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**Date:** Mon, Feb 28, 2005 2:38 AM  
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I attach comments (in MS Word format) on the North Anna DEIS on behalf of the Virginia Chapter of the Sierra Club.

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<b>Files</b>	<b>Size</b>	<b>Date &amp; Time</b>
MESSAGE	261	Monday, February 28, 2005 2:38 AM
TEXT.htm	716	
Comments on Draft EIS_final.doc		296448
Mime.822	408511	

**Options**

**Expiration Date:** None  
**Priority:** Standard  
**Reply Requested:** No  
**Return Notification:** None

**Concealed Subject:** No  
**Security:** Standard



February 27, 2005

## Sierra Club Virginia Chapter Comments on Draft EIS for an Early Site Permit (ESP) at the North Anna ESP Site<sup>1</sup>

### OVERVIEW

The Virginia Chapter of the Sierra Club adopted a resolution opposing approval of additional reactors at Lake Anna or certification of that site as suitable for new units. That resolution, attached hereto, cites several reasons for opposing additional reactors at Lake Anna.

This DEIS has some serious deficiencies. It does not adequately discuss, analyze, or acknowledge important and potentially important environmental impacts. It also does not include discussion of the consequences of storing additional radioactive spent fuel wastes at the site from addition of new reactors: in effect, North Anna is being turned into a semi-permanent high level waste repository.<sup>2</sup> Because of the deficiencies of the DEIS and the potential for serious environmental consequences from the project, the Virginia Chapter of the Sierra Club disagrees with the staff's preliminary recommendation that the ESP should be issued.

These comments concentrate on the issue of impact of reactor operation on basin water resources and the potential environmental consequences of decreased water releases from Lake Anna. However, there are a number of other site-specific and generic issues regarding the proposed addition of reactor units that are important. They are briefly summarized in the next section.

My overall conclusion on the water resource consumption issue is that this watershed is already overtaxed by the existing reactor operations and cannot accommodate additional water consumption by even one new reactor that uses once-through cooling or withdrawals for evaporative cooling towers. Neither the DEIS nor the proponent's Environmental Report (ER) deals adequately with the impact of project consumption on ecological and recreational values or on downstream water use, in spite of issues raised by the Virginia Department of Environmental Quality (VDEQ). No adequate justification is provided in the DEIS or the ER for numerous deviations from the terms of the NPDES requirements for minimum releases of water from Lake Anna, for the conclusions about the degree of environmental impact during droughts, in the DEIS, or the conclusion of the DEIS that no mitigation is required. The discussion about water impacts in the DEIS appears to be perfunctory and the conclusions are not consistent with the projected water flows and the issues raised by the VDEQ.

Another related issue is the approach in the DEIS of postponing several key site-related issues to the COL process. We believe that violates the spirit, if not the letter of the NRC's staged process for approval of new reactors. It makes no sense to certify the suitability of a site before it is clear whether there are viable and satisfactory solutions for issues such as storage of spent fuel and provision of water for cooling. That could lead to abuses of the staged process in which excessive momentum is developed favoring final approval irrespective of whether there is

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<sup>1</sup> A brief summary was presented by Richard Ball at the Public meeting on February 17, 2005.

<sup>2</sup> We also were unable to find any discussion of spent fuel storage impacts in the portions of the SER available online.

strong evidence that alternatives and solutions exist for issues left unresolved during the ESP process. The current ESP applications for North Anna and several other reactors constitutes the first real test of how the NRC will implement the new staged process and whether it intends to protect the public interest or subvert the process to avoid or obfuscate important issues.

## **SUMMARY OF OTHER IMPORTANT ISSUES**

Other site-specific and generic issues regarding the proposed addition of reactors units include:

- **Impact of additional cooling on Lake Anna:** Increased lake temperature threatens the striped bass population in the lake. Lower water levels would adversely impact recreational activities in the lake. Yet, any analysis to determine "operational practices and procedures" that might minimize adverse impacts" is deferred until the COL application.
- **High-level waste management:** The Draft EIS fails to evaluate the environmental impacts and security threat of indefinitely storing the additional irradiated fuel that will be generated by the proposed reactors onsite. In view of problems with the Yucca Mountain repository, there is no guarantee if or when another permanent repository ever will be available. Lake Anna would become a semi-permanent, if not permanent high level waste repository.
- **Impact on Wetlands.** Existing wetlands, streams, and woodlands on the North Anna Power Station (NAPS) site may be adversely affected by construction activities for the proposed Units 3 and 4 (draft EIS, page 4-2, lines 20-23).
- **Need for Power:** Virginia currently has an excess electric generation capacity for its in-state needs but continues to approve new fossil-fueled generating units that primarily will serve out-of-state customers while increasing air pollution, water resource consumption and transmission line impacts in Virginia. Neither the State of Virginia nor any of its major power generating companies has undertaken substantial initiatives to encourage or provide safe, clean renewable energy resources or to promote energy conservation.

While we will not address those issues in these comments, that does not imply that they are unimportant. Those issues have been raised and will be discussed by other members of the Sierra Club and by other citizens and environmental organizations.

## **DISCUSSION OF THE WATER ISSUE**

Can the watershed of Lake Anna support cooling for additional reactors? To put the issue in perspective, Table 5.2-1 of the ER indicates that there is more than sufficient water on an annual average basis to meet the minimum release requirement (40 cfs) and supply four units. But the net water available varies greatly with the season and year-to-year variations in rainfall. Lake Anna does not have nearly enough storage capacity to even out those variations while maintaining the lake level within limits required for reactor cooling intake, recreation, fishing and other objectives. It is clear from historical data and the model analysis in the ER, as presented in Table 5.2-3 that the NPDES permit requirement of 40 cfs is not achieved 43.9% of the time and that frequency is projected to increase to 52.4% with the addition of Unit 3. Furthermore, even the minimum value allowed during drought conditions (20 cfs) is not achieved 5.3% of the time and that frequency is projected to increase to 11.8% with the addition of Unit 3. The ER and DEIS discuss various alternatives for cooling proposed Units 3 and 4, including:

- Use of wet cooling towers might reduce thermal impacts on Lake Anna but would increase the amount of water loss if the Lake is the source of the cooling water withdrawals.
- Altering the intake structures for Units 1 and 2 and lowering the allowable minimum lake level would permit incrementally greater effective storage at the expense of greater impacts on recreation and fish populations.
- Providing an alternative source of water for wet cooling towers would eliminate the water problem, but the source of such water is not identified. It seems likely that an alternative water supply, if any, would not be available nearby in the critical summer months or drought periods without constructing an additional large reservoir to store the water that might be available during wet periods.
- If dry cooling is feasible for Unit 4, why is it not equally feasible for Unit 3?

It thus appears that construction of even one new unit at Lake Anna is likely to result in serious deficits in releases of water to the North Anna River, contrary to the terms of the NPDES permit. Indeed, even current operations result in deficits that often fall below the minimum 20 cfs allowed and quite frequently fall below the 40 cfs value. (It seems very peculiar to regard conditions that occur 43.9% of the time as "drought".) Neither the proponent's ER nor the DEIS discuss in detail the impacts on the North Anna River and the Pamunkey River that are likely to occur from increased periods of below-minimum releases. While lower stretches are fed by other creeks, such as the South Anna River, it seems likely that during drought periods those other sources of water also will experience low flows. There is no discussion of the combined effects of low flows in those other sources. The DEIS completely fails to provide a convincing case for its conclusion that the impact of those reductions in release will be SMALL. If low-flows are not a problem, why did the DEQ establish those requirements in its NPDES permit?

The Virginia Department of Environmental Quality (VDEQ) raised substantial issues regarding aquatic impacts in Lake Anna and streams downstream from the Lake (DEIS Appendix F, especially pages F-34 through F-61). The VDEQ states that "current minimum flows would be rate as poor to degraded ..." and that "...the consumptive loss from the watershed by an additional 39 cfs, would create nearly perennial conditions of severe degradation every fall."<sup>3</sup> However, the arguments made in the DEIS about water impacts in section 5.3.2 simply dismiss the importance of low flow impacts such as those that would occur from Unit #3 without any cogent reasons, amounting essentially to arm waving rather than incisive analysis. The last paragraph in that section does not logically follow from the facts presented, especially the conclusions that impacts during severe droughts would only be moderate and that no mitigation is required. We believe it would be highly inappropriate and arguably deceptive to proceed to issue an early site permit while leaving all those issues insufficiently treated and apparently unresolved until the COL process. The VDEQ also requested that the ESP not be issued until the issues of aquatic impact are resolved.

In simple terms, the DEIS appears largely to sweep key water issues under the rug.

*Submitted on behalf of the Virginia Chapter by Dr. Richard H. Ball, Energy Issues Chair, Virginia Chapter of the Sierra Club*

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<sup>3</sup> On p. F-38 in Letter from Ellie Irons (VDEQ) to Pamela Faggert (Dominion Power Co.).



## **Position on New Nuclear Reactors at North Anna**

The Sierra Club Virginia Chapter opposes approval of additional nuclear reactors at the North Anna site, or certification of that site as suitable for new units, for the following reasons:

- 1) When it is shown that additional electric generation capacity is needed, the Sierra Club Virginia Chapter believes that new electric generating units preferentially should be sited at existing power plant sites or industrialized areas in order to minimize impacts on unspoiled areas, provided such existing sites can satisfactorily sustain the additional impacts on land, air and water resources. However, the North Anna site has serious problems as a site for additional reactors, particularly with regard to adequacy of water resources to support additional thermal power plant cooling operations. Based on the proponent's own data and analysis, additional loss of lake water associated with either once-through lake cooling or withdrawals for evaporative cooling towers would seriously compromise the ability to maintain lake levels within current operating targets and will likely result in significant decreases in releases of water to downstream aquatic habitats, especially in periods of low flow and drought conditions. Existing units already result in releases that fall below the minimum 40 cps specified in the NPDES permit. Larger excursions in lake levels will adversely affect fish propagation and aesthetic and recreational uses of Lake Anna. Further decreases in downstream releases would adversely affect the hydrology and ecology of streams in the York River Watershed, including the North Anna River and the Pamunkey River. No power additions or certification of site suitability should be approved that could result in further reductions in the minimum actual releases from Lake Anna.
- 2) Virginia currently has an excess electric generation capacity for its in-state needs but continues to approve new fossil-fueled generating units that primarily will serve out-of-state customers while increasing air pollution, water resource consumption and transmission line impacts in Virginia. Neither the State of Virginia nor any of its major power generating companies has undertaken substantial initiatives to encourage or provide safe, clean renewable energy resources or to adequately promote energy conservation. The Sierra Club Virginia Chapter believes that the time has come for the state government, major utilities, and power production companies to establish aggressive policies, actions, and quantitative targets for energy conservation and clean renewable energy production to the maximum extent feasible before approval of further projects for polluting fossil-fueled or unsafe nuclear power production in Virginia.
- 3) As a matter of national policy, the Sierra Club opposes licensing, construction and operation of nuclear reactors utilizing the fission process pending:<sup>4</sup>
  - a) Development of adequate national and global policies to curb energy over-use and unnecessary economic growth.

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<sup>4</sup> Based on resolutions adopted by the Board of Directors, December 12-13, 1974 and May 5-6, 1979.

- b) Resolution of the significant safety problems inherent in reactor operation, disposal of spent fuels, and possible diversion of nuclear materials capable of use in weapons manufacture.
- c) Establishment of adequate regulatory machinery to guarantee adherence to the foregoing conditions. The above resolution does not apply to research reactors.

The problems of waste disposal, materials security and reactor safety remain unresolved. No permanent repository for reactor waste has yet been licensed and the Yucca Mountain repository has serious deficiencies for long-term safe containment, so there is no satisfactory solution in sight for waste disposal within the foreseeable future. Meanwhile, wastes from existing reactors continue to accumulate on-site in temporary storage at North Anna and other US reactors.