuel infrastructures build-outs that humanity has ever seen and has the potential to not just lock New Jersey and the United States into future fossil fuel dependency, but also the foreign markets that this project is meant to export to. Approval of this project could have dire consequences for generations to come; NJDEP must act today to prevent a bleaker tomorrow. (FWW)

Comment: A commenter expressed concern with the growth in gas production through the development of fracking and horizontal drilling, which this project facilitates, burdens both the global climate and local communities with air and water pollution, health and safety hazards; and environmental justice issues. Methane; a potent GHG and ground-level ozone precursor, is known to leak from every part of the gas supply chain, negating any advantage gas may have over coal for power generation and degrading local air quality. The commenter further stated that oil and gas infrastructure is the prime source of the rising levels of methane in the global atmosphere over the past decade. The expansion of fossil gas use, like this project facilitates, will exceed the IPCC's projected "carbon budget" -*i.e.,* the limit to how much fossil fuel can be extracted and burned while still meeting global emissions goals meant to avoid the most catastrophic effects of climate change. Given the significant climate impacts resulting from expanded fossil fuel infrastructure development and this application's total failure to even address its role in the expansion such infrastructure, it is vital that NJDEP deny this permit application. (FWW, SRF)

Comment: Increasing climate impacts will also be visited on New Jersey's waterways, making increased GHG emissions a critical and necessary component of any Clean Water Act § 401 certification analysis. According to the U.S. EPA, New Jersey has warmed by about 3°F in the last century, heavy rainstorms are now more frequent, and the sea is rising about one inch every six years – after having seen roughly 16 inches of sea-level rise since 1911. Higher water levels are eroding beaches, submerging low lands, exacerbating coastal flooding, and increasing the salinity of estuaries and aquifers -severely injuring the water resources and coastal communities of the state. In the coming decades, significant changes in the climate caused by anthropogenic GHG emissions are likely to increase coastal and inland flooding, harm coastal and inland ecosystems, disrupt fishing and farming, and increase some risks to human health. (FWW, SRF)

Comment: Absent the cessation of fossil fuel production and combustion, historically unprecedented warming is projected by 2100 and shifting rainfall patterns are likely to increase the intensity of both floods and droughts throughout New Jersey. As a result of anthropogenic GHG emissions since the dawn of the Industrial Revolution, average annual precipitation in New Jersey has increased 5 to 10 percent over the last century and the volume of precipitation from extremely heavy storms has increased 70 percent in the Northeast since 1958.

If the world continues to extract and combust more fossil fuels, like the liquified natural gas set to be exported from this project, annual precipitation and the frequency of heavy downpours are likely to keep drastically rising over the next several decades. Precipitation in New Jersey is likely to increase during winter and spring, but not change significantly during summer and fall. However, rising temperatures will melt snow earlier in spring and increase evaporation, thereby drying the soil during summer and fall, as such changing the climate is likely to intensify river flooding during winter and spring, and drought during summer and fall. These types of climatic shifts could spell serious catastrophe for New Jersey's agricultural production. (FWW)

Comment: Sea level is rising more rapidly along the New Jersey shore than in most coastal areas because not only are the oceans increasing in volume, but the state's land is sinking as well. If the oceans and atmosphere continue to warm as a result of anthropogenic GHG emissions, the sea is likely to rise to *four feet* along the New Jersey shore in the next century. As sea level rises, the lowest dry lands are submerged and become either tidal wetland or open water – resulting in tremendous harm to existing wetland and estuary resources across the state. Most salt marshes between Cape May and the Meadowlands are unlikely to survive if sea level rises three feet, as is predicted with a business as usual approach to fossil fuel extraction and combustion. Wetlands along the Delaware Bay in Cumberland County are even more vulnerable, and likely to be lost entirely if the sea rises only two feet. Tidal flats, rich and threatened ecosystems, are also likely to become open water and treasured beaches will erode as sea level rises. A higher ocean level also makes it more likely that storm waters will wash over barrier islands or open new inlets. The United States Geological Survey estimates that barrier islands of the New Jersey shore from Bay Head to Cape May would be broken up by new inlets or lost entirely to erosion if sea level rises three feet by the year 2100, unless people take actions to reduce erosion and reduce fossil fuel emissions. Bay beaches may also be destroyed if action is not taken on climate as many areas of Delaware Bay's beaches are narrow, with wetlands immediately inland. Along parts of Delaware Bay and bay sides of most barrier islands, people have built walls and other shore protection structures that will entirely eliminate the beach once the shore erodes up to them. (FWW)

Comment: The loss of New Jersey's tidal marshes as a result of climate change could harm numerous species of fish and birds that depend on a marsh for food and/or shelter, leading up to regional extirpation. Blue crab, perch, weakfish, flounder, and rockfish rely on the tidal marshes in Delaware Bay to hide from predators and to feed on mussels, fiddler crabs, and other species. Sea turtles and shorebirds also feed on some of the species that inhabit these marshes, Great blue herons, black ducks, ospreys, red-winged blackbirds, and several other bird species also use the salt marshes in Delaware Bay.

As marshes erode, fish may initially benefit as more tidal channels form, which would make more of the marsh accessible, but after a point, the continued erosion and increasing sea levels would make less marsh available as suitable habitat, so populations of fish and birds could drastically decline. This is not future abstraction – the rising sea is already eroding and submerging small marsh islands in Barnegat Bay and Little Egg Harbor, which are important nesting areas that protect common terns, black skimmers, and oyster-catchers from land-based predators.

The loss of the Garden State's bay beaches and tidal flats also threatens some migratory bird species as the Delaware Bay is a major stopover area for six species of migratory shorebirds that feed on its beaches and tidal flats, including most of the Western Hemisphere's red knot population. Nearly a million birds feed on the horseshoe crab eggs on the bay's sandy beaches and the diamondback terrapin nest on estuarine beaches in New Jersey - all habitats threatened by potential anthropogenic sea level rise.

Moreover, changing water temperatures could also drastically disrupt aquatic ecosystems across New Jersey. For example, if water temperatures exceed 86°F during summer, eelgrass could be lost, which would remove a key source of food for many fish; leading to a potentially cascading ecosystem collapse. (FWW)

Comment: As sea level rises, salt water will mix farther inland or upstream in bays, rivers, and wetlands; drastically altering the hydrology of these areas. Soils may become too salty for the crops and trees that currently grow in low-lying areas of the state, like those of southern New Jersey and Gloucester County. As saltwater migrates due to rising sea levels, it can infiltrate coastal aquifers, and when paired with more frequent flooding this is likely to increase the salt content of surface and groundwater. Saltwater intrusion can cause the salinity of water supplies to rise above acceptable drinking standards, resulting in tremendous capital expenditures to ensure adequate drinking water for New Jerseyans. The southern portion of the state is particularly susceptible, as studies show that areas supported by water utilities along the Delaware River basin are at risk of increased salinity as sea level rises. This is a particular issue for areas near Camden, NJ where a decrease in the level of the Delaware River – a potential result of anthropogenic climate change – is cause for concern among water quality professionals. It is, suggested that a number of power and industrial intakes could be damaged, in addition to endangering the water supply of southern New Jersey and Philadelphia, the sixth largest city in the U.S. Moreover, because surface waters are connected to ground water, salt water can easily intrude into aquifers near the coast. In fact, this has been seen before – during a drought from 1961-1966, the Potomac-Raritan-Magothy aquifer was recharged by saltwater, resulting in elevated chloride levels that endured for more than 10 years.47 After Cape May had to abandon multiple wells as a result of saltwater intrusion, the city installed a desalination plant at tremendous cost. Given that anthropogenic climate change will likely result iri increased summer droughts, this problem will only be exacerbated going forward if direct action to halt fossil fuel infrastructure development is not taken. (FWW)

Comment: An altered climate as a result of anthropogenic GHG emissions has the potential to seriously harm commercial fishing in New Jersey. Higher ocean acidity would impair the ability of young scallops and surf clams to build shells, and potentially reduce the populations of these two shellfish, which account for about two-thirds of New Jersey's commercial fishing revenues. Higher acidity in estuaries as well as the loss of wetlands and eelgrass, could harm crabs and hard-shell clams, which account for another 15 percent of fishing revenues. As ocean temperatures rise, some fish species are moving northward or into deeper waters to remain within their normal temperature ranges, potentially cratering New Jersey commercial fishing operations. (FWW)

Comment: Higher temperatures as a result of anthropogenic climate change has the potential to exacerbate algal blooms across New Jersey, which could compromise source water quality and may require treatment that is more advanced than conventional water treatment methods. Compounding the threat of water quality degradation, turbidity and pollution inputs may increase due to extreme storm and high flow events and altered or reduced vegetation cover in watersheds. Finally, due to higher plant and influent temperatures on hot days, biological wastewater treatment processes may be impaired due to changes in the efficacy of microbial populations that breakdown biological wastes.

Moreover, diminished water quality may lead to more stringent requirements for wastewater discharges under the Clean Water Act's National Pollutant Discharge Elimination System; leading to higher public costs for treatment of wastewater and the need for extensive capital improvements. Saltwater intrusion could also increase costs for water treatment facilities drawing from coastal aquifers or from surface intakes in tidal estuaries near the saltwater line. Desalination plants may have to treat water with higher salt content, which would also increase costs. These water quality impacts will drive the need for

additional drinking water treatment processes, potentially leading to higher energy demand and capital and operating costs across the board for New Jersey residents.

Intense precipitation events fueled by anthropogenic climate change may also challenge infrastructure for water management and flood control across the state. Episodic peak flows, caused by increases in storm intensity, into reservoirs will strain the capacity of these systems, and inflow will be of lesser quality due to erosion and contaminants from overland flows, leading to treatment challenges and degraded conditions in reservoirs.

If action is not taken to address GHG emissions and fossil fuel reliance, inundation caused by increased storm intensity and heightened storm surges may damage infrastructure such as treatment plants, intake facilities, and water conveyance and distribution systems, and cause disruption of service across the state. Aside from water infrastructure, transportation infrastructure and utility infrastructure may also be affected by inundation, hampering access and relief efforts for emergency responders in the event that water infrastructure breaks down.

Additionally, overflows from combined sewer systems could reduce the capacity of sewer systems already impacted by inflow and infiltration. Wastewater facilities are often located at low points in the watershed, and wastewater infrastructure is particularly susceptible to flooding when these extreme events occur. Desalination plants in coastal areas could also be vulnerable to sea-level rise and storm surges based on their typical location in coastal areas.

Moreover, the quality of New Jersey's water supply is further endangered by the vulnerability of wastewater infrastructure, which is particularly at risk to flooding due to the typically low elevation of facilities in the watershed. The Passaic Valley Sewerage Commission's main treatment facility in Newark, which serves 1.4 million customers in Bergen, Passaic and three other counties, was inundated with over 200 million gallons of tidal surge and dumped roughly 240 million gallons of raw or partially treated sewage per day into Newark Bay and Upper New York Bay during Hurricane Sandy. Water quality may also be diminished because of lower stream flows, increased temperature, and other climatic changes. Water quality degradation could lead to more stringent requirements for wastewater discharges under the Clean Water Act, higher treatment costs and the need for capital improvements for both the water utilities and their industrial customers. (FWW)

Response: DEP is committed to addressing the impacts of climate change and understands the concerns expressed related to global warming, the oversight of gas production through fracking and horizontal drilling. However, these issues are beyond the scope of the applicable regulations and the specific activities proposed under the subject application.