UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Michael Lesar, Chief
Rulemaking and Directives Branch
Mailstop TWB-05-B01M
Division of Administrative Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Mr. Lesar:

In accordance with our responsibilities under Section 309 of the Clean Air Act and the National Environmental Policy Act, the Environmental Protection Agency (EPA) has reviewed the Nuclear Regulatory Commission's (NRC) Draft Generic Environmental Impact Statement (EIS) for License Renewal of Nuclear Power Plants (CEQ # 20090270). We also reviewed the revised Regulatory Guide, Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications (NRC-2008-0608) and the Proposed Rule for the Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses (RIN 3150–AI42). The following comments for each of these documents are provided for your consideration.

Draft Generic EIS (GEIS) for License Renewal of Nuclear Power Plants

The Atomic Energy Act of 1954 authorizes NRC to issue commercial nuclear power plant operating licenses for up to 40 years and permits the renewal of the licenses upon expiration. NRC regulations allow for the renewal of operating licenses for up to an additional 20 years, depending on the outcome of safety and environmental assessments. NRC regulations require the preparation of an EIS for the decisions regarding these renewals.

To support the preparation of these EISs, NRC prepared the Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants in 1996. This document revises the 1996 GEIS. Its intent is to improve the efficiency of the license renewal process by 1) providing an evaluation of the types of environmental impacts that may occur from renewing commercial nuclear power plant operating licenses, 2) identifying and assessing impacts that are expected to be generic at all nuclear plants, and 3) defining the number and scope of environmental impact issues that need to be addressed in plant-specific EISs. It incorporates lessons learned and knowledge gained from the plant-specific environmental reviews conducted

and new information and research published since the 1996 GEIS. Specifically it analyzes potential impacts associated with water resources and hydrology, air quality and noise, geology and soils, ecology, historic and cultural resources, environmental justice, socioeconomics, human health and safety, and land use.

The draft GEIS identifies 78 potential environmental impact issues. Each of these issues was assigned either a Category 1 or Category 2 designation based on the following:

Category 1:

1. The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristics;
2. A single significance level (i.e., small, moderate, or large) has been assigned to the impacts (except for collective offsite radiological impacts for the fuel cycle and from high-level waste and spent fuel);
3. Mitigation of adverse impacts associated with the issue has been considered in the analysis, and it has been determined that additional plant-specific, mitigation measures would probably not be sufficiently beneficial to warrant implementation.

For issues that meet the three Category 1 criteria, no additional plant-specific analysis is required in future supplement EISs (SEIS) unless new and significant information is identified.

Category 2:

1. Those issues are that do not meet one or more of the criteria of Category1 and therefore, require additional plant-specific review.

Based on EPA's extensive experience in the protection of water resources, the rationale for some of the determinations is not clear. The following are two examples for aquatic resources. Detailed comments on this issue are also enclosed for your consideration.

1. The draft GEIS indicates that "impacts of impingement and entrainment of aquatic organisms are expected to be small at plants with cooling towers. Impingement and entrainment rates are low at plants that use closed-cycle cooling with cooling towers because the rates and volumes of water withdrawal needed for makeup are minimized." Therefore it has been determined that this is a Category 1 issue. Based on EPA's experience the rates and volumes of water withdrawal for makeup and subsequent blowdown are often optimized more for water conditioning chemicals and any biocide use and not to minimize water withdraws. Large facilities with closed-cycle cooling may still be making what are considered large withdrawals from a waterbody, which could result in large impacts. A single significance level is not representative of the impacts here, as the impacts may be small, moderate, or large.

2. The draft GEIS states -"Thermal impacts on aquatic organisms are expected to be small at nuclear plants with cooling towers. Thermal effects associated with plants that use cooling towers are small because of the reduced amount of heated discharge from these types of systems." This has been designated as a Category 1 issue. EPA's Region 7 has identified periods where the ambient water temperatures have exceeded water quality standards without any added discharge of thermal effluent from power plants. For example in August 2002, the temperature of the Missouri River exceeded its water quality standard for six days in a row. In ambient conditions like this, any discharge of heat could have large impacts, whether a facility is using closed-cycle or once-through cooling. A single significance level is not representative of the impacts here, as the impacts may be small, moderate, or large.

Comments on Regulatory Guide – Preparation of Environmental Reports for Nuclear Power Plants License Renewal Applications

This guidance provides general procedures for the preparation of environmental reports (ERs), which are submitted as part of an application for the renewal of a nuclear power plant operating license. Its intent is to help ensure the completeness of the information provided in the ER, assist NRC staff and others in locating pertinent information, and facilitate the environmental review process.

Section 4.6, Thermal Impacts on Aquatic Organisms (Plants with Once-Through or Cooling Ponds) states that "If the applicant's plant utilizes once-through cooling or cooling pond heat dissipation systems, the applicant shall provide a copy of the current Clean Water Act 316(b) determination and, if necessary, a 316(a) variance in accordance with 40 CFR Part 125, or equivalent State permits and supporting documentation." EPA recommends that this statement be revised to note that a 316(a) variance is only required if a facility cannot meet required water quality standard effluent limitations, and must be applied for every 5 years with permit renewal. A facility must be able to demonstrate that the requested thermal variance is more stringent than necessary to assure the propagation of a balanced, indigenous aquatic organism population.

Section 4.6, Impingement and Entrainment of Aquatic Organisms (Plants with Once-Through Cooling Systems or Cooling Ponds) and Thermal Impacts on Aquatic Organisms (Plants with Once-Through Cooling or Cooling Ponds) both refer to "a current 316(a) demonstration" and "a current 316(b) demonstration respectively. Some facilities claim 30 year old data as being "current." For this reason EPA suggest that the draft GEIS define the term "current' to coincide with the most recent NPDES permit application data which should be submitted every five years.

Comments on the Proposed Rule 0- Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses

NRC is proposing to amend Title 10, Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions" by updating Table B-1. The discussion on "Surface-Water Use and Quality" indicates that NRC expects licensees to use best

management practices during the license renewal term for both continuing operations and refurbishment activities and that the impact of these practices would continue to result in small impacts for all plants. However, EPA is aware of several examples where long term operations were approved to continue without the consideration of new information regarding water quality. For this reason we recommend that proposed rule specifically include the requirement for the applicant to review the biennial water quality reports required by the Clean Water Act for each state during the relicensing process. Total Maximum Daily Loads and 303(d) listings for impaired water should also be reviewed. NRC should also consider any changes in the local hydrology that may result in the flooding of the area where the nuclear power plant is located.

Based on the above issues we have rated the draft GEIS Environmental Lack of Objections (LO).

We appreciate the opportunity to review and comment on these documents. If you have any further questions you may contact me at (202) 564-5400. You may also call my staff point of contact, Marthea Rountree. She can be reached at (202) 564-7141.

Sincerely,

Susan E. Bromm

Susan E. Bromm
Director
Office of Federal Activities

Enclosures (2): Detailed Comments
Summary of EPA Rating System

EPA's Detailed Comments
on the Draft GEIS for License Renewal of Nuclear Plants

1. General Comment: Additional language should be added to make it clear that facilities with hybrid or combination cooling, (e.g., facilities using both once-through and closed-cycle cooling systems or helper towers) fall under the more stringent once-through cooling system portions of the document, and not just the closed-cycle cooling system.

The following discussions on EPA's area of expertise would benefit from further elaboration or correction in the final GEIS.

Page 3-53, the Clean Water Act text box should read as follows:

"Section 402 authorizes the National Pollutant Discharge Elimination System (NPDES) permit program that controls water pollution by regulating point sources that discharge pollutants into waters of the United States."

"Section 316(a) allows for a variance from thermal discharge standards in an NPDES permit if the variance is more stringent than necessary to assure the propagation of a balanced, indigenous population. The alternate thermal effluent limitation is only good for the term of the NPDES permit (5 years), and the facility must reapply each permit term for the permitting authorities review and approval."

"Section 316(b) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact"

Lines 4-6:

States – "High surface water temperature at the intake does not represent an impact on the environment but rather an effect of the natural conditions on operations." High surface water temperature at the intake means that the discharge at the facility will also be higher and therefore may cause increased environmental impacts on aquatic organisms and terrestrial organisms that depend on those aquatic resources.

Line 10:

States – "Discharges from the circulating cooling water system account for the largest volumes of water and usually the greatest potential impacts on water quality and aquatic systems, although other systems may contribute heat and chemical contaminants to the effluent." We recommend striking "circulating" because this paragraph discusses cooling systems in general and use of the term "circulating" implies a closed-cycle system.

Lines 15-20:

Delete sentence "All.... and individual states" and replace with: "Provisions of the Clean Water Act (CWA) regulate the discharge of pollutants into waters of the United States. The National Pollutant Discharge Elimination System (NPDES) requires that all facilities which discharge pollutants from any point source into waters of the United States obtain an NPDES permit. An NPDES permit is developed with two levels of controls: technology-based limits and water quality-based limits. NPDES permit terms may not exceed 5 years, and the applicant must reapply at least 180 days prior to the permit expiration date. EPA is authorized under the CWA to directly implement the NPDES program; however, EPA has authorized many States to implement all or parts of the national program."

Line 32:

Delete "may" because NPDES permits need to include the proper water quality-based limits for temperature, or the limit agreed upon via a thermal variance under section 316(a) of the Clean Water Act.

Line 35-36:

Delete "Another approach....and temperature" for accuracy, as this is an element of a 316(a) thermal variance (which is not being discussed in this paragraph) and not a water quality standard-based limit.

<u>Page 3-54</u>

Line 6-7:

Replace sentence "Section 316(a)..." with "Facilities may apply for a thermal variance from their NPDES temperature limitation under Section 316(a) of the CWA. The facility must be able to demonstrate that the requested variance is more stringent than necessary to assure the propagation of a balanced, indigenous population (40 CFR § 125 Subpart H) in order to receive an alternative thermal effluent limitation. The alternate thermal effluent limitation is only good for the term of the NPDES permit (5 years), and the facility must reapply each permit term for the permitting authorities review and approval."

Lines 7-10:

Replace sentence "Section 316(b)..." with "Section 316(b) of the CWA requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact and is also regulated under the NPDES program."

Lines 9-16:

Replace entire section beginning with "For…" until the end of the paragraph with: "There are three rulemaking phases addressing cooling water intake structures. Phase I (enacted in December 2001) is for new facilities (see 40 CFR § 125.83) with a design intake flow greater than 2 million gpd (7.6 million L/d) and that use at least 25% of water withdrawn used for cooling purposes (40 CFR § 125 Subpart I). Phase II (enacted in July 2004) applies to existing large, electric generating facilities with a design intake flow of 50 million gpd (189 million L/d) or more and that use at least 25% of the water withdrawn for cooling purposes (40 CFR § 125 Subpart J). The Phase II Rule was suspended on July 9, 2007. The latest information regarding this matter is located at :http://www.epa.gov/waterscience/316b. The Phase III rule (enacted June 2006) established national standards for new offshore and coastal oil and gas extraction facilities with a design intake flow greater than 2 million gpd (7.6 million L/d) and that use at least 25% of water withdrawn used for cooling purposes (40 CFR § 125 Subpart N).

Existing facilities with a cooling water intake structure that are not currently subject to a national rule require Section 316(b) NPDES permit conditions that reflect best technology available for minimizing adverse environmental impact on a case-by-case, best professional judgment (BPJ) basis (40 CFR. §§ 125.90(b) and 401.14)."

Lines 18-25:

Delete the entire paragraph discussing the Phase II of the rulemaking. The relevant portions are included in the previous comment.

Line 36:

Replace "State regulatory agencies" with "EPA or authorized State authorities"

Page 3-55:

Line 1:

States - "Actions may include reviewing the permit for appropriate parameter levels, setting and compliance schedule for the applicant, and, in a worst case scenario, withdrawing a permit and disallowing the legal ability to discharge." Change to "…setting a compliance schedule for the applicant, assessing fines,…"

Page 3-133

Lines 12-17: add "Clean Water Act"

Page 4-60

Line 8:

States – "Although water screening guidelines have not been established for terrestrial biota, compliance with NPDES permits ensures that nonradioactive contaminant concentrations discharged from the cooling system are low enough to have only small impacts on water quality and aquatic communities." Change to- "…compliance with NPDES permits should ensure that nonradioactive contamination concentrations discharged from the cooling system…"

Line 17:

Revise sentence "The NPDES permits…" to read "The effluent guideline relevant to nuclear power plants allows a maximum chlorine effluent limitation of 0.2 mg/L, which is less than those concentrations reported to have no adverse effects on laboratory animals. A facility may have a more stringent effluent limitation for chlorine depending on relevant water quality standards, and thus an NPDES permit may require a more stringent limit."

Page 4-80

Line 34:

States – "Entrainment occurs when planktonic organisms pass through the intake screens and travel through the condenser cooling system." Delete "planktonic" because all life stages of aquatic organisms are subject to entrainment, not just planktonic life stages or organisms.

Lines 35-37

Edit sentence beginning "Aquatic organisms…" to read "Aquatic organisms that can be entrained include all life stages of fish, shellfish, macroinvertebrates, zooplankton, and phytoplankton."

Page 4-84

Line 9

Change to – "Physical stresses presented during impingement are affected by screen wash frequency, spray pressure, screen rotation speed, and screen modifications intended to reduce stress associated with fish separation and handling." Low pressure spray is often used to return fish to a waterbody, whereas a high pressure spray is used for debris removal. (U.S. EPA. *Technical Development Document for the Final Section 316(b) Phase II Existing Facilities Rule* (EPA 821-R-04-007). Chapter 4. February 2004)

Page 4-86

Lines 6-21:
Replace paragraph with the following: "Section 316(b) of the CWA requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact and is regulated under the NPDES program. There are two rulemaking phases relevant to nuclear power plant cooling water intake structures. Phase I (enacted in December 2001) is for new facilities (see 40 CFR § 125.83) with a design intake flow greater than 2 million gpd (7.6 million L/d) and that use at least 25% of water withdrawn used for cooling purposes (40 CFR § 125 Subpart I). Phase II (enacted in July 2004) applies to existing large, electric generating facilities with a design intake flow of 50 million gpd (189 million L/d) or more and that use at least 25% of the water withdrawn for cooling purposes (40 CFR § 125 Subpart J). The Phase II Rule was suspended on July 9, 2007. The latest information regarding this matter is located at: http://www.epa.gov/waterscience/316b. Existing nuclear power plant facilities with a cooling water intake structure that are not currently subject to a national rule require Section 316(b) NPDES permit conditions that reflect best technology available for minimizing adverse environmental impact on a case-by-case, best professional judgment (BPJ) basis (40 CFR. §§ 125.90(b) and 401.14). Any site-specific mitigation required under the NPDES permitting process should result in a reduction in the impacts of continued plant operations."

Page 4-87

Comment on Lines 28-32:
This section states "… Because the volume of water withdrawn by a power plant is minimized when a closed-cycle cooling system is employed, the impacts to aquatic organisms from impingement and entrainment would be smaller than the impacts from impingement and entrainment that would occur if a once-through cooling system was employed instead." It has been EPA's experience that the volume of water withdrawn by a power plant is not automatically minimized by the use of a closed-cycle cooling system, a facility needs to make an effort to require minimization of make-up and blowdown (which may be more expensive). Further more, the rates and volumes of water withdrawal for makeup and subsequent blowdown are often optimized more for chemical use and not to minimize water withdraws. Large facilities with closed-cycle cooling may still be making what are considered large withdrawals from a waterbody, which could result in large impacts. Thus, all impingement and entrainment of aquatic organisms should be a Category 2 issue. A single significance level is not representative of the impacts here, as the impacts may be small, moderate, or large.

Page 4-172

Lines 19-20: Replace "Liquid effluents" with "Wastes discharged to a waters of the United States"

Appendix, F-4

Lines 19-30: Replace paragraph with:

"As authorized by the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. The NPDES program requires that all facilities which discharge pollutants from any point source into waters of the United States obtain an NPDES permit. An NPDES permit is developed with two levels of controls: technology-based limits and water quality-based limits. NPDES permit terms may not exceed 5 years, and the applicant must reapply at least 180 days prior to the permit expiration date. A nuclear power plant may also participate in the NPDES General Permit for Industrial Storm Water, due to storm water runoff from industrial or commercial facilities to waters of the United States. EPA is authorized under the CWA to directly implement the NPDES program, however, EPA has authorized many States to implement all or parts of the national program. Section 401 of the CWA requires States to certify that the permitted discharge would comply with all limitations necessary to meet established State water-quality standards, treatment standards, or schedule of compliance."

Appendix, F-16

National Pollutant Discharge Elimination System Permits:
Replace language with: "Requires a permit prior to the discharge of pollutants from any point source into waters of the United States or State. Each permit holder must comply with authorized discharge levels, monitoring requirements, and other appropriate requirements in the permit."

Water Quality Standards: Add to the end of paragraph "Water quality standards are enforced through the NPDES permit."