



ND-2011-0024  
May 5, 2011

Mr. Brian Bellacima  
Philadelphia District, U.S. Army Corps of Engineers  
Wanamaker Building  
100 Penn Square East  
Philadelphia, PA 19107-339

Subject: **JURISDICTIONAL DETERMINATION REQUEST**  
**U.S. Army Corps of Engineers Confined Disposal Facility**  
**Lower Alloways Creek Township, Salem County, NJ**

Dear Mr. Bellacima:

As you are aware, PSEG Nuclear LLC (PSEG) has submitted an Early Site Permit to the U.S. Nuclear Regulatory Commission (USNRC) for the development of new nuclear unit(s) at its Artificial Island facility in Lower Alloways Creek Township, Salem County, New Jersey. The existing PSEG electric generation facilities include three nuclear-powered units on the southern end of Artificial Island. The Salem Generating Station (SGS) occupies about 220 acres of the 734 acres owned by PSEG. The adjacent Hope Creek Generating Station (HCGS) occupies 153 acres. The remaining 361 PSEG-owned acres are uncommitted land (see attached Figure 1).

The USACE owns land to the north of the PSEG site (see attached Figure 2), of which roughly 305 acres is developed for use as a designated upland Confined Disposal Facility (CDF) for dredge material from USACE Delaware River channel maintenance operations. This CDF comprises three cells, and the southernmost cell abuts the northern PSEG property boundary. This cell has been used intermittently and consists of fill material that is currently overgrown by monotypic stands of common reed (*Phragmites australis*) or is otherwise barren. As indicated above, this CDF area has been used since around 1900 as a disposal area for materials derived from the dredging of the navigation channel in the Delaware River.

PSEG has obtained a Concept Approval from the USACE for the potential acquisition of an additional 85 acres of land immediately to the north of the current PSEG property for the proposed siting of additional nuclear generating unit(s). The specific timing of land acquisition is subject to further PSEG and USACE actions; however, the Concept Approval serves to establish the bases for eventual land acquisition and definition of the Exclusion Area Boundary (EAB) control necessary to support the

issuance of a future combined operating license (COL) for the new unit(s) by the USNRC. PSEG would also develop a lease agreement for an additional 45 acres of USACE-owned CDF land to the north of the 85 acre parcel for a temporary concrete batch plant and miscellaneous construction use and laydown. At the completion of construction, the leased land would be returned to the USACE, subject to any required and agreed upon long-term EAB control conditions. The property transfer would require PSEG to identify, acquire, and transfer an appropriate parcel or parcels to replace any lost dredge material disposal capacity to the USACE resulting from the property transfer.

As part of this ongoing process, PSEG is hereby requesting a jurisdictional determination (JD) to clarify the USACE's jurisdiction on the areas within the currently licensed and active USACE CDF. While these areas share some characteristics with nearby jurisdictional wetlands, PSEG believes that the area within the CDF does not qualify as jurisdictional wetlands for the reasons identified in the following narrative.

## **Introduction**

The creation of what is today known as Artificial Island, a man-made island in the tidal Delaware River that includes lands owned by PSEG, the State of New Jersey, and the federal government, originally began around 1900 with the USACE's disposal of dredge spoil materials within an artificially diked area that was established around a naturally occurring sandbar in the Delaware River. In the intervening years, the diked area was progressively enlarged to accommodate additional spoils materials produced as a result of maintenance dredging of the Delaware River navigation channel and other nearby navigable water bodies. Today, the land elevation of Artificial Island generally ranges from 5 to 15 feet relative to the North American Vertical Datum of 1988 (NAVD 88). Developed areas of the site are nominally 10 to 12 feet NAVD 88, which primarily comprises the PSEG-owned electric generation facilities on the southern end of the island. These latter parcels were part of the USACE's original dredge material disposal area on Artificial Island, but were transferred from the USACE on January 19, 1968 (with other parcels from the State of New Jersey) for the purposes of filling and the subsequent siting of the first of PSEG's electric generation facilities.

## **CDF Site Description**

Significant areas of Artificial Island comprise the active USACE upland CDF, and have been historically diked as part of CDF operations. These areas are no longer tidally influenced or directly connected to tidal waters, except by manmade water control outlet boxes and associated culverts. As a result of the construction of the

USACE containment berms and the history of dredge disposal activities in the CDF, artificially ponded areas have been created within the CDF. The ponded water present in this area is due in part to lack of operational drainage features within the CDF (e.g., internal ditches, channels, or creeks) and water level management resulting from the placement of stop logs within the outlet water control structure(s). The USACE continues to use the CDF for the disposal of dredge material. The ponded areas are hydrologically, if artificially, perched systems (PSEG Power, 2010) that are hydrologically isolated from the adjacent Delaware River and associated coastal wetlands, and that have a hydroperiod that is primarily controlled by precipitation events.

The water depth of these CDF ponds is very shallow, currently ranging from 1 to 3 feet, but can vary depending upon the frequency and location of USACE dredge material placement. The habitat associated with the ponds is of poor quality due to their shallow depth, varying dredge material silt / sand substrates, and lack of surface connectivity to surrounding tidal waters. Similarly, the vegetative community associated with the CDF is periodically disturbed as a result of dredge material placement. The plant community in these areas is of low habitat quality and is characterized by a monoculture of the common reed, *Phragmites australis*. Because they are part of licensed upland disposal facilities, the present configuration of the ponds and associated vegetative communities are highly transitory and/or ephemeral and are subject to ongoing changes resulting from the timing and placement of dredged material.

### **USACE Regulatory Guidance**

Based on recent discussions between PSEG and the USACE regarding the treatment of the Artificial Island CDF, it appears that the USACE does not have a formal established policy regarding the jurisdictional nature of wetlands or wetland-like areas within USACE CDFs. Nevertheless, the 1987 USACE Wetlands Manual describes technical guidelines and methods for using a multi-parameter approach to identify and delineate wetlands for purposes of Section 404 of the Clean Water Act. The provisions of Part IV (Methods), Section F (Atypical Situations), Subsection 4 (Man-Induced Wetlands) of this guidance manual addresses situations similar to those occurring within the area within the Artificial Island CDF, and suggests that these areas do not meet key relevant criteria for jurisdictional wetlands.

Procedures described in Subsection 4 are for use in delineating wetlands that have been purposely or incidentally created by human activities (i.e., "*Man-induced wetlands*"), but in which wetland indicators of one or more standard wetland indicator parameters are absent.

The guidance indicates that *"it is important to consider whether the man-induced changes are now the 'normal circumstances' for the area"*, and both the *relative permanence* of any man-made changes and the *functioning of the area as a viable wetland* are to be considered. According to the USACE 1987 guidance:

*"A man-induced wetland is an area that has developed at least some characteristics of naturally occurring wetlands due to either intentional or incidental human activities. Examples of man-induced wetlands include irrigated wetlands, wetlands resulting from impoundment (e.g., reservoir shorelines), wetlands resulting from filling of formerly deepwater habitats, **dredged material disposal areas**, and wetlands resulting from stream channel realignment. **Some man-induced wetlands may be subject to Section 404.** In virtually all cases, man-induced wetlands involve **a significant change in the hydrologic regime, which may either increase or decrease the wetness of the area.** Although wetland indicators of all three parameters (i.e., vegetation, soils, and hydrology) may be found in some man-induced wetlands, indicators of hydric soils are usually absent. **Hydric soils require long periods (hundreds of years) for development of wetness characteristics, and most man-induced wetlands have not been in existence for a sufficient period to allow development of hydric soil characteristics.**"* (Emphasis added)

Thus, the application of the standard multi-parameter approach in making wetland determinations in man-induced wetlands must be based on the presence of wetland hydrology and hydrophytic vegetation, and there must also be documented evidence that the wetland resulted from human activities. For Artificial Island, any existing areas sharing one or more wetland characteristics are self-evidently man-made by virtue of the island's creation, and only the questions of hydrology, hydrophytic vegetation, and (potentially) soils remain.

## Hydrology

In the case of the Artificial Island CDF, the change in hydrology began around 1900, when the USACE first started using this area as a dredge disposal site. The area prior to the deposition of material was shallow open water and/or intertidal sand bars. In its native condition, the presence of a sand bar would not be surprising given the site's location on the inside of a significant river bend. The placement of material at that time caused the habitat to become significantly higher in elevation relative to the tide range of the Delaware River and consequently drier over time. As the deposition activities at the site continued, finer materials tended to deposit at the bottom of the



filled area (and later within the USACE CDF) resulting in an artificial confining layer that now allows rainwater to pond on areas of the site. The surface water elevations of these ponded areas are well above the range of tides in the Delaware River, and are subject to precipitation and evaporative events rather than tidal influence. Management activities such as stop log placement/removal in the outlet water control structure also play a significant role in altering water surface elevations over time. The outlet water control structure also compromises the "significant nexus" test associated with the USACE/USEPA definition of "Waters of the U.S." as established at 33 CFR 338.3.a.7 and in the 2006 Rapanos vs. The United States decision (547 U.S. 715). In addition, changes to the topography, hydrology, and soil composition within the CDF can occur with every new placement of dredged material. In light of these ongoing and expected future changes, although the hydrologic wetland criterion may be met in certain areas of the CDF at any arbitrary time, these characteristics can and will change as a result of any dredge material disposal and management activities. Furthermore, if the USACE employs the remaining authorized design capacity of the CDF for dredge material placement, the surface elevation of the CDF would be raised to 40 to 50 feet above the elevation of mean high water, with no evident wetland hydrology remaining. Thus, the hydrology of the Artificial Island CDF *involves a significant change in the hydrologic regime, which may either increase or decrease the wetness of the area*, and challenges the permanence of any affected area within the CDF. As a result, PSEG believes that the hydrology of the CDF is not a valid determinant of wetland jurisdictional status because this hydrology is being maintained and actively altered through time by man-induced activities.

### Hydrophytic Vegetation

With respect to hydrophytic vegetation, the USACE's 1987 guidance regarding man-induced wetlands cautions:

*"If hydrophytic vegetation is being maintained only because of man-induced wetland hydrology that would no longer exist if the activity were to be terminated, the area should not be considered a wetland"*

Clearly, both the ongoing deposition of dredge material and the operation of the outlet water control structure affect the hydrology of the CDF, which will have attendant effects on hydrophytic vegetation.

As described previously, by far the most abundant species within the CDF is common reed (*Phragmites australis*), which is ubiquitous in most of the undeveloped, non-open water areas on Artificial Island. Although common reed is listed as a facultative wetland species (FACW) in Region 1, the plant's ability to colonize disturbed areas (including non-wetland habitats) is well known (see, for example, Chambers et al. 1999, Marks et al. 1994, and Phillip and Field 2005). Contrary to its FACW status, common reed can be found growing on top of the Artificial Island CDF berms or in other regional landfill / disturbed areas that present no evidence of wetland hydrology or hydric soils.

According to the USACE's Summary of Common Questions Concerning *Phragmites* Control:

*"It (Phragmites) has invaded many marshes throughout the...region by forming dense stands which crowd out other native marsh plants. Its status as a facultative wetland species (i.e., adaptable to a variety of wetland types) means that the habitat it occupies is most likely a wetland subject to federal, state, county or municipal regulation. However, Phragmites also grow well in moist upland soils." (USACE, no date)*

In addition, the USACE's position on *Phragmites* elaborates on the reduced ecological value that this noxious invader causes to areas in which it occurs:

***Ecologically, Phragmites can be a problem plant because it is an excellent colonizer of disturbed soils** and once established it usually crowds out all other wetlands plants. This reduces the ecological value of the wetland by displacing plant assemblages which have better value as habitat, for stabilizing sediment, or improving water quality through nutrient removal." (USACE, no date – Emphasis added)*

Because *Phragmites* is a highly opportunistic, non-native noxious species that can invade both wetlands and that can occur in highly disturbed upland areas, the hydrophytic vegetation parameter is not a reliable indicator of wetland status in areas where *Phragmites* occurs as a monoculture, as in the case of the Artificial Island CDF. Since no other emergent wetland species occur within the Artificial Island CDF, it is difficult to determine whether the vegetation on site is dominated by hydrophytic vegetation. In contrast, tidally inundated marshes immediately adjacent to the CDF

readily support both *Phragmites* (possibly propagating from monotypic stands on Artificial Island itself) as well as native salt marsh grasses such as *Spartina alterniflora*, *Spartina cynosuroides*, and *Amaranthus cannabinus*, among many others.

Additional refutation of the value of common reed to serve as a wetland indicator species can be found in other well-developed regional CDFs and landfills. For example, much of the existing Killcohook and Pedricktown, New Jersey CDFs, also operated by the USACE, are dominated by monotypic *Phragmites* at elevations substantially higher than either the Delaware River or the local water table, and the reed also occurs in robust monotypic stands on the relatively steep slopes of placed dredged material in these areas where the man-made topography obviously precludes wetland hydrology.

As a result of the monotypic stands of *Phragmites* within the Artificial Island CDF, the ability of this species to occur in both wetland and non-wetland areas, and the absence of other diagnostic wetland indicator species within the CDF, PSEG believes that the hydrophytic vegetation parameter is unreliable in determining the jurisdictional status of the CDF.

### **Hydric Soils**

Because of its history, the Artificial Island CDF is mapped as "Made land" on the Salem County Soil Survey and consists of dredged material from the Delaware River and its tributaries. Hydraulic fill was first deposited at Artificial Island, the PSEG Site, and the USACE CDFs as the result of channel dredging of the Delaware River, and the placement of this material continues through the present (PSEG 1988). Hydraulic fill consists typically of dark gray to dark greenish-gray, highly plastic clay and silt with trace to some organic material, and locally interbedded discontinuous layers of clayey and silty, fine to medium grained sand up to 5 ft. thick. The placement and bedding of this material is highly dependent upon the source of the material within the Delaware Bay estuary, the timing and location of deposition within the CDF, and the various methods of dredging historically used by the USACE (e.g., hopper dredging, hydraulic dredging, etc.).

Since the surface soils consist of dredged material that developed under anaerobic conditions in the Delaware River, the soils commonly exhibit hydric characteristics based on the assessment of color alone. Therefore, soil color is not particularly useful on these sites as a hydric soil indicator. Because hydric soils require long periods for development of wetland characteristics, most man-induced wetlands have not been in existence for a sufficient period to allow development of true hydric soil

characteristics. In addition, the soils' characteristics within the CDF can and will change over time with the placement of new dredge material. Depending on the source of this material and the order and location of its placement, the soils at any arbitrary location within the Artificial Island CDF may or may not present hydric characteristics. As one example, relatively recently deposited sandy soils as visible in 2010 aerial images consists of loose sandy material and shell hash that is not hydric and would not exhibit hydric characteristics without significant mechanical incorporation with additional material and substantial time exposure to the water table. Thus, in light of the foreign origin of the soil materials at the site and the changing nature of the soils' characteristics through time resulting from CDF operation, the soil parameter also is not a reliable indicator of jurisdictional wetland status.

### **Wetland Determination**

According to the 1987 USACE wetland guidance, when wetland indicators of all three parameters are found, the area of interest is a wetland. When indicators of hydrophytic vegetation and wetland hydrology are found *and* there is documented evidence that the change in hydrology occurred so recently that soils could not have developed hydric characteristics, the area is also a wetland. In such cases, it is assumed that the soils are functioning as hydric soils. When all three parameters are unreliable as wetland indicators due to high levels of man-induced disturbance, the area is not a jurisdictional wetland.

In the case of the Artificial Island CDF, the hydrology of the area is ephemeral and subject to USACE management activities (e.g., stop log removal, dredge material placement, etc.), and is therefore an unreliable indicator of wetland status. This criterion is a consequence of the continued man-induced conditions resulting from CDF operation, and it is unclear whether any such conditions would persist upon the termination of these activities. Vegetation comprises monotypic *Phragmites*, which, while classified as FACW in Region 1, is well known to occur in disturbed, non-jurisdictional areas and is therefore also not a reliable indicator of wetland status (in the absence of other wetland indicator species). The soils within the Artificial Island CDF represent fill material originating from various areas of the Delaware Estuary and may or may not represent hydric conditions depending on the timing and location of the assessment, and are unreliable indicators of wetland status. Coupled with the facts that the entirety of Artificial Island comprises filled land historically reclaimed from the Delaware River, that the USACE is currently authorized to operate the CDF to a height in excess of 50 feet above the Delaware River tide range, and that the only connection to adjacent regulated waters/wetlands comprises outlet water control structures operated by the USACE (significant nexus test), PSEG has demonstrated

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that the areas within the diked USACE CDF on Artificial Island are non-jurisdictional and hereby requests formal clarification from the USACE regarding the jurisdictional nature of these areas.

Should you have any questions please contact me at 856-339-7900 or Gary Bickle, our Agent, at 856-797-9930, ext. 1622, 609-970-2085 (cell) ([gbickle@akrf.com](mailto:gbickle@akrf.com)).

Sincerely,

A handwritten signature in black ink, appearing to read 'JPantazes', with a stylized 'J' and 'P'.

Jeffrey J. Pantazes  
Manager - Nuclear Environmental Affairs

Enclosures: Two (2) Figures

C: Edward Bonner, US ACE

## References

Chambers, R.M., L.A. Meyerson, and K. Saltonstall. 1999. Expansion of *Phragmites australis* into tidal wetlands of North America. *Aq. Bot.* 64, 261-273

Marks, M., B. Lapin, and J. Randall. 1994. *Phragmites australis* (*P. communis*): threats, management, and monitoring. *Nat. Areas J.* 14, 285-295

Philipp, K.R. and R.T. Field. 2005. *Phragmites australis* expansion in Delaware Bay salt marshes. *Ecol. Eng.* 25. 275-291

Public Service Enterprise Group (PSEG), "Hope Creek Generating Station Updated Final Safety Analysis Report," p. 2.4.5, 1988

PSEG Power. 2010. Early Site Permit Application – Part 4, Environmental Report, Application to the U.S. Nuclear Regulatory Commission

U.S. Army Corps of Engineers (USACE), *Early Days, 1877-1915*, Philadelphia District website at [http://www.nap.usace.army.mil/sb/Time\\_1877-1915.pdf](http://www.nap.usace.army.mil/sb/Time_1877-1915.pdf), accessed March 8, 2011

USACE, no date. Summary of Common Questions Concerning *Phragmites* Control <http://www.nap.usace.army.mil/Projects/LCMM/Summary%20of%20Common%20Questions%20Concerning%20Phragmites%20Control.pdf>, accessed March 8, 2011



Figure 1 - PSEG Nuclear LLC Lands, Artificial Island, Salem County, NJ



Reference: NJDEP Geographic Information System Clearinghouse



Figure 2 - USACE Jurisdictional Determination Location Map





REQUEST FOR DEPARTMENT OF THE ARMY  
JURISDICTIONAL DETERMINATION

The Department of the Army permit program is authorized by Section 10 of the rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into water of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided on this form will be used in determining Department of the Army jurisdictional boundaries. Information in this application is made a matter of public record. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to establish Federal regulatory jurisdiction. If the necessary information is not provided, the jurisdictional determination cannot be completed.

1. Jurisdictional Determination Request Number

2. Applicant/Owner:

Name: PSEG Nuclear, LLC

Address: P.O. Box 236 M/C H18

City, State, Zip: Hancocks Bridge, NJ

Phone number during business hours:  
Residence:

Office: 856-339-7900

3. Authorized Agent:

Name: Gary L. Bickle

Address: 307 Fellowship Road

Suite 214

City, State, Zip: Mount Laurel, NJ 08054

Phone number during business hours:  
Residence:

Office: 856-797-9930 ext. 1622

I hereby designate and authorize Gary L. Bickle  
To act on my behalf as my agent in the processing of this  
jurisdictional determination application and to furnish, upon  
request, supplemental information in support of this application.

SIGNATURE OF APPLICANT      DATE

4. For Commercial Properties: Project Name:

Artificial Island CDF Jurisdictional Determination

5. Does the property contain agricultural land?

☐ YES ☒ NO

If yes, is the applicant, owner, or lessee a USDA Program Participant? ☐ YES ☐ NO

6. Names and addresses of adjoining property owners, lessees, etc.

United States of America  
1400 Independence Ave. SW  
Washington, DC 20405

PSEG Nuclear, LLC  
P.O. Box 236 M/C H18  
Hancock's Bridge, NJ 08038

7. Name of water body in closest proximity to property:

Delaware River

8. Location of property:

Address: Artificial Island, End of Alloway Creek Neck Road

Street, Road, Route, or other descriptive location

Lower Alloway Creek Salem NJ 08038

Municipality County State Zip Code

Latitude: 75.541 Longitude: 39.477

Local Governing Body with Jurisdiction:

Lower Alloways Creek Township

9. List all approvals or certifications required and/or received from other Federal, Interstate, State, or local agencies for development of the project site:

<u>Issuing Agency</u>	<u>Type of Approval</u>	<u>Identification Number</u>
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<u>Date of Application</u>	<u>Date of Approval</u>	<u>Date of Denial</u>
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10. Application is hereby made for a Department of the Army Jurisdictional Determination for the property described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to request this jurisdictional determination and I am acting as the duly authorized agent of the applicant. I hereby grant permission for representatives of the U.S. Army Corps of Engineers to inspect the project site as necessary in order to perform the requested jurisdictional determination.

Signature of Applicant	Date		05/04/11
		Signature of Agent	Date

The application must be signed by the person who desires to have the jurisdictional determination performed (applicant), or it may be signed by a duly authorized agent if the statement in Block 3 has been filled out and signed. 18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both.