Clean Ocean Action

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Ocean Advocacy Since 1984

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March 3, 2005

VIA FACSIMILE AND POST
Mr. Andy Heyl
Land Use Regulation Program
Bureau of Coastal Management
NJ Department of Environmental Protection
501 East State Street
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(609) 292 – 8115 (fax)

Re: Federal Consistency Certification for License Renewal Application of Oyster Creek Nuclear Generating Station, Docket No. 1500-02-0004.4

Dear Mr. Heyl:

Clean Ocean Action (COA) submits the following comments on the application by AmerGen for NJDEP's concurrence with its Federal Consistency Certification regarding the Oyster Creek Generation Station (OCGS) in Lacey Township, New Jersey, which was published in the Feb. 9, 2005 DEP Bulletin, Docket No. 1500-02-0004.4. We strongly dispute AmerGen's position that continued operation of the OCGS would be consistent with the State's Coastal Management program. In short, COA believes the application is premature, lacks the necessary data and information to allow the state to assess the project's effects, and makes incorrect assumptions of environmental impacts. Therefore, COA requests that the NJDEP reject the subject application and otherwise find it to be incomplete for the reasons set forth below.

Inappropriate Timing

To date, AmerGen has not submitted an application to the Nuclear Regulatory Commission for the license renewal of OCGS, and is not expected to do so until at least July 2005. Therefore, its application for State concurrence is premature and untimely.

According to National Oceanic and Atmospheric Administration's (NOAA) federal consistency regulations, where such an application is made to the state, but the applicant fails to supply a NRC license renewal application, **the State must deem the application incomplete** and notify Amergen of the deficiency. *See* 15 CFR § 930, Subpart D. The State may then choose to stay or commence the six-month review period. In either event, the State cannot grant its concurrence until it has received and reviewed the NRC license renewal application. *See* 15 CFR § 930, Subpart D.

This requirement protects both the interests of the State and COA because without the license renewal application, we cannot fully appreciate the scope and potential impacts of the activities at the OCGS.

Additionally, OCGS is operating under an expired NJ Pollution Discharge Elimination System permit (NJPDES permit). According to staff at the NJDEP, the draft NJPDES permit will be issued imminently. The new permit will require that OCGS comply with new Phase II regulations. Phase II compliance could, and likely will, require OCGS to make significant procedural and operational modifications. However, AmerGen's present consistency application does not consider, **and in fact denies**, the possibility of any future modifications. Without knowledge of the type and effect of any potential modifications, one cannot adequately assess of the environmental impacts of OCGS's future operations. Thus, the NJDEP should postpone assessment of OCGS's consistency application until OCGS submits the license renewal application and the NJPDES permit has been issued.

Lack of "Necessary Data and Information"

The subject the application also lacks the "necessary data and information" required by NOAA's regulations to allow the State to properly assess the project's effects. *See* 15 CFR § 930.58. The regulations require that the Applicant submit:

> "A detailed description of the proposed activity, its associated facilities, the coastal effects, and comprehensive data and information sufficient to support the applicant's consistency certification. Maps, diagrams, technical data and other relevant material shall be submitted when a written description alone will not adequately describe the proposal."

Contrary to these specific instructions, OCGS did not submit such a detailed description or information sufficient to support the consistency certification. For example, in the section entitled "Entrainment of fish and shellfish in early life stages" (*See* Application, at p. 4) the Applicant refers to an AmerGen monitoring project and broadly states "[t]he patterns of species composition and relative abundance appeared stable." However, AmerGen fails to provide such basic information as the sampling plan to be used, the method of sampling, and the collection data from past monitoring. In the same paragraph, the Applicant also states that results from studies of Barnegat Bay "indicate that the water quality of the Bay, which had been in decline, is recovering and now supports a healthy fish population." Yet, the Applicant does not give the name of the scientist(s) that performed the study, the date the study was performed, nor does the Applicant include the referenced study in the application. Without the data to support such broad proclamations, we submit that it is not possible for COA (or the State) to determine whether OCGS will operate in a manner consistent with the State Coastal Zone Management Plan.

Moreover, COA asserts that such "necessary data and information" must clearly include all required State permits, such as a NJPDES permit. As mentioned above, adequate assessment cannot be achieved without knowledge of the necessary modifications for Phase II compliance. Although the long-term effects of the modifications are intended to be less adverse than the current operating procedures, the effects of the construction could have short-term detrimental effects on the coastal zone and should be assessed. Therefore, NJDEP should deem the subject application incomplete until the NJPDES permit has been finalized and issued.

Environmental Impacts

Without any documentation, AmerGen asserts that the impacts of entrainment, impingement, and heat shock caused by the OCGS are "small." The Nuclear Regulatory Commission (NRC) defines "small" as "environmental effects [that] are not detectable or are so-minor that they will neither destabilize nor noticeably alter any important attribute of the resource." However, NRC regulations further recognize that the aquatic ecology impacts of entrainment, impingement, and heat shock for plants with once-through cooling systems may be "small, moderate, or large." *See* 10 CFR 51, Subpart A, Appendix B, Table B-1. "Moderate" is defined as "environmental effects [that] are sufficient to alter noticeably, but not to destabilize, important attributes of the resource." *See* 10 CFR 51, Subpart A, Appendix B, Table B-1. "Large" is defined as "environmental effects [that] are clearly noticeable and are sufficient to destabilize important attributes of the resource." *See* 10 CFR 51, Subpart A, Appendix B, Table B-1. AmerGen has provided no documentation that the impacts of OCGS, which have been quite substantial on past occasions, are properly classified under the NRC regulations as "small" as opposed to "moderate" or "large."

NRC has determined that entrainment impacts "are small at many plants but may be **moderate or even large at a few plants with once-through** . . . systems. Further, ongoing efforts in the vicinity of these plants to restore fish populations may increase the numbers of fish susceptible to intake effects during the license renewal period, such that entrainment studies conducted in support of the original license may no longer be valid" (emphasis added). *See* 10 CFR § 51.53(c)(3)(ii)(B). Similarly, the impacts of impingement are "small at many plants but may be moderate or even large at a few plants with once-through cooling … systems." *See* 10 CFR § 51.53(c)(3)(ii)(B). "Because of continuing concerns about heat shock and the possible need to modify thermal discharges in response to changing environmental conditions, the impacts may be of moderate or large significance at some plants." *See* 10 CFR § 51.53(c)(3)(ii)(B).

According to the application, "AmerGen concludes that OCGS impacts to [threatened and endangered] species are small during current operations and has no plans that would change this conclusion for the license renewal term." *See* Application p.5. Yet, OCGS admits exceeding their incidental take allowances for Kemp's Ridley, a federally designated endangered species, in 2004. Surely, exceeding the incidental take allowance corresponds with a "moderate" or "large" effect.

Further, AmerGen does not address numerous water quality and hydrology issues, including, but not limited to: the discharge of chlorine or other biocides, discharge of sanitary wastes, minor chemical spills, discharge of other metals in wastewater, eutrophication, altered current patterns at intake and discharge structures, and altered salinity gradients. Although the NRC has declared these impacts as "small," AmerGen's impacts must be shown to be consistent.

Other responses contained in AmerGen's application are potentially misleading regarding the scope of certain coastal management policies. For example, in the section entitled "7:7E-3.4 Prime Fishing Areas", the application states "AmerGen will not mine sand or gravel from the creek and is not proposing additional development; therefore, OCGS is in compliance with the rules protecting prime fishing areas." *See* Application, at p. 25. However, the Prime Fishing Areas regulation further requires that "[d]isposal of domestic or industrial wastes must meet applicable State and Federal effluent limitations and water quality standards." Yet, AmerGen does not mention this requirement nor states that such limitations have been or will be met at OCGS. Accordingly, the subject application should be denied.

In support of COA's request for objection, COA submits the enclosed position paper on OCGS's cooling system and its effects on marine ecology. The significant effects are highlighted below and provided in detail in the Position Paper.

1. Impingement

   - Plant records indicate 32 impinged and 13 deaths of endangered sea turtles,[1] including Kemp's Ridley, Loggerheads, and Green Sea Turtles since 1992. The Plant has repeatedly exceeded their annual Incidental Take allowances, including an exceedence in 2004 when the Plant impinged twice the allowable take of the most endangered of all sea turtles, Kemp's Ridley. The details, discussed in the attached Position Paper, outline these deaths and raise questions about the counting process.
   - Additionally, over an approximate 2-year period in the mid '70's, a study reported impingement of 13 million fish and invertebrates. Another two-year study in the mid 80's reported impingement of 22 million fish and invertebrates. It is important to note that the long-term survival rates of impinged animals are not known.

2. Entrainment

   - Over a two-year period, over 90 trillion microzooplankton (which includes critters like copepods and young clams, snails, worms and barnacle larvae) and 400 billion macrozooplankton (which includes jellyfish, sand shrimp, grass shrimp, larvae of sandlance and American eels, eggs and larvae of winter flounder, and several crab species) were washed through the system. Again, the long-term survivability rate is not known, but given the exposure and sensitivity of these animals, a high rate of survival is not likely, especially after the animals undergo the final rinse, which will be discussed in a moment.

3. Heat Shock

   - The once-through cooling system results in an increase in water temperature between 22-33ºF.[2] Water temperature in the discharge canal can reach 110ºF,[3] which affects the behavior, physiology, and habitat utilization of aquatic organisms in the area.[4] The result can be a fatal attraction. Fish can be attracted to the river in the winter when they should have migrated out of the area due to

[1] Assessment of the Impacts of the Oyster Creek Nuclear Generating Station on Kemp's Ridley (*Lepidochelys kempii*), Loggerhead (*Caretta caretta*), and Atlantic Green (*Chelonia mydas*) Sea Turtles. (December 2004), NRC PDR ML# 050060037.
[2] M.J. Kennish, (2001) State of the Estuary and Watershed: An Overview. Journal of Coastal Research. SI 32: 243-273.
[3] Effluent limitations and monitoring requirements of the 1994 (most recent) NJPDES/DSW Permit #NJ0005550 for Oyster Creek Nuclear Generating Station, Part III-B/C.
[4] M.J. Kennish, (2001) State of the Estuary and Watershed: An Overview. Journal of Coastal Research. SI 32: 243-273.

cold temperatures. Failure to migrate can lead to large-scale mortality (due to thermal shock) when the Plant experiences a planned or emergency shut down.

- Records from January 1972 through December 1982 reported over 2.4 million fish killed due to thermal shock including Atlantic menhaden, bay anchovy, bluefish, striped bass and weakfish.[5]
- In addition, tropical/subtropical invasive species are able to thrive in the surrounding warm water plume. Two exotic shipworms have benefited from the elevated temperatures with an increase in growth rate and length of breeding season that has lead to a population increase, which creates problems for boat owners in the vicinity of the plume.[6]

4. Pollution

- Chlorine is injected through each of the circulating pumps to prevent and remove fouling organisms such as bacteria.[7] Chlorine directly kills phyto- and zooplankton entrained in the cooling system and can impact organisms residing in the discharge canal and surrounding waters. The Plant has a permitted daily maximum discharge,[8] which is 20 times higher than the lethal limit of many estuarine species, including Striped bass, Mummichogs and Bunker.[9,10]
- Radionuclides are also released from the Plant and bioaccumulate throughout the estuarine food web. Reactor-released radionuclides[11] have been detected in water, bottom sediments, benthic marine algae, seagrass, hard clams, blue crabs, bunker, winter flounder, summer flounder, bluefish and several other fish.[12] Organisms collected near the Plant had the highest levels of radionuclides but detectable levels were found through out the bay.[13]
- PAH's. The current NJPDES permit for OCNGS indicates that a maximum daily limit of 15 ppm of Polychlorinated Aromatic Hydrocarbons (PAH's; oil based contaminants) can be discharged from 5 of their outfall pipes.[14] The exact source(s) of these harmful contaminants are not clear.[15]

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[5] M.J. Kennish, M.B. Roche and T.R. Tatham (1984) Anthropogenic effects on aquatic organisms. In: M.J. Kennish and R.A. Lutz (eds), *Ecology of Barnegat Bay, New Jersey*. NY: Springer-Verlag, pp. 318-338.

[6] M.J. Kennish (2001) State of the Estuary and Watershed: An Overview. Journal of Coastal Research, SI 32: 243-273.

[7] [7] Effluent limitations and monitoring requirements of the 1994 (most recent) NJPDES/DSW Permit #NJ0005550 for Oyster Creek Nuclear Generating Station, Part III-B/C.

[8] Id.

[9] J.S. Mattice and H.E. Zittel (1976) Site-specific evaluation of power Plant chlorination. Journal of Water Pollution Control Federation, 48: 2284-2292.

[10] W.P. Davis and D.P. Middaugh (1977) A revised review of the impact of chlorination processes upon marine ecosystems: update 1977. In: R.L Jolley (eds) *Water Chlorination: Environmental Impact and Health Effects-Volume 1*, Ann Arbor Science, Ann Arbor, Michigan, pgs. 283-310.

[11] Reactor-released radionuclides include, but are not limited to ^{60}Co, ^{137}Cs, ^{54}Mn.

[12] M.J. Kennish (2001) Characterization of the Barnegat Bay-Little Egg Harbor Estuary and Watershed. Journal of Coastal Research, SI 32: 3-12.

[13] R.L. Blanchard and B. Kahn (1979) Abundance and distribution of radionuclides discharged from a BWR nuclear power station into a marine bay. Nuclear Safety 20: 190-205.

[14] Effluent limitations and monitoring requirements of the 1994 (most recent) NJPDES/DSW Permit #NJ0005550 for Oyster Creek Nuclear Generating Station, Part III-B/C.

[15] We will be investigating this further.

In light of this information and using the classifications of the NRC, one should conclude that the above impacts are at least "moderate" or "large."

Recommendation

For the reasons set forth above, COA urges to NJDEP to object to the application of AmerGen for concurrence with its Federal Consistency Certification regarding the Oyster Creek Nuclear Generation Station.

Sincerely,

Cindy Zipf
Executive Director

Nicole Simmons
Water Policy Analyst

cc: Bradley Campbell, NJDEP Commissioner
Ruth Ehinger, Office of Coastal Zone Management
Congressional Delegates
New Jersey Assembly Environmental and Solid Waste Committee

Open Letter