# COMMONWEALTH of VIRGINIA

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November 21, 2006

Ms. Pamela F. Faggert
Vice-President and Chief Environmental Officer
Dominion Virginia Power Company
5000 Dominion Boulevard
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RE: Federal Consistency Certification under Coastal Zone Management Act, Virginia Coastal Resources Management Program: North Anna Early Site Permit Application - DEQ-05-079F

Dear Ms. Faggert:

The Commonwealth of Virginia has completed its review of the consistency certification for the above referenced project. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal consistency certifications submitted pursuant to the Coastal Zone Management Act of 1972, as amended (CZMA). Pursuant to the CZMA, federal actions that can have foreseeable effects on Virginia's coastal uses or resources must be conducted in a manner which is consistent with the Virginia Coastal Resources Management Program (Virginia Coastal Program or VCP). The VCP is comprised of a network of enforceable policies administered by several agencies. Accordingly, DEQ, as the lead agency for the VCP, coordinated the review with agencies administering the enforceable and advisory policies.

The referenced project, which pertains to the site suitability for the proposed addition of new nuclear reactor units at the North Anna Power Station, is presently under review as an application submitted by Dominion Nuclear North Anna, LLC (Dominion) under the Early Site Permit Program administered by the U.S. Nuclear Regulatory Commission (NRC). Due to this federal licensing requirement, the project is also subject to federal consistency certification under the CZMA and to the environmental impact review process under the National Environmental Policy Act (NEPA).

We are also aware that a separate federal consistency certification under the CZMA will be required should Dominion later decide to apply to the NRC for a license for nuclear unit construction and operation pertaining to the referenced project. Dominion has acknowledged the requirement for this additional and separate federal consistency certification in its March 21, 2005, certification for the referenced project. The NRC also reconfirmed on a telephone conference call on November 9, 2006, that it, too, is aware of the separate certification requirement should

Dominion later decide to apply to the NRC for a license for nuclear unit construction and operation pertaining to the referenced project. Due to the relationship described in the NRC's Regulations (see 10 CFR Part 52 §52.39(a)(2)) between the finality of ESP determinations and subsequent findings required for issuance of a construction permit, operating license, or combined license by the NRC, throughout our review of the referenced project we sought to obtain an understanding of how the evaluations of the findings relating to the coastal effects required to be included in each separate consistency certification will be carried out.

The original federal consistency certification for the referenced project was submitted to DEQ on November 7, 2003. This original certification was withdrawn by Dominion on January 12, 2004. On March 21, 2005, Dominion resubmitted a federal consistency certification for the referenced project. The review process for the certification was first extended and then stayed by agreements between DEQ and Dominion pursuant to the Federal Consistency Regulations (see 15 CFR Part 930 §930.60(a)(3)(b)) because of the need to develop new information on a change in the cooling method design of the proposed third reactor unit. Our review of the federal consistency certification restarted on May 5, 2006, after the receipt of new information relative to the substantially different cooling method for proposed Unit 3.

Under the Federal Consistency Regulations, we must provide our concurrence with, or objection to, the federal consistency certification within six months of our receipt of the certification or at the earliest practicable time, whichever occurs first (see15 CFR Part 930 §930.62(a)). The restarted review was scheduled to conclude no later than November 3, 2006. On October 27, 2006, DEQ and Dominion agreed to stay the six-month review period until no later than November 16, 2006. On November 16, 2006, DEQ and Dominion agreed to stay the end of the review period until no later than November 21, 2006.

The following state agencies, regional planning district commissions, and localities joined in this review. The starred (*) agencies administer the enforceable policies under the Virginia Coastal Resources Management Program):

Department of Environmental Quality including:
- Division of Water Resources*
- Northern Virginia Regional Office*
- Waste Division
- Division of Air Programs Coordination*
- Office of Environmental Impact Review

Department of Game and Inland Fisheries*
Department of Conservation and Recreation:
- Division of Soil and Water Conservation*
- Division of Natural Heritage
- Division of Planning and Recreation Resources
- Division of Chesapeake Bay Local Assistance*

Department of Health*
Department of Transportation
Marine Resources Commission*
Department of Historic Resources
Thomas Jefferson Planning District Commission
Spotsylvania County

Louisa County
Hanover County

In addition, the following agencies, regional planning district commissions, and localities were invited to comment:

Department of Emergency Management
Department of State Police
RADCO Planning District Commission
Rappahannock-Rapidan Planning District Commission
Orange County
Town of Mineral

**PROJECT DESCRIPTION**

On September 25, 2003, Dominion Virginia Power Company/Dominion Nuclear North Anna, LLC ("applicant" or "Dominion") applied to the U.S. Nuclear Regulatory Commission for an Early Site Permit related to the possible addition of two new nuclear power units at the North Anna Power Station site at Lake Anna. The proposed site for the new units is in Louisa County, Virginia, near the town of Mineral. The proposed site is within the existing North Anna Power Station site, which is on a peninsula on the southern shore of Lake Anna about 5 miles upstream from the North Anna Dam. Dominion is considering adding the new units (Units 3 and 4) to the two units that are already in place at the North Anna Power Station site. NRC's Early Site Permit would, if issued, allow Dominion to "reserve" the site for as long as 20 years for up to two new nuclear power units, and to undertake certain site preparation and preliminary construction activities.

According to the federal consistency certification submitted in March 2005, the area that would be affected on a long-term basis as a result of permanent facilities on the ESP site is approximately 130 acres. The additional areas that would be disturbed on a short-term basis (for temporary facilities, laydown areas, etc.) total approximately 70 acres. Of these 200 acres, most are open areas used to stage equipment and materials for the existing Units 1 and 2 construction, operation and maintenance activities, and former Units 3 and 4 construction. Approximately 80 acres are wooded.

The site preparation and preliminary construction activities that would be authorized by the ESP, should the NRC later issue such a permit, would include the following:

- Site preparation for construction of the facility (including clearing, grading, construction of temporary access roads, and preparation of borrow areas).
- Installation of temporary construction support facilities (including warehouses, shops, concrete mixing plants, utilities, docking and unloading facilities, and construction support buildings).
- Excavation for facility structures.
- Construction of service facilities (including items such as roadways, paving, railroad spurs, fencing, exterior utility and lighting systems, switchyard interconnects, and sanitary sewage treatment facilities).

- Construction of cooling towers, intake and discharge structures, and circulating water lines as well as fire protection equipment, switchyard and other interconnections, and microwave towers.

If Dominion decides to proceed with any of the above site preparation activities, it would first be required to obtain any permits or authorizations necessary to conduct such site preparation activities. Also, if authorization is provided to Dominion to perform such site preparation activities, it will be subject to Dominion's obligation to perform such site redress as may be required by the Site Redress Plan approved by the NRC. The objective of the Site Redress Plan is to ensure that the site, should it not be fully developed for the intended purpose of new nuclear power generation, would be returned to an unattended, environmentally stable and aesthetically acceptable condition suitable for such non-nuclear use as is consistent with local zoning laws.

In the federal consistency certification for this project submitted for our review in March 2005, Dominion indicated that cooling water for proposed Unit 3 would be drawn from Lake Anna and that proposed Unit 4 would use dry cooling towers. As indicated above, Dominion has since developed a new method of cooling for the proposed Unit 3, which is a major aspect of the current federal consistency review. In addition, this revised cooling method is also currently the subject of the review of a Draft Environmental Impact Statement Supplement prepared by the NRC pursuant to NEPA. This new cooling method involves a closed-cycle, wet and dry cooling system that is intended to reduce the water demands associated with the once-through cooling proposed in the original certification. During periods of relative surplus (e.g. when lake levels are at or above 250 feet above mean sea level), the wet towers would be used. During dry periods (e.g. lake levels under 250 feet for 7 consecutive days or more), a dry cooling tower would be used, unless weather conditions dictate otherwise (the "maximum water conservation mode"). Proposed Unit 4 is to be air-cooled as contemplated in the March 2005 federal consistency certification. In addition, Dominion proposes to increase the maximum power level for each of the proposed new units from 4300 to 4500 Megawatts-thermal.

## CONDITIONAL CONCURRENCE

Dominion has certified that "the activities that would be permitted by NRC issuance of an ESP would comply with enforceable policies of, and will be conducted in a manner consistent with, the Commonwealth of Virginia's federally coastal zone management program."

Based on the comments submitted by the agencies administering the Enforceable Policies of the VCP, we concur that this proposal is consistent with the VCP **provided** that the following two conditions, discussed in more detail below, are satisfied:

1) that prior to construction and operation of one or both of the proposed new units, including any site preparation and preliminary construction activities, Dominion shall obtain all required permits and approvals not yet secured for the activities to be performed that are applicable to the VCP's Enforceable Policies and that Dominion also adheres to all the conditions contained therein; and,

2) that should the U.S. Nuclear Regulatory Commission later approve Dominion's application and ultimately issue an Early Site Permit for the referenced project, in accordance with 15

CFR Part 930 §930.4(a)(3), the NRC shall include in the application approval and in the ESP the additional permit condition submitted by Dominion on November 10, 2006, at the request of the Department of Game and Inland Fisheries, which pertains to the completion of an Instream Flow Incremental Methodology study.

The provisions contained in the first condition listed above are necessary because the framework of the VCP is such that the issuance of the state permits and approvals associated with the Enforceable Policies of this Program constitutes a project's consistency with those Polices. Once a state permit or approval is issued pursuant to one or more of the VCP's Enforceable Policies for a project, and for as long as the project remains in compliance with the provisions therein, the project is deemed to be consistent with the VCP. Based on the information submitted by Dominion in its federal consistency certification, we anticipate that permits or approvals pursuant to the following Enforceable Polices will be required for the referenced project prior to the time construction or operation of the project may commence: Fisheries Management, Wetlands Management, Point Source Pollution Control, and Non-Point Source Pollution Control. Further, because the Early Site Permit program does not require submission of a final design for the construction and operation of the proposed new nuclear reactor units, additional permits or approvals pertaining to the Enforceable Policies of the VCP may be required for the referenced project.

As stated above, we are aware that another federal consistency certification submission and review will be required should Dominion later decide to apply to the NRC for a combined construction and operating license. We anticipate that the need for any additional permits or approvals applicable to the VCP's Enforceable Policies for the referenced project will be more clearly determined during the review of this additional federal consistency certification. Furthermore, this conditional concurrence in no way guarantees that the Commonwealth's agencies will later issue any or all of the permits and approvals applicable to the VCP's Enforceable Policies that Dominion would be required to obtain should it later seek to construct and operate one or both of the proposed new nuclear reactor units associated with the referenced project.

The second condition listed above is necessary due to the provisions of the NRC's regulations pertaining to the extent of the information that must be included in an ESP application. During the course of our review of this project, we found that the information provided to us in the consistency certification and the NEPA documents was not sufficient in all instances for a complete evaluation of coastal effects as they pertain to both the activities that would be authorized under the ESP **and** the activities that would result if one or both of the new nuclear reactors units are constructed and placed into operation. Complete information about the coastal effects associated with the construction and operation of the new nuclear units described in the referenced project was unavailable to us concerning protection of aquatic and other resources in Lake Anna and downstream. Therefore, as stated above, due to the relationship described in the NRC's Regulations (see 10 CFR Part 52 §52.39(a)(2)) between the finality of ESP determinations and subsequent findings required for issuance of a construction permit, operating license, or combined license by the NRC, the VCP will not conclusively concur with Dominion's consistency certification for the referenced project at this time.

Instead, at the request of the Department of Game and Inland Fisheries (DGIF), the following condition has been developed in order to obtain the necessary information to address the

unresolved issues and to help determine the subsequent implementation of appropriate design and operational standards, conditions, and protocols for the referenced project:

> Dominion Nuclear North Anna, LLC (Dominion) shall conduct a comprehensive In-stream Flow Incremental Methodology (IFIM) study, designed and monitored in cooperation and consultation with the Virginia Department of Game and Inland Fisheries (VDGIF) and the Virginia Department of Environmental Quality (VDEQ), to address potential impacts of the proposed Units 3 and 4 upon the fishes and other aquatic resources of Lake Anna and downstream waters. Development of the Scope of Work for the IFIM study shall begin in 2007, and the IFIM study shall be completed prior to issuance of a combined construction and operating license (COL) for this project. Dominion agrees to consult with VDGIF and VDEQ regarding analysis and interpretation of the results of that study, and to abide by surface water management, release, and in-stream flow conditions prescribed by VDGIF and VDEQ upon review of the completed IFIM study, and implemented through appropriate state or federal permits or licenses.

On November 10, 2006, Dominion notified the NRC that it was adding the language of the condition requested by the DGIF as a commitment in its ESP application and further requested that this commitment be included by the NRC as a permit condition in the Early Site Permit. (See enclosed letter from Eugene Grecheck to the NRC.) Further, the U. S. Nuclear Regulatory Commission in its November 14, 2006, letter to Dominion (see enclosed letter from Robert M. Weisman to Eugene S. Grecheck), has indicated that the NRC "agrees to include this proposed condition as an enforceable permit condition, should the agency approve the North Anna ESP application and ultimately issue a permit."

We are requiring that this condition be satisfied to ensure consistency of the referenced project with the Fisheries Management, Point Source Control, and Wetlands Management Enforceable Policies of the VCP. The comprehensive In-stream Flow Incremental Methodology study we have required in this conditional concurrence will provide the needed information for the VCP to undertake a more complete evaluation of the coastal effects of the entire range of activities associated with the proposed project. Additionally, according to the Virginia Department of Conservation and Recreation (DCR), the North Anna River is a spectacularly scenic and remote canoeing river with excellent fishing. In its earlier comments on the Draft Environmental Impact Statement for the referenced project, DCR recommended that a minimum in-stream flow recreation study be conducted to determine what the discharge rates should be from Lake Anna to support recreational boating on the North Anna River. The IFIM Study discussed above will also need to address the recreational issues described in DCR's comments. (Please also see "Advisory Policies" section below for additional comments from DCR about this Advisory Policy of the VCP.)

Moreover, because an ESP (if such a permit is later approved and issued by the NRC) would not authorize the construction and operation of the new nuclear reactor units proposed in the referenced project, and because a separate federal consistency certification would be required if Dominion later applies to the NRC for a combined construction and operating license for one or both of the proposed new nuclear reactor units, this conditional concurrence shall not be construed by any party involved as an assurance that the Commonwealth will later find all activities associated with the proposed project consistent with Enforceable Policies of the VCP. Likewise, this conditional concurrence in no way guarantees that the Commonwealth's agencies will later issue any or all of the permits and approvals applicable to the VCP's Enforceable Policies that Dominion

would be required to obtain should it later seek to construct and operate one or both of the proposed new nuclear reactor units associated with the referenced project.

In accordance with 15 CFR Part 930, §930.4, this conditional concurrence is based on Dominion complying with all conditions as stipulated above and the U.S. Nuclear Regulatory Commission completing the required action pursuant to §930.4(a)(3). If the requirements of paragraphs (a)(1) through (3) of 15 CFR Part 930, §930.4 are not met by Dominion or the NRC, then all parties shall treat this conditional concurrence as an objection pursuant to 15 CFR Part 930, §930.4(a)(1) and (b), and 15 CFR Part 930, §930.63. If this conditional concurrence later becomes an objection, in accordance with 15 CFR Part 930, §930.4(a)(1) and pursuant to 15 CFR Part 930, §930.63(e), DEQ will notify Dominion of the opportunity to appeal the VCP's objection to the Secretary of Commerce within 30 days after receipt of the VCP's concurrence/objection or 30 days after receiving notice from the NRC that Dominion's ESP application will not be approved as amended by the VCP's conditions.

If this conditional concurrence is later treated as an objection, in accordance with 15 CFR Part 930, §930.63 (b), (c), and (d), the Commonwealth would likely propose the alternative measures described in Appendix 1, which if adopted by Dominion, may permit the proposed project to be conducted in a manner consistent with the Enforceable Policies of the VCP.

Should this conditional concurrence become an objection, pursuant to 15 CFR Part 930, Subpart H, Dominion may request that the Secretary of Commerce override the objection (see 15 CFR Part 930, §930.63(e)). If this conditional concurrence is later treated as an objection, the VCP's notification of objection shall include a statement to the following effect:

> Pursuant to 15 CFR Part 930, subpart H, and within 30 days from receipt of this letter, you may request that the Secretary of Commerce override this objection. In order to grant an override request, the Secretary must find that the activity is consistent with the objectives or purposes of the Coastal Zone Management Act, or is necessary in the interest of national security. A copy of the request and supporting information must be sent to the Virginia Coastal Program/DEQ and the U.S. Nuclear Regulatory Commission. The Secretary may collect fees from you for administering and processing your request.

**REMEDIAL ACTION**

In accordance with 15 CFR Part 930, § 930.65, should an ESP later be approved and issued by the NRC for the referenced project, DEQ may notify the NRC if:

1) the VCP later maintains the referenced project is being conducted or is having an effect on any coastal use or resource substantially different than originally described and, as a result, is no longer consistent with the management program; or

2) the VCP later maintains the referenced project is being conducted or is having coastal effects substantially different than originally described and, as a result, the activity affects any coastal use or resource in a manner inconsistent with the management program.

Pursuant to 15 CFR Part 930, § 930.65, DEQ may request appropriate remedial action. Such remedial actions shall be linked to coastal effects substantially different than originally described. If after 30 days, the VCP still maintains that Dominion is failing to comply substantially with the management program, the Governor or DEQ may file a written objection with the Director (NOAA). If the Director finds that the Dominion is conducting an activity that is substantially different from the approved activity, Dominion shall, subject to the 15-day review provided pursuant to 15 CFR Part 930, § 930.65(e), submit an amended or new consistency certification and supporting information to the Federal agency and to the State agency, or comply with the originally approved certification.

## SUPPLEMENTAL COORDINATION

In accordance with 15 CFR Part 930, §930.66, federally permitted activities previously determined to be consistent with the VCP, but which have not yet begun, require further coordination by the applicant if the proposed activity will affect any coastal use or resource in a substantially different way than originally described. Substantially different coastal effects are reasonably foreseeable if the applicant makes substantial changes in the proposed activity that are relevant to VCP Enforceable Policies, or if there are significant new circumstances or information relevant to the proposed activity and the effects of that activity on any coastal use or resource. In the event that the referenced project affects any coastal use or resource in a substantially different way than originally described, Dominion must notify DEQ through a supplemental consistency certification.

## PUBLIC PARTICIPATION

In accordance with 15 CFR §930.61, DEQ invited public participation to assist the VCP in its review of the federal consistency certification for the referenced project. DEQ published a notice of the federal consistency review for the referenced project on its web site, during the first review, from April 15 through May 2, 2005. No public comments were received at that time.

For the restarted review in 2006, DEQ published a notice of the review on its web site from May 15 through June 16, 2006. On June 15, DEQ also published notice of an extended review period lasting until September 8. This notice also announced that DEQ would hold a public hearing on August 16. This notice was published on DEQ's web site and in three newspapers as follows:

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|---|---|
| Web site (http://www.deq.virginia.gov): | starting June 15 |
| Richmond Times-Dispatch: | July 2 |
| Lake Anna Observer: | July 15 |
| Fredericksburg Free Lance-Star: | July 30 |

During the public review process, including the public hearing, we received comments from more than 500 individuals and organizations concerning this review.

In summary, the majority of the public comments received state that the proposed project currently under review is inconsistent with one or more of the following Enforceable Policies of the VCP: Fisheries Management, Wetlands Management, and Point Source Pollution Control.

Due to the volume of information provided by the public, the need for a careful analysis thereof, and in order to facilitate a timely review by agencies, DEQ compiled the major comments which represented the views of numerous individuals and several organizations and asked agencies to analyze the issues raised by the public. We included copies of detailed public comments and the transcript of the public hearing for reviewers' use in addressing the issues raised. A summary of the issues raised during the public comment period and any additional responses provided by agencies administering the applicable Enforceable and Advisory policies of the VCP are enclosed as Appendix 2.

It is important to note that many of the topics and issues identified in the correspondence and testimony submitted during the public comment period were either not applicable to the Enforceable Policies of the VCP as they specifically relate to the review of the federal consistency certification for the referenced project, or they were unrelated to the provisions of the CZMA. For example, we received extensive comments pertaining to the regulatory oversight of the existing facilities and operations at the North Anna Power Station rather than to the proposed new units described in the ESP application for the referenced project, particularly with regard to water temperatures. Also, a number of other comments submitted questioned whether DEQ's regulatory programs for water quality protection were appropriately approved and are being administered in accordance with the federal Clean Water Act (33 U.S.C. § 1370) relative to the existing facilities and operation of the North Anna Power Station. While these are important issues and DEQ has already referred these comments and questions to both the Virginia Attorney General's Office and to Region III of the U.S. Environmental Protection Agency, these matters are not germane to the CZMA.

After further review of the topics and issues raised during the comment period, none of the agencies that administer the Enforceable Policies of the VCP objected to Dominion's consistency certification for the project.

## APPLICABLE ENFORCEABLE POLICIES OF THE VCP

The discussions which follow present state agencies' comments and conclusions with regard to each of the applicable Enforceable Policies of the VCP, along with conditions and stipulations stemming from the Enforceable Policies, with regard to the referenced project.

### 1. Fisheries Management Enforceable Policy

The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Marine Resources Commission (Code of Virginia § 28.2-200 thru 28.2-713) and the Department of Game and Inland Fisheries (DGIF).(See *Code of Virginia* § 29.1-100 thru 29.1-570).

The Department of Game and Inland Fisheries, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, including state or federally listed endangered or threatened species, but excluding listed insects. DGIF is a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended, 16 U.S.C. 661 *et seq.*), and provides environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality, the Virginia

Marine Resources Commission, the Virginia Department of Transportation, the U.S. Army Corps of Engineers, the Federal Energy Regulatory Commission, and other state or federal agencies. The role of DGIF in these procedures is to determine likely impacts upon fish and wildlife resources and habitats, and to recommend appropriate measures to avoid, minimize, or compensate for those impacts.

Prior to requesting that the condition previously described above will need to be added to Dominion's application for the referenced project and that this condition must be included as an enforceable condition in the Early Site Permit (should the NRC ultimately decide to issue a permit for this project), DGIF submitted extensive comments and recommendations. These comments and recommendations are included in Appendix 1. If the conditional concurrence for the referenced project later becomes an objection pursuant to 15 CFR Part 930, §930.4(a)(1) and (b), and 15 CFR Part 930, §930.63, DGIF's comments and recommendations pertaining to the Fisheries Management Enforceable Policy, as well as any other comments and recommendations included in Appendix 1, would likely be proposed by the VCP as alternative measures, which if adopted by Dominion, may permit the proposed project to be conducted in a manner consistent with the Enforceable Policies of the VCP. Should the conditional concurrence for the referenced project later become an objection, the VCP may also describe additional alternative measures than those listed in Appendix 1. (Please also see Appendix 2 "Summary of Public Comments Received" for additional comments and responses provided by DEQ regarding this Enforceable Policy.) Questions about DGIF's comments and recommendations may be directed to Andy Zadnik, telephone (804) 367-2733.

**2. Point Source Pollution Control Enforceable Policy**

The point source program is administered by the State Water Control Board pursuant to § 62.1-44.15 of the *Code of Virginia*. Point source pollution control is accomplished through the implementation of the National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the federal Clean Water Act and is administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program.

DEQ's Division of Water Resources stated that its concerns centered on the difference between the Division's recommendations on when to use air cooling for Unit 3 and the proposed cooling regime in the revised Early Site Permit application submitted by Dominion. Dominion proposed in its revised application to operate Unit 3 in its water conservation mode (air cooling) whenever the water level in Lake Anna falls below 250 feet above mean sea level ("250 feet msl"). The Division, along with the Department of Game and Inland Fisheries, recommended that in addition to this approach, the water conservation mode be employed for Unit 3 whenever stream flows in the North Anna River immediately below the dam were below certain target seasonal flows, in order to reduce withdrawals required for operation of Unit 3 and to mitigate impacts to stream flows during these periods.

The Division's original concerns have been largely addressed by the changes made by Dominion for cooling Units 3 and 4, and by discussions between program offices in DEQ. The proposal to operate air cooling (maximum water conservation mode) only when the lake level drops below 250 feet msl means that the air cooling would be implemented during times when it is least effective, i.e., during summer through late fall.

Notwithstanding the Division's concerns about the effectiveness of this maximum water conservation mode during summer to late fall, the maximum water conservation mode is warranted whenever the lake falls below a full condition. Water savings will accomplish the following:

- Reduce the ultimate lake drawdown;
- Benefit lakefront property owners;
- Shorten the time between more normal releases, and
- Reduce the risk of shutdown of the plant.

DEQ's Division of Water Resources agrees that Unit 3 should be operated in this fashion at a minimum (see enclosed DEQ memos, Hassell to Ellis, dated July 19, 2006, and Hassell to Ellis, dated October 19, 2006). However, it may not be realistic to require this operating scheme in the context of the federal consistency review, according to the Division. A future VPDES and/or Virginia Water Protection Permit (VWPP) will, according to the Division of Water Resources, include conditions reflective of the Division's July 19 recommendations.

During the review of the referenced project, the Division of Water Resources was concerned by the uncertainty that a new or modified VWPP would be required for water withdrawal impacts associated with the operation of one or both of the new units proposed in the referenced project. The VWPP is the primary controlling mechanism for regulation of impacts due to surface water withdrawals. However, the VPDES permit may also be used for this purpose. The current VPDES permit (#VA 0052541) for the North Anna Power Station contains minimum flow conditions and would need to be modified if Unit 3 were built. DEQ can require Dominion to abide by combined recommendations of the Division of Water Resources and the Department of Game and Inland Fisheries through a lawfully issued VPDES permit.

The DEQ Division of Water Resources also considered the following topics during its review of the referenced project:

- **Cumulative Impacts** According to DEQ-DWR, the use of air cooling only after lake levels begin to decline has been changed to more reliance on air cooling. This will reduce the time that the lake level will be down more than 2 feet (i.e., at 248 feet msl) from 11% of the time in an earlier proposal to 7% of the time with the present proposed configuration. By operating the third unit to take maximum advantage of air cooling, Dominion can minimize adverse impacts of the third unit on middle-range flows to an acceptable level.

- **Foreclosure of Development of Public Water Supplies in the Region** As discussed further in enclosed comments and in the Appendix 2 "Summary of Public Comments" the following is the status of water supply efforts in neighboring localities:

| **Locality** | **Efforts** | **Impact on Lake Anna/N. Anna River or from Project** |
|---|---|---|
| Caroline County | Pursuing tidal intake from Rappahannock River | No impact on flows in York River basin |

| | | |
|---|---|---|
| Hanover County | Purchases from Richmond, water skimmed from high river flows, use of quarry | No indication |
| Town of Orange | Water supply reservoir completed, water from Rapidan River | Net gain to region from inter-basin transfer |
| Spotsylvania County | Spotsylvania did not pursue Lake Anna water | No indication |
| Louisa County | Considering purchase from Fluvanna County, which has water withdrawal permit for water from James River; considering existing reservoir | No effect from Unit 3 |

- **Raising Lake Level** DEQ's Division of Water Resources states that raising the lake level 6 to 9 inches is not under consideration. No decision has been made with regard to a 3-inch increase recommended by DGIF; this would allow an additional 27 cubic feet per second (cfs) to be released into the North Anna River for 60 days each year. This proposal would require VPDES approval in the lake level contingency plan or else approval under a Virginia Water Protection Permit.

- **Blowdown Discharges from Unit 3** Concerns have been raised that the blowdown discharges from proposed Unit 3 will add heat and chemicals to the Lake and may affect its water quality. According to DEQ's Northern Virginia Regional Office, the existing VPDES permit (#VA0052451), which applies to Units 1 and 2, would need to be modified to address the cooling tower blowdown discharges attributable to Unit 3. Effluent guidelines specified in federal regulations (40 CFR Part 423) would be used in the permit action, which would also accord with water quality standards. Any added heat would be analyzed to determine whether a re-evaluation of the existing section 316(a) variance applicable to the North Anna Power Station is warranted. Similarly, the VPDES permit action would analyze the use of chemicals to ensure that numeric criteria of state water quality standards are met.

The Division of Water Resources is confident that with the presently proposed infrastructure for Units 2 (existing) and 3 (proposed), DEQ has the authority under its permitting programs to protect in-stream beneficial uses of the North Anna River, even in light of cumulative impacts of the new project. Therefore, the Division of Water Resources and the DEQ Northern Regional Office did not object to the VCP's conditional concurrence with the federal consistency certification for the referenced project. (Please also see Appendix 2 "Summary of Public Comments Received" for additional comments and responses provided by DEQ regarding this Enforceable Policy). Questions about the VPDES permit should be directed to DEQ's Northern Virginia Regional Office (Tom Faha, Water Permit Manager, telephone (703) 583-3846) or DEQ's Division of Water Resources (Joe Hassell, telephone (804) 698-4072).

### 3. Wetlands Management Enforceable Policy

The purpose of the wetlands management program is to preserve tidal wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation. The tidal wetlands program is administered by the Virginia Marine Resources Commission (*Code of Virginia* § 28.2-1301 thru § 28.2-1320).

The Virginia Water Protection Permit program administered by the Department of Environmental Quality includes protection of wetlands, both tidal and non-tidal. This program is authorized by Code of Virginia § 62.1-44.15.5 and the Water Quality Certification requirements of Section 401 of the Clean Water Act of 1972. Due to the relationship of the VWPP Program's surface water withdraw authorities and the nature of the provisions of the VPDES permit for the referenced project, the comments pertaining to water withdrawal matters are included in the Point Source Pollution Control Enforceable Policy discussion above. (Please also see Appendix 2 "Summary of Public Comments Received" for additional comments and responses provided by DEQ regarding this Enforceable Policy). Questions about VWPP should be directed to DEQ's Division of Water Resources (Joe Hassell, telephone (804) 698-4072).

**4. Non-Point Source Pollution Control Enforceable Policy**

This enforceable policy is administered by the Department of Conservation and Recreation, Division of Soil and Water Conservation. According to the Department of Conservation and Recreation (DCR), any land disturbance exceeding an area of 2,500 square feet must comply with the Virginia Erosion and Sediment Control Law, which requires that the applicant prepare and submit an Erosion and Sediment Control Plan to DCR's James River Watershed Office. Questions should be addressed to that Office (James McCutcheon, telephone (804) 225-2992).

**5. Coastal Lands Management Enforceable Policy**

This program is a state-local cooperative program administered by the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act (see § 10.1-2100 thru § 10.1-2114 *Code of Virginia* and Chesapeake Bay Preservation Area Designation and Management Regulations. (See 9 VAC 10-20-10 *et seq. Virginia Administrative Code.*)

According to the Department of Conservation and Recreation's Division of Chesapeake Bay Local Assistance, the project area, which is in Louisa County, is not within a Chesapeake Bay Preservation Act jurisdiction (Baird/Ellis, 10/30/06). Questions about Coastal Lands Management matters should be DCR's Division of Chesapeake Bay Local Assistance (Alice Baird, telephone (804) 225-2307).

**6. Subaqueous Lands Management Enforceable Policy**

The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality, Water Division. The program is administered by the Virginia Marine Resources Commission (VMRC) (§ 28.2-1200 thru 28.2-1213 of the *Code of Virginia*). Since Lake Anna is a man-made impoundment of the North Anna River, the Commission has jurisdiction over encroachments over the historic, flooded stream channel. Questions about Subaqueous Lands should be directed to VRMC (Jeff Madden, telephone (757) 247-2200).

## 7. Air Pollution Control Enforceable Policy of the VCP

The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (§ 10-1.1300 of the *Code of Virginia*).

**Permitting Requirements** Heating and other fuel-burning facilities may require permits from DEQ. Questions on these requirements may be addressed to DEQ's Northern Regional Office.

**Fugitive Dust Control** During construction activities, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

**Open Burning Requirements** In addition, if project activities include the burning of any material, this activity must meet the requirements of the Regulations for open burning (9 VAC 5-40-5600 *et seq.*), and it may require a permit (see item 6(a), above). The Regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. Dominion should contact appropriate local officials to determine what local requirements, if any, exist. The model ordinance includes, but is not limited to, the following provisions:

- All reasonable effort shall be made to minimize the amount of material burned, with the number and size of the debris piles;
- The material to be burned shall consist of brush, stumps and similar debris waste and clean-burning demolition material;
- The burning shall be at least 500 feet from any occupied building unless the occupants have given prior permission, other than a building located on the property on which the burning is conducted;
- The burning shall be conducted at the greatest distance practicable from highways and air fields;
- The burning shall be attended at all times and conducted to ensure the best possible combustion with a minimum of smoke being produced;
- The burning shall not be allowed to smolder beyond the minimum period of time necessary for the destruction of the materials; and
- The burning shall be conducted only when the prevailing winds are away from any city, town or built-up area.

DEQ's Air Division did not state any objections to the referenced project. For questions about Air Pollution Control contact DEQ's Northern Regional Office (Terry Darton, telephone (703) 583-3845).

## ADVISORY POLICIES OF THE VCP

The discussions which follow present state agency comments and recommendations with regard to each of the advisory policies of the VCP that are applicable to the referenced project, issues raised by the public pertaining to these advisory policies, and responses to these issues from agencies with jurisdiction on the appropriate policy. Although not required for the purposes of consistency, in accordance with 15 CFR § 930.39(c), Dominion and the NRC should consider the advisory policies (recommendations) of the Virginia Coastal Resources Management Program as they pertain to the referenced project.

### Coastal Natural Resource Areas

These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:

a) Wetlands
b) Aquatic Spawning, Nursery, and Feeding Grounds
c) Coastal Primary Sand Dunes
d) Barrier Islands
e) Significant Wildlife Habitat Areas
f) Public Recreation Areas
g) Sand and Gravel Resources
h) Underwater Historic Sites

### Wildlife Habitat

The Department of Game and Inland Fisheries (DGIF) has notified Dominion and the Nuclear Regulatory Commission of the existence of at least two new bald eagle nests at Lake Anna. DGIF understands that NRC may consult informally with the U.S. Fish and Wildlife Service regarding these nests. DGIF supports this consultation and also recommends that Dominion contact DGIF to address potential adverse impacts upon bald eagles attributable to this project (Jeff Cooper, biologist, telephone (540) 899-4169).

### Public Recreation Areas

We received comments from the Virginia Department of Conservation and Recreation (DCR) regarding Public Recreation Areas. In its earlier comments on the Draft Environmental Impact Statement for the referenced project, DCR recommended that a minimum in-stream flow recreation study be conducted to determine what the discharge rates should be from Lake Anna to

support recreational boating on the North Anna River. DCR stated that an air-cooled Unit 3 would have no impacts upon water-related recreation.

According to DCR, Lake Anna supports a significant amount of recreational activity from people getting to the lake from public and private lands. Lake Anna State Park is a particular example of the public investment in facilitating public use of the Lake. DCR stated that the proposed new generating facilities may deplete the water available for other uses and that impacts of those facilities upon the lake temperature, particularly in the summer months, can affect the downstream fishery. DCR further commented that the North Anna River is a spectacularly scenic and remote canoeing river with excellent fishing. Between State Route 601 and U.S. Route 301, the North Anna River is heavily used because it presents some of the most beautiful and remote paddling opportunities in the mid-Atlantic region. During periods of low rainfall, releases from the Lake Anna Dam are less than what is needed to support recreational boating on the River. DCR further recommended that discharge rates from the Lake Anna Dam should be adequate to meet minimum in-stream flows needed for recreational boating from State Route 601 to U.S. Route 301.

The scope of the IFIM Study discussed above will also need to address the recreational issues described in DCR's comments.

**Comments Received from State Agencies Regarding Other Issues**

**1. Health Impacts**

During the initial review of the federal consistency certification in 2005, DEQ-OEIR requested the Virginia Department of Health (VDH) to comment on two concerns raised by citizens relative to potential health effects of new nuclear power reactor units: the direct effects of heat from immersion in ambient waters by recreational bathers, and the potential adverse effects of any changes in concentrations of micro-organisms in those waters. VDH provided analysis and comments in a letter dated September 15, 2005 (enclosed).

**Risks to Health from Heat** According to VDH, if a person is exposed to hot water that is 113 degrees Fahrenheit (F.) or higher, there is a risk of burn injury, correlated with the water temperature and the length of time one is submerged. Submersion can be expected to result in second-degree burns (no irreversible damage) after two hours of exposure. Immersion in water at temperatures above normal body temperature (98.6 degrees F.) can be expected to affect body temperature, sweating, and heart rate. Persons with heart disease, young children, pregnant women, and the elderly are believed to be particularly vulnerable, as are people with spinal cord or peripheral nerve disorders.

**Microbiological Risks to Health** According to VDH, a species of amoeba (*Naegleria fowleri*) that inhabits freshwater ponds, lakes, rivers, minimally chlorinated pools, and hot springs can cause a disease called primary amoebic meningoencephalitis (PAM), which is a rare but nearly always fatal infection. This infection occurs when water containing these amoebae incidentally enters the nose during swimming or other aquatic activity, followed by migration to the brain through the olfactory nerve. Symptoms occur one day to two weeks after exposure; death typically occurs 3 to 7 days after symptoms occur. According to death certificate data cited by VDH, there have been 35 deaths nationally, including one in Virginia, attributable to PAM during the period 1979 through 2002.

**Recommendations** According to VDH, vulnerable classes of people (see item 1(a), above) should avoid prolonged immersion in waters warmer than normal body temperature. All people should avoid water bodies with temperatures over 104 degrees F. To reduce the risk of PAM, swimmers should avoid waters when surface water temperatures are greater than or equal to 95 degrees F. They should also avoid shallow, stagnant areas, minimize forceful entry of water up nasal passages during jumping or diving (such as by nose plugs or holding the nose), and avoid digging in sediment while under water. Further questions may be directed to the Department of Health (Khizar Wasti, telephone (804) 864-8182).

**2. Historic Structures and Archaeological Resources**

In earlier comments (June 8, 2006, prior to issuance of the Supplement to the Draft EIS, and November 3, 2005), the Department of Historic Resources (DHR) indicated that there had not been sufficient identification of historic properties that may be affected by the construction of proposed Units 3 and 4. If such identification could not be completed by the time of a Final Environmental Impact Statement, then a Programmatic Agreement would be necessary.

Since writing those earlier comments, DHR has received and reviewed an archaeological survey report, entitled *Archaeological Survey Dominion Early Site Permit Project North Anna Power Station, Louisa County, Virginia,* prepared by the Louis Berger Group, Inc., for Dominion Nuclear North Anna, LLC. (DHR File No. 2000-1210.)

**Review of the Survey Report** According to DHR, the survey report meets the Secretary of the Interior's *Standards and Guidelines for the Documentation of Archaeological Sites* (Federal Register, Volume 48, pages 44734-44742) and also the DHR *Survey Guidelines* (revised 2001).

The survey builds on two previous site assessments conducted on the property in question, and employs a probability model based on the physiographic situation and field inspection. The Department of Historic Resources states its finding that the model is properly developed and executed, and represents a reasonable, good-faith effort to identify archaeological resources that may be affected by the proposed project. The Area of Potential Effect (APE) contains two known historic-era cemeteries recorded as sites 44LS221 and 44LS222. No additional archaeological resources were identified within the APE.

**Recommendations** The survey consultant recommends that the two cemeteries are potentially eligible for listing on the National Register of Historic Places, and that further archaeological evaluation would be necessary to determine eligibility. The Department of Historic Resources concurs with these recommendations.

DHR further recommends that the two cemetery sites be avoided in project development. If they are avoided, the project would likely have no negative effect on the archaeological sites.

**Conclusions** According to DHR, the execution of the survey and submission of the survey report satisfies the identification responsibilities of the Nuclear Regulatory Commission, provided that the cemeteries can be avoided. These responsibilities stem from Title 36, Code of Federal Regulations, Part 800. Satisfaction of these responsibilities pre-empts the necessity of a Programmatic Agreement.

The Department of Historic Resources looks forward to receiving the Nuclear Regulatory Commission's determination of effect for this project. Questions may be directed to DHR (Roger Kirchen, telephone (804) 367-2323, ext. 153).

**3. Road and Traffic Impacts**

Any Virginia Department of Transportation VDOT land use requirements, lane closures, traffic control or work zone safety issues should be closely coordinated with the affected cities/counties and VDOT's Louisa Residency (telephone (540) 967-3710).

Also, VDOT provided responses to comments from citizens pertaining to road and transportation issues. In its responses, VDOT indicated that it would work with Dominion to ensure that the roads in the vicinity of the North Anna Power Station are maintained and that necessary improvements are in place prior to any major activities at the project site. VDOT has requested a traffic impact analysis from Dominion; this would compare the future background traffic in the area with future traffic, including construction traffic ("total traffic"), and would identify areas of impacts. The impacts -- some of which would be temporary, from construction, and some of which would be permanent -- are the responsibility of Dominion. The traffic impact analysis should also provide mitigation measures to reduce the impacts. (Please also see Appendix 2 "Summary of Public Comments Received" for additional comments and responses provided by VDOT regarding road and traffic Impacts).

**<u>OTHER MATTERS RELATED TO THIS CONISISTENCY CERTIFICATION REVIEW</u>**

**1. Regional Government Comments**

The Thomas Jefferson Planning District Commission responded to discussion, in the NRC's Supplement to the Draft EIS, of potential need to modify water releases at the North Anna Dam to maximize shad habitat and preserve downstream river resources. The Commission noted that DEQ would be responsible for determining modification to water releases and recommended appropriate action by DEQ in this regard.

**2. Local Government Comments**

Spotsylvania County reiterated earlier comments, provided in the review of the Draft EIS. The County adopted a resolution on February 8, 2005, which recited a number of concerns about the Early Site Permit process, chiefly the demands of the proposed project for Lake Anna water in light of the rapidly growing population in the Lake region and the impacts on area residents and visitors of lowering the water level of the Lake. The County objected to the ESP process.

Louisa County indicated, on behalf of its Board of Supervisors, that the County had raised several questions with Dominion and was satisfied with the answers. Louisa County supports issuance of the Early Site Permit by the Nuclear Regulatory Commission.

Hanover County provided copies of earlier comments with its September 8, 2006, (enclosed) comment letter on the current federal consistency certification review. Hanover County submitted the following comments:

**Background: County Relationship to Rivers** Hanover County is immediately downstream from the North Anna Dam, and relies on the North Anna River as the water source for its Doswell Water Treatment Plant, as well as the receiving water for discharges from the County's Doswell Wastewater Treatment Plant. The County also relies, further downstream, on the Pamunkey River, which receives a significant part of its flow from the North Anna River. The Pamunkey River is the receiving water for discharges from Hanover County's Courthouse and Totopotomoy Wastewater Treatment Plants. In addition, the North Anna and Pamunkey Rivers are important fisheries habitats and also recreational amenities for County residents. Several industries in the County also rely on the North Anna River.

**Effects** The County states that, according to the data provided by NRC and Dominion, low-flow conditions in the North Anna River will be exacerbated by the installation of the proposed new reactors. Although the proposed new cooling method would reduce the downstream impact of these new units, there would be an adverse impact on flows. Hanover County states that the current minimum releases are below those recommended by the State's natural resource agencies, and the County is concerned about the reduction in flows, which will affect County industries, water and wastewater treatment plants, and the environment.

**Earlier Correspondence to NRC, January 7, 2004** In response to the Nuclear Regulatory Commission's notice of intent to prepare a Draft Environmental Impact Statement (Federal Register, Volume 68, No. 226, dated November 24, 2003, pages 65961-65962), Hanover County wrote to NRC, stating its background information above. The County reviewed state legislative action mandating reduced minimum releases of 20 cfs in the event of drought, saying that downstream users have designed their water intake and wastewater discharge systems around a 40-cfs low-flow condition. The County recommended inclusion of its prior comments (below) in the scope of an environmental impact statement.

**Earlier Correspondence to DEQ's Valley Regional Office, November 6 and 21, 2000** DEQ's Valley Regional Office held a public hearing on November 6, 2000, according to the County's correspondence, regarding its draft VPDES permit for Dominion. The draft permit included reference to a Lake Level Contingency Plan, which the County supported (November 6 letter, enclosed). The County's comments referred to earlier correspondence by the Lake Anna Civic Association (LACA), and its requested changes to the Lake Level Contingency Plan (LLCP). Hanover County supported a 248 foot msl lake level, stating that LACA's preference for a normal level of 250 foot msl (triggering reduced flows below 40 cfs in anticipation of a drought) was not realistic because the 40 cfs minimum flow has been mandated by regulation since 1968, predating the improvements around the Lake. It was the County's view at the time that an "action level" higher than 248 feet msl would require a reduction in flows below 40 cfs on a "regular basis" and would be inconsistent with legislative language that reductions would be required due to "drought conditions." The County's water intake pumps require the seven-year, ten-day low flow ("7Q10" flow, or 42 cfs) in order to function properly. Similarly, the County's permitted wastewater discharge depends on the 7Q10 flow. Accordingly, the County stated its opposition to any effort to reduce discharge levels below 40 cfs.

The County's November 21, 2000, letter urged retention of the 248-foot msl level at which discharge rates would be reduced. The County indicated that while a reduction to 20 cfs in drought periods is a 50% decrease in minimum downstream flow, which is inequitable, it is relatively insignificant in maintaining lake levels because of other factors such as evaporation rates (pages 2-3

of letter). The County reiterated its support of the draft permit language relating to the Lake Level Contingency Plan. The County also provided additional documentation on the history of the release rate.

Thank you for the opportunity to review the federal consistency certification for the proposed Early Site Permit for the North Anna Power Station. If you have questions on these comments, please feel free to call Michael Murphy at (804) 698-4003.

Sincerely,

Richard F. Weeks, Jr.
Chief Deputy

Enclosures

cc: Andrew K. Zadnik, DGIF
John Kauffman, DGIF
Robert S. Munson, DCR
Susan E. Douglas, VDH-ODW
Khizar Wasti, VDH-OHHC
Robert B. Stroube, VDH
Joseph P. Hassell, DEQ-DWR
Thomas A. Faha, DEQ-NVRO
Jeffrey P. Madden, MRC
Mary T. Stanley, VDOT
Roger W. Kirchen, DHR
Alice R. T. Baird, DCR-DCBLA
Ellie L. Irons, DEQ-OEIR
Harrison B. Rue, Thomas Jefferson PDC
Jeffrey Walker, Rappahannock-Rapidan PDC
Robert Wilson, RADCO PDC
C. Lee Lintecum, Louisa County
J. Randall Wheeler, Spotsylvania County
Frank W. Harksen, Jr., Hanover County
Ted Coberly, Orange County
Jim Candeto, Town of Mineral
Jack Cushing, NRC

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DEQ-Office of Environmental Impact Review

# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
*Secretary of Natural Resources*

***Department of Game and Inland Fisheries***

Colonel W. Gerald Massengill
*Interim Director*

July 7, 2006

Mr. Charles H. Ellis, III
Department of Environmental Quality
629 East Main St., Sixth Floor
Richmond, VA 23219

RE: North Anna Early Site Permit
Coastal Consistency Determination
05-079F
ESSLOG 19290 (20374)

Dear. Mr. Ellis:

We have reviewed the subject Consistency Determination and offer the following comments and recommendations. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally endangered or threatened species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission, the Virginia Department of Transportation, the U. S. Army Corps of Engineers, the Federal Energy Regulatory Commission, and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitats, and to recommend appropriate measures to avoid, reduce, or compensate for those impacts.

This project involves an application from Dominion Virginia Power Company (Dominion) for an Early Site Permit (ESP) for the North Anna Nuclear Power Plant, located on Lake Anna in Louisa County. The ESP would be for activities related to the addition of nuclear reactors Unit 3 and Unit 4 at the plant. We first commented on this project in February 2005. At that time, we expressed concern that this project may result in significant adverse impacts upon fisheries resources in Lake Anna and the North Anna River. The impacts could result from fish impingement/entrainment at the intake and the increased frequency of drought flows downstream. Because of these concerns, we indicated that the project would be inconsistent with the Fisheries Management enforceable policy of the Virginia Coastal Resources Management Program. In late October 2005, Dominion announced that it had devised a new method of cooling Unit 3. The proposed Unit 3 will now utilize a combination wet/dry cooling process instead of once through cooling. The purpose of the modification is to lessen the evaporative loss from Unit 3. The proposed Unit 4 would remain a dry cooling unit. We understand that the Unit 3 circulating water system would operate in either of two operating modes:

- Energy Conservation (EC). In this mode, the dry cooling process would be turned off, with reliance on wet towers for heat removal.
- Maximum Water Conservation (MWC). In this mode, a minimum of 1/3 of the heat would be removed by the dry towers. The remainder would be removed, as required, by the wet towers.

In the following sections are our comments on the revised design related to resources under our jurisdiction and our recommendations for mitigating potential adverse impacts upon these resources.

**Striped Bass Reservoir Habitat**

With the proposed wet/dry cooling system for Unit 3, heated water in the lake will not be increased, as the heat is dissipated through the cooling towers with only a minimal amount returned to the lake. Therefore, we do not expect changes in striped bass habitat with the proposed Unit 3 revision.

**Intake systems**

The current intake screen at the plant has a 9.5 mm mesh size and an intake velocity of 0.7 feet per second (fps). The same design is proposed for the Unit 3 intake structure. With the redesign of Unit 3's cooling process the expected number of fish impinged by Unit 3 would be reduced from approximately 240,000 to 5,400 annually. The number of fish entrained by Unit 3 would be reduced from 147 million to 3.4 million annually. Our earlier recommendations were for a 1-mm mesh size screen and intake velocity of 0.25 fps. During several meetings with the Nuclear Regulatory Commission (NRC) and Dominion, there was discussion regarding the lack of sweeping velocity in a reservoir situation. Based upon these discussions we reviewed the literature for fish screen recommendations. The most liberal recommendations encountered were for a 2-mm mesh size and 0.5-fps intake. The proposed 9.5 mm screen will only exclude fish larger than 3.4 inches from the intake. By utilizing a 2 mm screen, fish larger than 1 inch will be excluded. Therefore, to increase resource protection, we recommend a 2-mm mesh size and 0.5-fps intake velocity for the new Unit 3 and Unit 4.

**Hydrologic Alterations**

Some issues of concern still exist regarding the increased evaporation from the lake and subsequent impacts upon downstream hydrology due to Unit 3. We recommend that these concerns be addressed by changing the proposed operating rules for implementation of the MWC mode cooling process. We feel that implementation of these recommendations will result in this project being consistent with the Fisheries Management enforceable policy of the Virginia Coastal Resources Management Program. Our concerns are that the increased frequency of flows below 40 cfs will cause the downstream hydrology to change to a drier condition than would occur naturally, thereby resulting in lower flows on downstream resources in the Pamunkey River. The required release flow of 40 cfs is 11.6% of mean annual flow. Normal

summer flows on a stream this size would be from 70 to 100 cfs or 20-30% of mean annual flow. Reduced flows result in reduced summer habitat for resident species as well as downstream migratory species. An analysis of Dominion's long term North Anna River monitoring data demonstrated that the fish community requires a diverse flow pattern, with different species doing best in wet years. This is similar to study results from the James River and the North Fork Shenandoah River.

Frequency of 20 cfs flows

Normal water elevation of the lake is 250 feet above mean sea level (msl). Current operating rules for the power plant allow the flows to be reduced from a required 40 cfs to 20 cfs whenever the lake elevation reaches 248 ft msl. Prior to lake construction, flows were less than 20 cfs 4.2% of the time. Currently, flows are decreased to 20 cfs an average of 5.2% of the time. With the proposed Unit 3 wet/dry cooling system, the frequency and duration of these 20-cfs events would increase to 7.3% of the time. This is an improvement from the original proposal, which would have resulted in flows being reduced to 20 cfs 11.8% of the time. With the existing two units, there are two 20-cfs flow events predicted over a 24-year period. The proposed Unit 3 would increase that to five 20-cfs flow events over a 24-year period. With a third unit, the duration of the first two events is increased by an additional 4 to 5 weeks. The three additional events have durations of two to thirteen weeks. We feel that a solution exists to reduce the frequency and duration of 20-cfs events. For each additional inch of water stored, an additional 27 days are provided during which flows can be maintained at 40 cfs. By storing three inches of water, resulting in a lake elevation of 250.25 ft msl, the five 20-cfs events are reduced to three events and the duration of the third event is reduced from 13 weeks to one week. The other two events would have the same duration as they previously did. Therefore, we recommend that the normal operating elevation be seasonally (April-November) increased to 250.25 ft msl in order to minimize the impacts of an increased frequency and duration of 20-cfs flows on downstream resources. Rules could be in place to reduce the pool to elevation 250 prior to predicted severe storm events such as hurricanes and tropical depressions.

Altered flow regime above 40 cfs.

The proposed Unit 3 will withdraw a maximum of 49.6 cfs, with an average use of 34.3 cfs. Return water could range from near 0 to 49.6 cfs depending upon the operation of the dry cooling unit and ambient air temperature. Under summer conditions, dry tower return rates could be in the range of 25%. Winter returns could be 100% with minimal evaporative loss from the lake. Use of only the wet tower will result in almost 100% evaporative water loss. We believe that impacts will occur upon the fishery depending upon season and flows. These impacts can be minimized by use of the dry tower to reduce consumptive water loss. Table 1 (attached) summarizes the flows of the North Anna River under four conditions: 1) prior to construction of Lake Anna, 2) under current conditions, 3) with the addition of Unit 3 as proposed, and 4) with the MWC mode utilized. Some discrepancies occur in the table due to the fact that Unit 3 values were computed using weekly averages instead of daily values. This is particularly apparent in the spring months during median (50th percentile) and 75th percentile events, when flows with Unit 3 are shown as being higher than existing values.

In developing our recommendations, we recognize that the creation of Lake Anna has improved water quality downstream from Contrary Creek, which has benefited several fishery resources. During dry conditions in late summer (10th percentile), some flows now are slightly higher than

before (Table 1). However, during the majority of time since creation of the lake and operation of the power plant, there has been a negative impact on flows. Almost all monthly percentile flows are now less due to natural and accelerated water evaporation (Table 1). In managing an aquatic resource, low, normal, and high flows are important for various species. Naturally variable flows result in a balanced and diversified fish community. Changes in flow of more than 10% can produce habitat changes of 10%. We have highlighted in Table 1 those instances where, 1) natural flows have been reduced by more than 10% of the pre-lake flows, and 2) where use of the MWC mode would increase post Unit 3 flows by more than 10%. Use of the dry cooling system in the summer also can be effective in helping create seasonal variation during wetter years.

Some of the biologically important fishery resources and most critical seasons are as follows:

- Herring spawning during March. Based upon results on the Rappahannock and James rivers, herring runs are strongest when flows are near normal. Low flows have resulted in reduced numbers moving upstream.
- Shad spawning during late March/April. Upstream migration is less during dry years.
- Smallmouth bass spawning in May/June and juvenile bass development/survival during June. Statewide, we have documented that juvenile bass survival is highest when June flows are between the median and average values. June flows, from Table 1, are currently below median values and would decrease more with the addition of Unit 3 to 43% of pre-lake values. Water conservation during this period should enhance smallmouth bass juvenile survival.
- Juvenile shad survival on the Pamunkey River is best during wet summers. The Pamunkey system has the healthiest shad population in Virginia and serves as the brood source for shad reestablishment in the James River system. We have reviewed the impacts of stream flow on American shad juvenile production in the Pamunkey River. These data were presented to Dominion and the NRC in separate meetings in spring 2006. Shad juvenile year class strength and survival were assessed by evaluating catch-per-unit effort of returning brood stock, ages 4 to 6 years. In summary, the best juvenile shad survival occurred during wetter June-August years (those with the flows at the 80th percentile). Lake Anna is about 1/3 the drainage area of the Pamunkey River at the gage station near Hanover, and is an important contributor to that river's flow. Flow losses within Lake Anna due to evaporation can have a significant impact upon downstream shad resources.

To address our concerns, we recommend the following operating rules for implementation of the Maximum Water Conservation (MWC) mode:

- In March and April, we recommend implementation of the MWC mode when flows are less than 225 cfs. Flows are in the lower quartile, and water conservation savings can result in significant habitat savings and return flows to near existing conditions. These flows are particularly important for herring, shad, migratory striped bass, and resident sucker and minnow spawning.
- In May, we recommend implementation of the MWC mode when flows are less than 175 cfs. These flows are important for smallmouth bass nesting. The addition of Unit 3 would reduce flows by 30% from pre-lake conditions.

- In June, we recommend implementation of the MWC mode when flows are less than 120 cfs. This value is close to the average value and will enhance smallmouth bass spawning success and subsequent catch to anglers.
- From July - October we recommend implementation of the MWC mode when flows are less than 90 cfs. High flows are important for the habitat requirements of resident fish species that do best in wet years. Without water conservation in wet years, those optimal habitat conditions are not achieved. Wet years also are important for producing strong year classes of American shad in the Pamunkey River.

Under the current proposal, the MWC mode would be implemented after a 7-day waiting period when water surface elevation is below 250 msl and releases are 40 cfs. We recommend against the 7-day waiting period before implementing water conservation. We recommend implementation when downstream flows have a three-day rolling average at the above triggers.

**Other Wildlife Resources**

In addition to our concerns regarding potential adverse impacts upon fishery resources, we have notified Dominion and the NRC of the existence of at least two new bald eagle nests at Lake Anna. We understand that the NRC may informally consult with the U. S. Fish and Wildlife Service regarding these two nests. We support this consultation and also recommend that Dominion contact DGIF biologist Jeff Cooper (540-899-4169; Jeff.Cooper@dgif.virginia.gov) to address potential adverse impacts upon bald eagles due to this project.

Thank you for the opportunity to provide comments on this project. Please contact Andrew Zadnik at 804-367-2733 if we can be of further assistance.

Sincerely,

Andrew Zadnik

for Raymond T. Fernald, Manager
Nongame and Environmental Programs

Table 1. Flows (cfs) downstream of Lake Anna based upon pre-lake conditions, existing operations, with the addition of Unit 3 under proposed operation, and with Unit 3 under implementation of the Maximum Water Conservation (MWC) cooling mode.

| | Percentile | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10% | | | | 25% | | | | 50% | | | | 75% | | | |
| Months | Pre-lake | Current | Unit 3 | MWC | Pre-lake | Current | Unit 3 | MWC | Pre-lake | Current | Unit 3 | MWC | Pre-lake | Current | Unit 3 | MWC |
| March | 195 | 107 | 106 | 105 | 223 | 199 | 173 | 198 | 312 | 241 | ~~455~~ | ~~479~~ | 400 | 367 | ~~687~~ | ~~712~~ |
| April | 157 | 46 | 46 | 45 | 214 | 146 | 119 | 143 | 293 | 204 | ~~274~~ | ~~297~~ | 388 | 362 | ~~442~~ | ~~446~~ |
| May | 110 | 40 | 40 | 40 | 139 | 76 | 53 | 66 | 176 | 163 | 123 | 141 | 261 | 250 | ~~288~~ | ~~304~~ |
| June | 70 | 40 | 40 | 40 | 81 | 40 | 40 | 40 | 106 | 57 | 46 | 47 | 149 | 121 | 80 | 93 |
| July | 36 | 40 | 40 | 40 | 50 | 40 | 40 | 40 | 76 | 53 | 40 | 40 | 108 | 66 | 40 | 42 |
| August | 15 | 40 | 30 | 40 | 42 | 40 | 40 | 40 | 67 | 52 | 40 | 40 | 102 | 60 | 43 | 54 |
| September | 12 | 40 | 30 | 30 | 25 | 40 | 40 | 40 | 47 | 47 | 40 | 40 | 95 | 56 | 40 | 40 |
| October | 20 | 40 | 21 | 21 | 40 | 40 | 40 | 40 | 72 | 50 | 40 | 40 | 95 | 59 | 58 | 61 |

The highlighted cells show flow values where, 1) natural flows have been reduced by more than 10% of the pre-lake flows, and 2) where use of the MWC mode would increase post Unit 3 flows by more than 10%.
The values with a line drawn through are not logical, since post project values are higher than pre-lake values. This is because the analysis technique used weekly averages instead of daily values.

# COMMONWEALTH of VIRGINIA

*DEPARTMENT OF ENVIRONMENTAL QUALITY*
*Street address:* 629 East Main Street, Richmond, Virginia 23219
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482


**Memorandum**

To: Charles Ellis

From: Joseph P. Hassell, Environmental Program Manager

Subject: Final Water Resources Division comments on Coastal Zone Program Consistency Determination for North Anna Power Station Early Site Permit

Date: October 19, 2006

Copies: Michael Murphy, Ellie Irons

In three years this project has evolved to its present formulation of two new reactors, one with dry cooling and one with a combination of wet and dry cooling. Our original concerns regarding impacts to water resources have been largely addressed by the changes that Dominion has made for cooling unit 3 (wet and dry cooling), and 4 (dry cooling), and by the collective discussions that we have had with other programs within DEQ.

Our latest concerns centered on the difference between our recommendations as to when air cooling should be used for unit 3 versus what the revised ESP application proposed. Dominion's revised ESP application proposed operating Unit 3 in water conservation mode (air cooling) whenever Lake Anna fell below 250 feet msl. The Division of Water Resources and the Department of Game and Inland Fisheries recommended that in addition to the above rule, that Unit 3 be operated in water conservation mode whenever stream flows in the North Anna immediately below the dam were below certain target seasonal flows in order to reduce withdrawals required for operation of Unit 3 and mitigate impacts to stream flows during these periods. Our concerns were further complicated by what we considered to be Dominion's unwillingness to acknowledge that a Virginia Water Protection Permit would be required for water withdrawal impacts. While the Virginia Water Protection Permit is the primary controlling mechanism for the regulation of impacts due to surface water withdrawals it is not the only type of enforceable DEQ permit that may be utilized for this purpose. In fact, the current North Anna Power Station VPDES permit contains minimum flow conditions and would need to be modified if Unit 3 were to be built. Therefore, whether Dominion agrees that a new VWP Permit is

required for the increased water withdrawal is not relevant. DEQ, should it choose to do so, can still require Dominion to abide by the combined recommendations of the Division of Water Resources and the Division of Game and Inland Fisheries through a lawfully issued VPDES permit.

From a water resources standpoint the Division of Water Resources is confident that with the presently proposed infrastructure for units two and three, appropriate VWP or VPDES permit conditions can be crafted to protect the instream beneficial uses of the North Anna River, even considering the cumulative impacts of NAPS. The exact rules are better left to a DEQ permit process focused on the issue but at a minimum would operate in the fashion described in the ESP.

We have not changed our opinion on the appropriate operational rules for operating Unit 3 in water conservation mode from our last recommendation dated July 19, 2006. Ideally the project described in the ESP application would exactly match the project ultimately permitted in every detail, but that level of perfection is not realistic. In recognition of this point and with confidence in our future regulatory authority, the Division of Water Resources would not object if the Office of Environmental Impact Review issued an unconditional certification for the project with the understanding that a future VWP or VPDES permit will include conditions reflective of our July 19 recommendation.

## Ellis,Charles

**From:** Alice Baird [Alice.Baird@dcr.virginia.gov]
**Sent:** Monday, October 30, 2006 8:39 AM
**To:** Ellis,Charles
**Subject:** Re: North Anna ESP for Units 3 and 4 (DEQ-05-079F, new review)

Charlie,

You are right. We do not have jurisdiction in Louisa, so we really cannot comment on North Anna. If they ever do anything in Spotsylvania, we will have comments, but until then, we are out ot it.

Alli

>>> "Ellis,Charles" <chellis@deq.virginia.gov> 10/27/06 2:59 PM >>>
Alli - I recall, in earlier discussions of the North Anna project, that you stated that DCR-DCBLA has no jurisdiction with respect to the project because it is on the Louisa County side of the lake, rather than the Spotsylvania County side.

I checked the response on the Supplement to the Draft EIS, on which we replied to NRC (September 8), and found that Bob's August 9 comment for DCR said that DCBLA would have comments "shortly." I believe that I was aware of this jurisdictional limitation at the time, and it didn't matter because we were looking at the Supp. EIS, not at a consistency review.

I am sure that DCBLA has no Louisa jurisdiction, but I'd like to be able to say that on your authority, not just mine, in the consistency review (due next week). Could you send back an e-mail that confirms? Thanks very much.

Charlie

DEQ-OEIR

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SEP 18 2006

DEQ-Office of Environmental Impact Review

# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

**Marine Resources Commission**
*2600 Washington Avenue*
*Third Floor*
*Newport News, Virginia 23607*

Steven G. Bowman
Commissioner

September 13, 2006

Mr. Charles Ellis, III
Department of Environmental Quality
Post Office Box 10009
Richmond, Virginia 23240

Re: North Anna Early Site Permit Application to NRC, New Federal Consistency Review (DEQ-05-079F) and Draft EIS Supplemental Review (DEQ-06-125F)

Dear Mr. Ellis:

Thank you for once again giving me an opportunity to comment on this project. As you are no doubt very well aware, the Virginia Marine Resources Commission, pursuant to Title 28.2 of the Code of Virginia, regulates encroachment over State-owned submerged lands throughout the Commonwealth. Since Lake Anna is a man-made impoundment of the North Anna River, this agency has jurisdiction over only those encroachments over the historic/ flooded stream channel. Accordingly, this agency would only assert jurisdiction over direct encroachment over the above-referenced stream channel.

Should you have any questions concerning this matter please feel free to contact me at (757) 247-2276.

Sincerely,

Jeffrey P. Madden
Environmental Engineer

JPM/ncc
HM

If you cannot meet the deadline, please notify CHARLIE ELLIS at 804/698-4488 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

**MR. CHARLES H. ELLIS III**
**DEPARTMENT OF ENVIRONMENTAL QUALITY**
**OFFICE OF ENVIRONMENTAL IMPACT REVIEW**
**629 EAST MAIN STREET, SIXTH FLOOR**
**RICHMOND, VA 23219**
**FAX #804/698-4319**

**CHARLES H. ELLIS III**
**ENVIRONMENTAL PROGRAM PLANNER**

COMMENTS

Dear Mr. Ellis:
Thank you for giving this agency an opportunity to comment on the Early Site Permit Application document (CD) pertaining to the expansions at the Lake Anne power station. This agency would only assert jurisdiction over those portions of the project, which result in direct impacts and encroachment thereto within the historic stream channel of the Anna River.

(signed) Jeffrey J. Madala (date) June 16, 2006
(title) Environmental Engineer
(agency) Marine Resources Commission

**PROJECT # 05-079F**

8/98

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JUL 19 2006
DEQ-Office of Environmental Impact Review

# COMMONWEALTH of VIRGINIA

*Department of Health*

ROBERT B. STROUBE, M.D., M.P.H.
STATE HEALTH COMMISSIONER

P O BOX 2448
RICHMOND, VA 23218

TTY 7-1-1 OR
1-800-828-1120

July 14, 2006

Ms. Ellie Irons
Environmental Impact Review Program Director
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219

Dear Ms. Irons:

This is in reply to your recent email seeking the Virginia Department of Health's (VDH) comments regarding Dominion Virginia Power Company's certification of consistency with the Virginia Coastal Program under the federal Coastal Zone Management Act for the construction of two additional reactor units at the North Anna Nuclear Power Station (NANPS).

My staff has reviewed the issues raised in your email, as well as comments submitted by Mr. Harry Ruth, President of the Friends of North Anna. These issues and comments pertain to the regulation and monitoring of water temperature in the Waste Heat Treatment Facility (WHTF) or the cooling lagoons at the NANPS. These specific activities are not under the purview of VDH statutory or regulatory authority.

Nonetheless, VDH routinely provides consultation and recommendations to federal, state, and local agencies, as well as citizens regarding adverse human health impacts resulting from exposure to chemical, biological, and radiological agents. VDH has recently provided to your agency its assessment of potential risks to human health and suggested some 'prudent avoidance' recommendations to minimize such risks from exposure to water in the WHTF at the NANPS.

We will continue to provide any needed assistance in working towards our common goal of protecting the public's health. If you have any further questions or desire additional information, please contact Khizar Wasti, Ph.D., Director, Division of Public Health Toxicology, VDH, by telephone at (804) 864-8182 or by email at khizar.wasti@vdh.virginia.gov.

Sincerely,

Robert B. Stroube, M.D., M.P.H.
State Health Commissioner

VDH VIRGINIA DEPARTMENT OF HEALTH
*Protecting You and Your Environment*
www.vdh.virginia.gov

# COMMONWEALTH of VIRGINIA

ROBERT B. STROUBE, M.D., M.P.H.
STATE HEALTH COMMISSIONER

*Department of Health*
P O BOX 2448
RICHMOND VA 23218

September 15, 2005

Mr. Robert Burnley
Director
Department of Environmental Quality
P.O. Box 10009
Richmond, VA. 23240

Dear Bob:

As you know, Dominion currently operates two nuclear reactors at its North Anna Power Station (NAPS). Dominion has filed an application with the Nuclear Regulatory Commission seeking a permit to add two additional reactors. A group advocating for local property owners has raised two concerns related to the potential health effects of any such new units: direct effects of heat from immersion in ambient waters by recreational bathers, and the potential adverse effects of any changes in the concentrations of microorganisms in those waters. Charles Ellis, III, in your department has asked us to comment on those concerns.

Background

Waste heat at the NAPS is disposed of by running water from North Anna Reservoir through condensers. The heated water is then discharged to a series of three connected cooling lagoons, separated from the main body of the lake by dikes (together, the Reservoir and the lagoons make up 'Lake Anna'). These lagoons are collectively referred to as the Waste Heat Treatment Facility (WHTF). According to Dominion's Early Site Permit (ESP) application (revision 5, found at http://www.nrc.gov/reactors/new-licensing/esp/north-anna.html), "the WHTF is considered by the VDEQ to be a mixing zone for the purpose of complying with the state water quality standards under the VPDES program. Virginia Power considers the WHTF to be an integral part of the power station, and as such it has never been operated as an extension of the North Anna Reservoir for the purposes of public recreational use. However, with Virginia Power's permission, homeowners on the shoreline of the WHTF have access to it for recreational use (boating, fishing, swimming). This limited access and use would remain unchanged following the addition of the cooling systems for the new units."

The WHTF discharges to the North Anna Reservoir through the Virginia Power owned and operated Dike #3. The Reservoir has public access and is used for recreational boating, swimming, fishing, camping, and picnicking, and has residential (vacation and year-round) housing along its shores. Dominion estimates that, with the existing units operating, the heated

effluent's residence time in the WHTF is approximately 7 days, where about half of the waste heat is dissipated. The remaining waste heat is dissipated to the atmosphere from the Reservoir surface.

Current Thermal Profile

Fixed water temperature recorders continuously record water temperatures at 11 locations: 10 in the Reservoir and WHTF areas, and one in the North Anna River downstream of the dam. Data are supplied by Dominion in its application for a 25-year period (Units 1 & 2 came on line in 1978 and 1980, respectively):

- The *mean* observed daily surface water temperatures during July and August were 29.1 degrees Celsius (84.3 F) in mid-reservoir (Burrus Point), 31.6 C (88.9 F) near the outfall from the third lagoon to the reservoir (Dike #3), and 35 C (95 F) in the first lagoon (at discharge point).
- The *maximum* daily (24-hour average) observed temperatures for these sampling stations were 31.9 C (89.4 F), 35 C (95 F), and 39.1 C (102.4 F), respectively.
- Daily temperature readings throughout the year were observed to *equal or exceed* 30.5 C (87 F) 2.4%, 15%, and 30% of the time at these stations, respectively.

Projected Thermal Changes

Dominion uses a model originally developed at the Massachusetts Institute of Technology (MIT) to model the thermal effects on receiving waters of a third reactor (Dominion's scenario #2) using a once-through cooling system similar to units 1 & 2 (any fourth unit would likely use a closed cycle dry cooling tower system). The model makes these projections while assuming all units to be operating continuously at full station load:

- The projected *mean* daily surface water temperatures during July and August for the same three sampling stations mentioned above would be 32.3 C (90.1 F) in mid-reservoir (Burrus Point), 35.2 C (95.4 F) near the outfall from the third lagoon to the reservoir (Dike #3), and 39.6 C (103.3 F) in the first lagoon (at discharge point).
- The projected *maximum* daily (24-hour average) temperatures for these sampling stations would be 35.6 C (96.0 F), 38.8 C (101.9 F), 42.9 C (109.3 F), respectively.
- Daily temperature readings throughout the year are projected to *equal or exceed* 30.5 C (87 F) 22%, 34%, and 48% of the time at these stations, respectively.

Heat-related Risks

Burn injury is a risk if one is exposed to hot water 45 C (113 F) or higher. Most of the medical studies on this subject come from burn injuries sustained from hot tubs or showers. Severity of burn injury is correlated with the temperature of the water and the length of time one is submerged. Submersion in water at 45 C (113 F) can be expected to cause second degree burns (no irreversible damage) after two hours of exposure, and 3rd degree full thickness injury after three hours.

Immersion in water at temperatures above the body's normal temperature of 37.0 C (98.6 F) can be expected to affect body temperature, sweating, and heart rate. Deaths from thermal stress have been reported in saunas, diving environments, and hot tub baths. Consumption of alcohol is sometimes a contributing factor. The Consumer Product Safety Commission (CPSC) knows of several deaths from extremely hot water (approximately 43.3 C or 110 F) in a spa. High temperatures can cause drowsiness which may lead to unconsciousness, resulting in drowning. In addition, raised body temperature can lead to heat stroke and death. In 1987, CPSC helped develop requirements for temperature controls to make sure that spa water temperatures never exceed 40 C (104 F). Persons with heart disease, young children, the elderly, pregnant women and persons with spinal cord or peripheral nerve disorders are thought to be particularly vulnerable to the effects of submersion in hot water.

Microbiological Risks

Primary amoebic meningoencephalitis (PAM) is a rare but nearly always fatal infection caused by *Naegleria fowleri*, a thermophilic ('warmth loving'), free-living ameba that naturally inhabits freshwater ponds, lakes, and rivers, minimally chlorinated pools, and hot springs throughout the world. These waters need not be polluted with other microorganisms in order for the ameba to survive or multiply under the right conditions.

PAM results when amoebae-containing water incidentally enters the nose during swimming or other aquatic activity, followed by migration of amoebae to the brain through the olfactory nerve. Symptoms occur one day to two weeks after exposure, are indistinguishable from fulminant bacterial meningitis and can include headache, fever, stiff neck, anorexia, vomiting, altered mental status, seizures, and coma. Death typically occurs three to seven days after the onset of symptoms.

Although the consequences of infection are often devastating, cases are quite rare. Death certificate data yield only 35 deaths nationally due to PAM (ICD9 code 136.2 and ICD10 code B60.2) for the years 1979-2002. One (2.9%) of these deaths was in Virginia.

The majority of cases occur during the summer months and among children. Typically, these infections are associated with swimming in freshwater bodies in the late summer months because the free-living ameba *N. fowleri* proliferates in warmer waters.

Scientists have reported isolating pathogenic *Naegleria* species from bodies of water that were thermally enriched by power plant effluents in Illinois, Minnesota, Texas, and Virginia. These species have also been found to survive and grow well in natural hot springs and solar-heated ponds. The organism begins to proliferate at temperatures around 30 C (86 F) and thrives especially well (compared to its competitors) at temperatures of 35 to 45 C (95 to 113 F) where it can reach concentrations in water and sediments of 10 to 100 organisms per liter or gram.

Risk Characterization

Researchers have created risk assessment models based on animal experiments, epidemiologic data, and conservative assumptions to estimate the risk of PAM from a single

episode of swimming. This model predicts a risk of approximately one chance in 10 million when the concentration of organisms is 10 *N. fowleri* amoebae per liter.

Standards

There are no public health standards for *Naegleria* (or *N. fowleri*) for recreational waters or drinking water sources in Virginia or the U.S. The government of Australia has established an action level of two *N. fowleri* organisms per liter (or detection in a 500 mL sample) for *drinking water sources*. French health authorities have set a maximum level of 100 *N. fowleri* organisms per liter, not to be exceeded in water courses where human exposure is possible.

Comparable Risks

As mentioned above, mortality data indicate there has been one death in Virginia due to PAM during the period 1979 to 2002. By comparison, during that period there have been 49 deaths in Virginia due to being struck by lightning (ICD9 code 907 and ICD10 code X33), and 548 deaths in Virginia due to recreation-associated drowning (ICD codes 910 to 910.2 and ICD10 codes W69 to W69.9).

Recommendations

Persons with heart disease, parents and guardians of young children, the elderly, pregnant women and persons with spinal cord or peripheral nerve disorders should be cautious of prolonged immersion in waters that are warmer than body temperature. Bodies of water that have a temperature exceeding 40 C (104 F) should be considered unsafe for recreational activity for all persons due to the effects of heat alone.

Common sense suggests that to reduce the risk of PAM, swimmers might wish to avoid swimming in freshwater venues when water temperatures are high, e.g. when surface water temperatures are greater than or equal to 35 C (95 F). Swimmers should avoid shallow stagnant areas and minimize forceful entry of water up the nasal passages during jumping or diving activities (i.e., by holding one's nose or wearing nose plugs) and avoid digging in the sediment (where amoebae may be concentrated) while under water.

Should further information be needed, please contact Carl W. Armstrong, MD, Director, Office of Epidemiology, Virginia Department of Health, at 864-7905.

Sincerely,

Robert B. Stroube, M.D., M.P.H.
State Health Commissioner

cc: Susan McLeod, MD, MPH
District Director, Thomas Jefferson Health District

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OCT 23 2006

DEQ-Office of Environmental Impact Review

# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

**Department of Historic Resources**
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

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October 20, 2006

Mr. Jack Cushing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

RE: *Archaeological Survey Dominion Early Site Permit Project North Anna Power Station, Louisa County, Virginia*
DHR File No. 2000-1210; NUREG-1811; DEQ #06-125F

Dear Mr. Cushing:

We have received for consideration the above-referenced document prepared by The Louis Berger Group, Inc. for Dominion Nuclear North Anna, LLC. We are pleased to inform you that the report meets the Secretary of the Interior's *Standards and Guidelines for the Documentation of Archaeological Sites* (48 FR 44734-44742) and our Department's *Survey Guidelines* (revised 2001).

The survey builds on two previous site assessments conducted on the property and employs a probability model based upon physiographic situation and field inspection. We find that the model is properly developed and executed and represents a reasonable and good faith effort to identify archaeological resources that may be affected by this project. The Area of Potential Effect (APE) contains two known historic-era cemeteries recorded as sites 44LS221 and 44LS222. No additional archaeological resources were identified within the APE. The consultant recommends that these cemeteries are *potentially eligible* for listing on the National Register of Historic Places and that additional archaeological evaluation is necessary to determine eligibility. We concur with these recommendations. We further recommend that these sites be avoided. If avoided, this project would likely have no negative impact on these resources.

Provided that the cemeteries can be avoided, the execution of this survey and submission of this report adequately satisfies the Commission's identification responsibilities, pursuant to 36 CFR

800 and preempt the necessity of a Programmatic Agreement, as encouraged in previous correspondence. We look forward to receiving the Commission's determination of effect for this undertaking. If you have any questions, please contact me at (804) 367-2323, ext. 153 or e-mail roger.kirchen@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen, Archaeologist
Office of Review and Compliance

Cc: Mr. Charles H. Ellis III, DEQ
Mr. John M. Fowler, Advisory Council on Historic Preservation

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JUN 12 2006

DEQ-Office of Environmental Impact Review

# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

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June 8, 2006

Mr. Charles H. Ellis III
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

RE: North Anna Early Site Permit Application (ESP) – Consistency Determination
Louisa County, Virginia
DHR File No. 2000-1210; DEQ **#05-079F**

Dear Mr. Ellis:

We have received notice of the changes in the above-referenced project. Our Department requests that DEQ include in its comments to the Nuclear Regulatory Commission (NRC) a reiteration of the earlier recommendations provided to NRC by our letter dated November 3, 2005 (see attached).

To summarize, it is DHR's opinion that sufficient identification of historic properties that may be affected by this undertaking has not been conducted and should be completed prior to the approval of the final EIS and the issuance of the ESP. Furthermore, if the NRC does not wish to or cannot complete the identification and effect determination steps prior to finalizing the EIS, then the only valid alternative is to execute a Programmatic Agreement, which puts in place a set of procedures for future consultation and would allow this undertaking to proceed according to its stipulations.

We will be providing these and additional comments to NRC after the distribution of the Supplement Draft EIS and look forward to a productive relationship with all involved agencies. If you have any questions, please do not hesitate to contact me at (804) 367-2323, ext. 153 or e-mail roger.kirchen@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen, Archaeologist
Office of Review and Compliance

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Petersburg, VA 23803
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Roanoke Region Office
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Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Winchester Region Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7535

# COMMONWEALTH of VIRGINIA

W. Tayloe Murphy, Jr.
Secretary of Natural Resources

**Department of Historic Resources**
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

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www.dhr.virginia.gov

November 3, 2005

Mr. Pao-Tsin Kuo, Program Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

RE: North Anna Early Site Permit Review (TAC No. MC1128)
Louisa County, Virginia
DHR File No. 2000-1210

Dear Mr. Kuo:

We have received your September 27, 2005 letter concerning the action referenced above. According to your letter, the Nuclear Regulatory Commission (NRC) is of the opinion that the consideration given to potential impacts to historical and cultural resources in the draft Environmental Impact Statement (EIS), prepared pursuant the National Environmental Policy Act (NEPA), is sufficient to satisfy NRC's responsibilities under Section 106 of the National Historic Preservation Act. While 36 CFR 800.8 encourages Federal agencies to coordinate their Section 106 compliance with their NEPA responsibilities, it does not support a lower threshold for the identification of historic properties and assessment of effects. These steps of the process can be satisfied during the preparation of an EIS, but must be completed prior to the approval of the undertaking.

It is our opinion that if NRC does not wish to complete the identification and effect determination steps prior to finalizing the EIS, then the only alternative is to execute a Programmatic Agreement, which puts in place a set of procedures for future consultation and would allow this undertaking to proceed according to its stipulations. Such alternate procedures could apply not only to the Early Site Permit, but also to later permitting actions related to construction and operation and could ease and expedite future consultation. The conditional approval of the EIS by NRC without SHPO approval does not afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment and may be inconsistent with the Federal regulations.

We urge the NRC to reconsider the appropriateness and benefit of a Programmatic Agreement. Pursuant 36 CFR Part 800.2(b)(2), we have requested guidance from the ACHP on this matter. We will forward to you

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Fax: (540) 857-7588

Winchester Region Office
107 N. Kent Street, Suite 203
Winchester, VA 22601
Tel: (540) 722-3427
Fax: (540) 722-7535

for consideration any comments received. If you have any questions, please do not hesitate to contact me at (804) 367-2323, ext. 153 or e-mail roger.kirchen@dhr.virginia.gov.

Sincerely,

Roger W. Kirchen, Archaeologist
Office of Review and Compliance

Cc: Mr. Jack Cushing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Mr. David Christian
Dominion Nuclear North Anna, LLC
5000 Dominion Blvd.
Glen Allen, VA 23060

Mr. Don Klima
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, NW, Suite 803
Washington, DC 20004

L. Preston Bryant, Jr.
Secretary of Natural
Resources

Joseph H. Maroon
Director

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 326
Richmond, Virginia 23219-2010
(804) 786-2556 FAX (804) 371-7899

MEMORANDUM

DATE: August 9, 2006

TO: Mr. Charles H. Ellis, III
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Va. 23219
chellis@deq.state.va.us
(804) 698-4488

FROM: Robert Munson, Planning Bureau Manager
Virginia Department of Conservation and Recreation

SUBJECT: DEQ-06-125F:USNRC- Early Site Permit, North Anna

After review of the above referenced project, the Department of Conservation and Recreations' (DCR) Division of Planning and Recreation Resources has concerns about the project's impacts on water quality and quantity in Lake Anna and in the North Anna River below the dam. Lake Anna supports a significant amount of recreational activity from persons who access the lake from private and public lands. Lake Anna State Park is a particular example of the investment that has been made in facilitating public use of this lake. Proposed new generating facilities and the incumbent use of water to produce electricity will result in a depletion of water available for other uses. Impacts to the temperature in the lake, especially during the summer months, can have an impact on the fishery. DCR is concerned about the added impact the two new generators may have on the recreational use of the lake and on the quality of the recreational experience the visitors to Lake Anna State Park will have.

Recreational boating in the North Anna River. The North Anna River is a significant stream for canoeing and fishing. It is heavily used between Route 601 and Route 1. This is some of the most remote and beautiful paddling in the mid-Atlantic region. During periods of low rainfall, releases from Lake Anna dam are less than is needed to support recreational boating in the North Anna River. Any development that reduces the amount of water available for release for recreational boating in the North Anna River should be carefully considered.

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, Laura's Clubtail has been historically documented in Lake Anna. Adult Odonata (dragonflies and damselflies), commonly seen flitting and hovering along the shores of most freshwater habitats, are accomplished predators. Adults typically forage in clearings with scattered trees and shrubs near the parent river. They feed on mosquitoes and other smaller flying insects, and are thus considered highly beneficial. Odonates lay their eggs on emergent vegetation or debris at the water's edge. Unlike the adults, the larvae have an aquatic larval stage where they typically inhabit the sand and gravel of riffle areas. Wingless and possessing gills, they crawl about the submerged leaf litter and debris stalking their insect prey. The larvae seize unsuspecting prey with a long, hinged "grasper" that folds neatly under their chin. When larval development is complete, the aquatic larvae crawl from the water to the bank, climb up the stalk of the shoreline vegetation, and the winged adult emerges (Hoffman 1991; Thorpe and Covich 1991). Because of their aquatic lifestyle and limited mobility, the larvae are particularly vulnerable to shoreline disturbances that cause the loss of shoreline vegetation and siltation. They are also sensitive to alterations that result in poor water quality, aquatic substrate changes, and thermal fluctuations.

To minimize adverse impacts to the aquatic ecosystem as a result of the construction activities, DCR recommends the implementation of an erosion and sediment control plan in areas excavated along the creek, and that emergent vegetation adjacent to the creek be protected.

In addition, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in this letter. Their database may be accessed from www.dgif.virginia.gov/wildlife/info map/index.html, or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

DCR's Division of Chesapeake Bay Local Assistance has not had a chance to complete their review of this project. Their comments will follow shortly.

Thank you for the opportunity to comment on this project.

Sincerely,

Robert S. Munson
Planning Bureau Manager

Literature Cited

Hoffman, R. 1991. Arthropods. Pp. 173 in: K. Terwilliger (ed.), Virginia's Endangered Species: proceedings of a symposium. The McDonald and Woodward Publishing Company, Blacksburg, VA.

Thorpe, J.H., and A.P. Covich. 1991. Ecology and Classification of North American Freshwater Invertebrates. Academic Press, Inc., San, Diego, California.

L. Preston Bryant, Jr.
Secretary of Natural
Resources

Joseph H. Maroon
Director

# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 326
Richmond, Virginia 23219-2010
(804) 786-2556 FAX (804) 371-7899

MEMORANDUM

DATE: June 27, 2006

TO: Mr. Charles H. Ellis, III
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Va. 23219
chellis@deq.state.va.us
(804) 698-4488

FROM: Robert Munson, Planning Bureau Manager
Virginia Department of Conservation and Recreation

SUBJECT: DEQ-06-079F: Nuclear Regulatory Commission – North Anna Early Site Permit Application

The Department of Conservation and Recreation has evaluated the proposal to modify the North Anna Early Site Permit Application by changing the cooling tower for Unit #3 from a standard wet tower to a modified low consumption wet tower. While we applaud Dominion's efforts to conserve water, we continue to be concerned about the affects water consumption at the project will have on downstream flow rates in the North Anna River during low flow periods. The North Anna River below the Lake Anna project supports seasonal recreational canoeing and kayaking use. One of the best white water paddling experiences in eastern Virginia can be found on the North Anna River between Route 601 and Route 1. During periods of low flow, this section of the river cannot be paddled. Therefore, consumption of larger volumes of water from Lake Anna to operate the two new units will have the unwelcome effect of decreasing the number of days of paddling available below the dam during low rainfall years. Every effort should be made in design of the two new units to minimize the amount of water that will be required to operate them.

The Department of Conservation and Recreation (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, natural heritage resources have not been documented in the project area. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from www.dgif.virginia.gov/wildlife/info_map/index.html, or contact Shirl Dressler at 804-367-6913.

Thank you for the opportunity to comment on this project.

Sincerely,

Robert S. Munson

Robert S. Munson
Planning Bureau Manager

Thomas Jefferson
Planning District Commission
Sustainable solutions to regional issues





September 8, 2006

Mr. Charles H. Ellis III
Virginia Department of Environmental Quality
Office of Environmental Impact Review
Post Office Box 10009
Richmond, VA 23240-0009

Dear Mr. Ellis:

The Thomas Jefferson Planning District Commission reviewed project #DEQ 06-125F regarding the federal consistency review and Supplement to the Draft EIS for Dominion's North Anna Early Site Permit application at its September 7, 2006 meeting. The Commission's comments concerned the statements in the Draft EIS regarding the potential need to modify the water releases at the North Anna Dam at certain times of the year in order to maximize the habitat for shad and preserve a healthy riverine community structure. The Commission noted that the statements did not originate with DEQ, but that DEQ would be responsible for determining the modifications to the water releases, and wished to urge DEQ to look into this further and take action as appropriate. The Commission had no further comments. Thank you for the opportunity to review the project.

Sincerely,

Rochelle Garwood
Senior Planner – Environment

401 East Water Street, P.O. Box 1505, Charlottesville, VA 22902-1505
Telephone (434) 979-7310 Fax (434) 979 1597 Virginia Relay Users: 711 (TDD)
email: info@tjpdc.org / web site: www.tjpdc.org

# County of Spotsylvania

## Founded 1721

*Board of Supervisors*
HENRY "HAP" CONNORS, JR.
GARY JACKSON
EMMITT B. MARSHALL
VINCE ONORATO
THOMAS C. WADDY, JR
CHRIS YAKABOUSKI

**Service, Integrity, Pride**

*County Administrator*
J. RANDALL WHEELER
*Deputy County Administrators*
C. DOUGLAS BARNES
ERNEST L. PENNINGTON
P.O. BOX 99
SPOTSYLVANIA, VIRGINIA 22553
Voice: (540) 582-7010
Fax: (540) 582-9308

RECEIVED
MAY 19 2006
DEQ-Office of Environmental Impact Review

May 17, 2006

Mr. Charles Ellis
Environmental Impact Review Coordinator
Department of Environmental Quality
P. O. Box 10009
Richmond, VA 23240

Dear Mr. Ellis:

I am in receipt of your correspondence and e-mail of May 3rd and May 5th respectively, regarding the North Anna Early Site Permit and have reviewed the attachments.

With respect to this application, the Spotsylvania County Board of Supervisors approved a Resolution (#2005-16, attached) on February 8, 2005 stating their displeasure with the Summary Draft Impact Statement for an Early Site Permit for the expansion of the North Anna Power Station and their objection to the Early Site process.

Please keep in mind the objections stated by the Board of Supervisors in future deliberations concerning the North Anna Site Permit Application.

Sincerely,

James R. Wheeler
County Administrator

Attachment

# County of Spotsylvania

## Founded 1721

*Board of Supervisors*
HENRY "HAP" CONNORS, JR.
ROBERT F. HAGAN
GARY JACKSON
EMMITT B. MARSHALL
VINCE ONORATO
THOMAS C. WADDY, JR
CHRIS YAKABOUSKI

**Service, Integrity, Pride**

*County Administrator*
J. RANDALL WHEELER
*Deputy County Administrator*
C. DOUGLAS BARNES
*Deputy County Administrator*
ERNEST L. PENNINGTON
P.O. BOX 99
SPOTSYLVANIA, VIRGINIA 22553
Voice: (540) 582-7010
Fax: (540) 582-9308

At a meeting of the Spotsylvania County Board of Supervisors held on February 8, 2005, on a motion by Mr. Connors, seconded by Mr. Onorato and passed 5 to 2 with Mr. Jackson and Mr. Waddy opposed, the Board adopted the following resolution:

## RESOLUTION NO. 2005-16

**TO DECLARE THE SPOTSYLVANIA COUNTY BOARD OF SUPERVISORS' DISPLEASURE WITH THE SUMMARY DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR AN EARLY SITE PERMIT FOR EXPANSION OF NORTH ANNA POWER STATION AND OBJECTION TO THE ESP PROCESS**

***WHEREAS,*** Dominion Nuclear North Anna, LLC (Dominion) submitted an application to the Nuclear Regulatory Commission (NRC) on September 25, 2003, for an Early Site Permit (ESP) to allow the siting of one or more additional nuclear power facilities adjacent to the existing North Anna Power Station (NAPS); and

***WHEREAS***, in response to such application, the NRC began the environmental review process, which has resulted in the publication of a "Summary of Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site" (SDEIS); and

***WHEREAS***, the SDEIS notes that (1) the existing NAPS is already the largest water user in the region, (2) the proposed additional facilities would significantly increase NAPS' water consumption resulting in lowering the water level in Lake Anna by 2.7 feet, (3) that projected area growth could generate water demands that could result in increased water conflicts; and

***WHEREAS***, the SDEIS fails to consider future community water needs and ignores the fact that NAPS is adjacent to one of the fastest growing regions of Virginia and fails to give any consideration to the impact of lowering the lake level by 2.7 feet on the many citizens living and recreating around the lake; and

***WHEREAS***, the entire ESP process substantially ignores changes in the surrounding communities brought by unprecedented residential growth that has already occurred during the application review period and that is expected to continue – if not increase - over the 20-year life of the ESP approval; and

***WHEREAS***, the Board of Supervisors' concern for the health, safety, and welfare of Spotsylvania County citizens compels the Board to express its displeasure with the SDEIS and to appeal to the federal reviewers and regulatory authorities to reconsider the SDEIS and the entire ESP process for the siting of additional nuclear power facilities at NAPS in order to adequately consider growth and change that has already occurred in the surrounding and downstream localities during the application review process and to give due consideration to reasonably anticipated future growth and future community water needs.

***NOW, THEREFORE, BE IT RESOLVED*** by the Spotsylvania County Board of Supervisors on this 8th day of February, 2005, that the Board of Supervisors expresses its displeasure to the NRC and all regulators concerned with the Dominion ESP application for expansion of NAPS concerning the SDEIS and its objection to the entire ESP process, for the reasons and on the bases set forth hereinabove.

(SEAL) A COPY TESTE: Sheila Clark

Sheila Clark
Deputy Clerk

C:\Documents and Settings\nsims\My Documents\RESOLUTIONS\RESOLUTION - orth Anna ESP Site EIS.doc

# County of Louisa

Post Office Box 160
Louisa, VA 23093
540-967-0401 FAX 540-967-3411
www.louisacounty.com


The Louisa County Board of Supervisors considered a list of concerns raised by some residents of the Lake Anna area. As directed, I made Dominion Virginia Power aware of these concerns in a letter dated June 15, 2006. A copy of this letter is enclosed. On July 7, 2006, I met with officials of Dominion Virginia Power and reviewed the concerns raised. Enclosed with my letter is Dominion Virginia Power's response to those concerns. The Board of Supervisors voted to pass these concerns and Dominion Virginia Power's responses.

The motion to pass these concerns and responses to these concerns also directed me to state that the Louisa County Board of Supervisors is in support of the Early Site Permit being sought by Dominion Virginia Power.

C. Lee Lintecum

C. Lee Lintecum
County Administrator

REC'D JUN 16 2006



# County of Louisa

Post Office Box 160
Louisa, VA 23093
540-967-0401 FAX 540-967-3411
www.louisacounty.com

June 15, 2006

Alexander Smith, Manager
External Affairs
7500 West Broad Street
Richmond, VA 23294

Dear Al:

At its meeting on June 5, 2006 the Board was requested to submit items of concerns to the Virginia Department of Environmental Quality regarding the proposed addition of the two new reactors at the North Anna Power Station. The Board declined to do so but requested that I share these concerns with Dominion-Virginia Power. The concerns the County received are listed below (please note the concerns have been typed verbatim as they were received):

**Issue #One: Too many workers & residents, with a small 2-lane road (Route 652 Kentucky Springs Road)**

-Dominion plans to bring in 5,000 construction workers for a five (5) year period for the new plant.

-They currently bring in about 1,000 construction workers twice a year for planned maintenance on the existing two reactors and currently employ about 800 permanent workers. They will add about an additional 720 permanent workers when the new third reactor is activated.

-Cut-A-Long Development is about 1,000 homes development is a few miles away on Route 652

-The Waters Development is about 400 homes development is a few miles away on Route 652

-Other developments also use Route 652 (Brandywood, Tall Pines, Tara Woods, Aspen Hill, Both Waters, Bear Castle, Oak Landing Pine Harbor, Pine Point, Overton Fork,

Seclusion Shores, Lakewood Landing, Oakleigh 1 &2, Cuckoo's Nest, Plum Tree, Long Acres, Edgewood Bay, Noah's Landing, etc)
-New truck facility for stone/concrete on Route 700 (adjoining route) will also use Route 652.

**-Discussion:** Pro-offers should be made by Dominion and/or Federal Government to widen Route 652. Prior to beginning of construction or we will experience a traffic nightmare. Emergency evacuation would be impossible on this small 2-lane road if there was a nuclear disaster or terrorist attack.

**Issue No. 2 Major influx of new person to county will result in need for new schools**

-See issue number one for new worker numbers. A major portion of new construction or permanent workers, plus all the new residents in the adjoining new subdivisions will reside in Louisa County.

**-Discussion:** This major influx of new Louisa residents will have a major impact on schools requirements. Since the nuclear plan may be a national priority, then possibly school construction grants can be provided by the Federal government to assist with new school construction.

**Issue No. 3 Dominion is planning on constructing cooling towers that will be between 150 and 180 feet (15-18 stories) in height. These cooling towers will have hug fans that are planned to emit noise levels at about 65 decibels 24 hours a day, 7 days a week. These cooling towers will emit plumes of steam fog formation, which can create fog/icing conditions in the vicinity an average of 70 hours per year (or if three hours per day this equates to 23 extra days of year of fog and/or icing condition on the adjoining roadways)**

**-Discussion:** Current trees in area are approximately 50 to 75 feet in height, with a few going up to about 100 feet. Noise travels long distances if not distorted by various barriers (trees, buildings, etc). Louisa Noise Ordinance says no more than 55DP (at night in residential neighborhoods. *It is desirable to have cooling towers no higher then 80 feet (equivalent of an 8 story building) to mitigate the noise and also provide an esthetically pleasing profile of the adjoining skyline.* A 180-foot (about an 18 story building) would be an eyesore. What type of mitigation can be done to avoid any traffic problems on adjoining roadways?

**Issue No 4. Using the North Anna River/Lake Anna for any future water needs of Louisa County**

Discussion: Louisa County is now the 73rd fastest growing county in the U.S. If there is ever any though of using the North Anna River or Lake Anna water for future Louisa County water needs, now is the time to put the request into VDEQ and identify the need.

As we discussed in our telephone conversation please contact me so we can discuss these concerns after you have had a chance to review them.

Sincerely yours,

Lee

C. Lee Lintecum
County Administrator

CLL/bjhm

**Issue 1. There would be too many workers and residents impacting Route 652 [Kentucky Springs Road], a two-lane country road.**

The construction of a potential third nuclear unit at the North Anna Power Station site would be an economic boon to the county and provide millions of dollars in additional tax revenue to the county. This revenue could be used by Louisa County to make improvements to the local infrastructure and community services.

If a decision is made by Dominion to move forward with a third nuclear unit, decisions on what, if any, improvements are necessary for local roads would be a decision for state and county governments to make. Dominion would work cooperatively with the state and county governments to facilitate planning decisions to minimize transportation impacts to avoid congestion. Dominion would develop a construction management traffic plan prior to the start of construction. This plan would include methods for enhancing the use of multi-person vans by the construction workforce. Typically, such a plan involves providing offsite parking areas from which workers can be bused to the site and ways to encourage the use of vanpools and carpools

With regard to the construction work force referenced in the Early Site Permit application, these are estimates for a two-reactor project. Multiple shifts and single unit construction over a several year period of time will limit peak construction traffic. Refined construction estimates approach a maximum shift load at the peak of the construction period at closer to 2,000 workers, not 5,000.

**Issue 2. There would be a major influx of new people to the county resulting in need for new schools.**

Dominion believes that because of the nature of construction, with a variety of employee skill sets required at various stages of work, many of the employees required to build a third nuclear unit would leave the site once they have fulfilled their function. Indeed, given the number of new nuclear units that are now being proposed, it is very likely that skilled construction workers will rotate through projects. This will result in a transient work force that may not put permanent down roots in Louisa County, or other surrounding communities. After construction, North Anna could see a permanent workforce of up to 750 additional employees to operate the unit.

Louisa County has a strong public school system, and decisions about expanding or adding new schools to meet the needs of its citizens will have to be made by county government. A new nuclear unit at North Anna would add substantially to the county tax base, providing additional revenue for the local school system. The Nuclear Regulatory Commission evaluated socio-economic impacts in its November 2004 Draft Environmental Impact Statement and declared that if local counties continue their current trends, accommodations for education and other services would be met.

**Issue 3. Dominion is planning on constructing cooling towers that will be between 150 and 180 feet (15-18 stories) in height. These cooling towers will have huge fans that are planned to emit noise levels at 65 decibels – 24 hours a day, 7 days a week. These cooling towers will emit plumes of water vapor, which can create fogging/icing conditions in the vicinity an average of 70 hours per year (or if three hours per day this equates to 23 extra days per year of fog and/or icing condition on the adjoining roadways).**

Dominion agreed in October 2005 to change its approach to cooling a potential third nuclear unit from one-through cooling using Lake Anna to a cooling tower system that does not rely on Lake Anna. This was done to be responsive to concerns expressed by the Virginia Department of Environmental Quality and local residents about thermal impact on Lake Anna and the Waste Heat Treatment Facility. The company has committed to spending some $200 million to build the cooling tower system, which would have a low profile and a low noise level. Noise emission of towers would be less than 65 dB[A] at the site boundary, which meets regulatory and public health guidance.

Dominion's early site permit application evaluated bounding characteristics of different types of cooling towers that could be used, including hybrid cooling towers that would minimize land use, and lower profile cooling towers that would use more land but be less visible. The actual design has not yet been selected.

A benefit of the hybrid tower is the ability to reduce or eliminate any plume emission from the tower. The hybrid concept incorporates wet and dry cooling sections with the dry section above the wet section. The warm dry air from the dry coolers is mixed with the moist wet air from the wet section before leaving the tower, resulting in very little if any plume. This tower would not be much taller than the other buildings associated with the new unit, and they would be in proportion to the existing plant buildings, depending on the topography.

The statements regarding plume formation were for non plume-abated towers. As discussed above, the single hybrid cooling tower would have plume abatement features that would almost eliminate the visible plume exiting the tower. The lower profile towers would incorporate water saving features that would tend to reduce, but not eliminate, the plume.

Fogging/icing and road conditions were evaluated for the early site permit. It was concluded that no cooling tower induced icing is predicted to occur at any distance from the cooling tower. Most fogging would be confined to the site, typically about 300 meters from the towers.

**Issue 4. What impact would adding another nuclear unit have on the future water needs of Louisa County from the North Anna River and Lake Anna?**

Dominion and the Nuclear Regulatory Commission each independently examined the surrounding county five-year plans and projections as they relate to population growth and utility needs for local residents and businesses, tourism and a temporary workforce to build the nuclear unit. NRC also evaluated future population growth impacts. Conclusions were that if current trends continue, the overall needs could be

accommodated by regional county planning. This included drinking water supply, of which Lake Anna is not a source.

For recreational and property value perspective, Lake Anna levels and downstream flows will be maintained through continued effective lake management and water discharge permit requirements under Virginia law. Dominion's changed approach from using Lake Anna for cooling to adding a cooling tower system will result in virtually unnoticeable impacts on water levels, flows and temperatures in Lake Anna and the Waste Heat Treatment Facility. Recent Lake Anna Civic Association reporting showed very good water quality in the Waste Heat Treatment Facility.

# IMPORTANT POINTS ABOUT DOMINION'S EFFORT TO MAINTAIN THE NUCLEAR OPTION AT NORTH ANNA POWER STATION

## Nuclear Importance to Louisa County and Virginia

**The North Anna Power Station generates 17 percent** of the electricity used by Virginia customers. Together with Surry Power Station, Dominion's two nuclear stations provide about 34 percent of the electricity consumed in Virginia.

***Louisa County, as host to the North Anna Power Station,*** *plays a major role in the* state's overall economy. As the lowest-cost source of baseload electricity on our system, nuclear is important to the economic well-being of Virginians and to the economy of the Commonwealth.

**Affordable electricity attracts new industry and fosters** growth in the existing business sector, raising the economic standard of Virginians and boosting the state's competitive edge nationally.

**Nuclear generation helps protect Virginia's environment.** Nuclear energy does not produce any of the air emissions associated with fossil-fueled units, such as nitrogen oxide or sulfur dioxide.

**Dominion expects electricity demand will grow significantly** in Virginia in the next 20 years. That is why we are demonstrating the new U.S. Nuclear Regulatory Commission (NRC) licensing process for new plants.

## Financial Impact on Local Community

**North Anna Power Station is important to the economy** of Louisa County. In 2005, Dominion paid $10.94 million in taxes to Louisa County. Dominion has paid more than $200 million in taxes to Louisa County since North Anna was sited.

**Potential operation of North Anna Unit 3 would be an economic boon** for Louisa County, both in terms of tax revenue and jobs. Currently the existing North Anna units provide Louisa County with more than $10 million annually in tax revenue. North Anna Unit 3, if built, could provide millions more dollars a year in tax revenue.

**Dominion estimates that approximately 2,000 construction** workers would be needed to build North Anna Unit 3 over a 5-year period. The 5,000 construction workers referenced in our Early Site Permit Application is a bounding limit for construction of two nuclear units. Work shift schedules would reduce the number of construction employees to about 2,000 at the site at any one time. After construction, we could expect that a permanent work force of 750 employees would be required to operate the unit.

**North Anna currently provides employment for more than 900** employees. Roughly one-third of these employees live in Louisa County, while the rest live in Richmond, Fredericksburg/Spotsylvania County, Charlottesville and other surrounding communities.

**The average salary of a Dominion nuclear worker** is about $67,000. The total payroll for North Anna Power Station exceeds $62.2 million.

**Dominion's nuclear workforce in Virginia totals more than 2,155** employees. Our total payroll for these employees is nearly $144 million.

**Louisa County should support North Anna Power Station** and the potential construction of a third nuclear unit. There is overwhelming public support for nuclear energy in the Louisa and Spotsylvania counties.

## Excellent Nuclear Operations and Good Neighbor

**Dominion is a safe and efficient nuclear operator**. North Anna Power Station has been recognized by the NRC, the Institute of Nuclear Power Operations, and the World Association of Nuclear Operators as a top performing nuclear station.

**Dominion is a good steward of Lake Anna** and has a strong commitment to the environment. Environmental monitoring at Lake Anna began before power station operations started in 1978 and remains one of the most extensive of any Virginia body of water. Monitoring includes water temperatures in the lake and waste heat treatment facility, plus sampling of fish and other aquatic life.

**For more than 20 years, North Anna Power Station** has been a good corporate citizen in Central Virginia. Many of the station's more than 900 employees contribute in meaningful ways to help make their communities better places to live.

**North Anna Power Station employees demonstrate their** commitment to their communities through an Adopt-a-Highway program to keep Virginia Route 700 free of litter, Habitat For Humanity projects, providing Thanksgiving baskets for the needy, conducting blood drives and sending mentally and physically challenged children to camps. They also support area Boy Scouts by providing opportunities to stay overnight at the station and earn merit badges.

**Over the past three years [2003-2005], North Anna Power Station** employees have donated more than $148,500 to United Way charities.

**Over the past decade Dominion has donated more than** $100,000 in support of the Louisa community. Organizations and activities receiving financial support included the Louisa County library, LinkAges of Louisa, after prom school parties, the 4-H Council, Crime Solvers, and the Lake Anna Civic Association.

**Dominion cooperates with its stakeholders to achieve** win-win solutions. In October 2005, the company addressed concerns raised by the Virginia Department of Environmental Quality and local residents on Lake Anna and the Waste Heat Treatment Facility when it agreed to change its approach to cooling a potential third nuclear unit. In doing so, we would remove additional thermal impact to the lake by committing to build a low-profile cooling tower system, if we decide to build the reactor. This cooling tower system would have a minimal impact on the local population. We have committed to spend more than $200 million on this cooling tower system to be a good neighbor.

**HANOVER COUNTY**
DEPARTMENT OF PUBLIC UTILITIES
P. O. BOX 470
HANOVER, VA 23069-0470
WEB SITE: www.co.hanover.va.us



RECEIVED
SEP 11 2006
DEQ-Office of Environmental Impact Review

September 8, 2006

Charles Ellis, EIR Coordinator
Office of Environmental Impact Review
Department of Environmental Quality
629 East Main Street, 6th floor
Richmond, Virginia 23219

Re: Federal Consistency Certification for North Anna Nuclear Power Station

Dear Mr. Ellis:

Thank you for the opportunity to comment on the North Anna Nuclear Power Station consistency review. The Hanover County Department of Public Utilities also submitted comments during the NRC Early Site Permit public comment period. Hanover County is immediately downstream from the Lake Anna dam and relies on the North Anna River as the water source for its Doswell Water Treatment Plant and as the receiving water for its Doswell Wastewater Treatment Plant discharge. Further downstream, the County relies on the Pamunkey River, which receives a significant portion of its flow from the North Anna River, as the receiving water for its Courthouse and Totopotomoy Wastewater Treatment Plant discharges. The North Anna and Pamunkey Rivers are important recreational amenities for County residents and fisheries habitats. Several Hanover County industries also rely on the North Anna River.

The data provided by Dominion Virginia Power Company and the NRC indicate the low flow conditions in the North Anna River will be exacerbated by the installation of the proposed additional reactors. Although the proposed new cooling method for the third reactor unit reduces the downstream impact, there is an adverse impact nevertheless. The current minimum releases are below those recommended by Virginia's resource agencies and we are concerned about the reduction in flow that will result from the improvements to the North Anna Nuclear Power Station. The reduced

flow will affect Hanover County industries, our water and wastewater treatment facilities, and the environment.

Attached please find the comments submitted during the Early Site Permitting process, which are incorporated by reference to these comments pertaining to the Department of Environmental Quality consistency review.

Thank you again for this opportunity and please include Hanover County Department of Public Utilities on your interested parties list.

Sincerely,

Frank W. Harksen, Jr.
Director

Enclosures

cc: The Hanover County Board of Supervisors
Cecil R. Harris, Jr., County Administrator
Sterling E. Rives, III, County Attorney
John H. Hodges, Deputy County Administrator

HANOVER COUNTY
DEPARTMENT OF PUBLIC UTILITIES
P. O. BOX 470
HANOVER, VA 23069-0470
WEB SITE: www.co.hanover.va.us



FRANK W. HARKSEN, JR.
DIRECTOR OF PUBLIC UTILITIES

PUBLIC UTILITIES OFFICE
PHONE: (804) 365-6019
FAX: (804) 365-6245

January 7, 2004

Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mailstop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

**Re: Dominion Nuclear North Anna, LLC**
**North Anna Early Site Permit, Additional Nuclear Reactor**
**Federal Register Publication Date November 24, 2003, page 65961**

Dear Chief, Rules and Directives Branch:

This letter and attachments represent the comments of the Hanover County Department of Public Utilities on the referenced permit application. Hanover County is immediately downstream from the Lake Anna Dam and relies on the North Anna River as the water source for its Doswell Water Treatment Plant and as the receiving water for its Doswell Wastewater Treatment Plant discharge. Further downstream, the County relies on the Pamunkey River, which receives a significant portion of its flow from the North Anna River, as the receiving water for its Courthouse and Totopotomoy Wastewater Treatment Plant discharges. The North Anna and Pamunkey Rivers are also important recreational amenities for County residents. Therefore, the County wishes to ensure that any environmental impact review evaluates the changes to Lake Anna releases and related impacts on County facilities, its citizens and other instream and offstream beneficial uses of the North Anna and Pamunkey Rivers that will result from the construction and operation of an additional reactor. Such a review should also determine the appropriate and necessary minimum Lake Anna release to protect these uses.

**Action by the Virginia General Assembly**

The drought experienced in Central Virginia beginning in 1998 caused water levels in Lake Anna to drop one or two feet below normal. The lower levels caused by the drought, evaporation and maintaining minimum downstream releases, inconvenienced owners of lakefront property. These owners' had constructed fixed docks ignoring the regulatory required release and the natural weather pattern. The level variation is within the design parameters for the Lake. The lakefront property owners asked the Virginia General Assembly to address their concerns about lake levels and minimum releases. The General Assembly passed a bill that mandated the minimum releases be reduced during drought conditions even though the environmental work conducted during the original permitting process did not support such a change.

**Minimum Release Rate**

The original minimum release rate, 40 cubic feet per second (cfs), was approved by the State Water Control Board ("Board") and was incorporated in the State Corporation Commission's ("Commission") order approving the license for the Lake Anna Dam. Unfortunately both actions preceded a thorough review by the Board's staff in conjunction with the Virginia Institute of Marine Science and the Department of Conservation and Economic Development. These agencies proposed that the average annual instantaneous release be not less than 60 cfs during any calendar year, with a minimum instantaneous release for the period June through September not less than 100 cfs and not less than 40 cfs for the remaining period of any calendar year. Because the Board and Commission actions had already been taken, these proposed changes were not incorporated in the Commission's order approving the Lake Anna dam license.

Throughout these permitting and licensing proceedings, so far as one can determine, no agency, Commission or court ever suggested a lower instantaneous release than 40 cfs. To the contrary, higher releases were proposed. The State Corporation Commission approved a higher dam (elevation 250 feet vs. 240 feet), which holds back vastly more water and makes the inconvenience of drawdowns quite rare. The downstream users have had to live with far less water during low flow times than any agency would have proposed, had it had the right to reconsider the initial decision on this issue. Downstream users have designed their water intake and wastewater discharge systems around this 40 cfs low flow condition, and cannot get by with less water. And, increasingly more stringent regulations affect the ability to operate at the 40 cfs.

As a result of the action by the Virginia General Assembly and subsequent Board and Commission actions, the minimum release rate must now be reduced to 20 cfs during drought conditions.

**Downstream Water Users**

The downstream users who will be most directly affected by any change in the minimum releases from Lake Anna are Hanover County, the Doswell Limited Partnership Power Plant, Paramount's Kings Dominion and associated service facilities, and the Bear Island Paper Company. The downstream users have also had less water to use during low flow times than environmental review agencies would have proposed, had the initial decision on this issue been reconsidered.

Attached please find a complete summary of the history of the minimum release rate and comments submitted by Hanover County on the recently reissued North Anna VPDES discharge permit. Although this is a different permit and permitting process, many of the prior comments are applicable from an environmental perspective and should be included in the scope of an environmental impact statement. Thank you for this opportunity to provide comments.

Sincerely,
**DEPARTMENT OF PUBLIC UTILITIES**

Frank W. Harksen, Jr.
Director

Enclosures

cc: The Hanover County Board of Supervisors
Mr. Richard R. Johnson, County Administrator
Mr. John H. Hodges, Deputy County Administrator

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, VIRGINIA 23219-2000
VirginiaDOT.org

GREGORY A. WHIRLEY
ACTING COMMISSIONER

RECEIVED
AUG 21 2006
DEQ-Office of Environmental Impact Review

August 16, 2006

Mr. Charles H. Ellis III
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Re: Early Site Permit at the North Anna ESP Site

Dear Mr. Ellis:

The Virginia Department of Transportation has reviewed the information provided for the referenced project. Our review covers impacts to existing and proposed transportation facilities. The proposed changes in the cooling system design will not increase the impacts above those that were addressed in the review of the original EIS submitted in December of 2004.

Currently, VDOT does not have any plan for improving the road network in this area. There are some developments that are proposing road improvements in this area of the County, the largest being the Cutalong Club development. This development is proposing to move the Route 208 connection with Route 652 to eliminate the skewed intersection and add the required turning lanes at the intersection. The plans are under design and are proposed to be built within the next several years.

Any VDOT land use requirements, lane closures, traffic control or work zone safety issues should be closely coordinated with the affected cities/counties and VDOT's Louisa Residency (540-967-3710).

Thank you for the opportunity to comment on this project.

Sincerely,

Mary T. Stanley
Environmental Engineer
Virginia Department of Transportation

14 June 2006

Ms. Ellie Irons, Environmental Impact Review Program Manager
Virginia Department of Environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
Via email to elirons@deq.virginia.gov

Mr. Jack Cushing, Environmental Project Manager for North Anna ESP Site Application,
U.S. Nuclear Regulatory Commission (NRC), Washington D.C. 20555
Via email to JXC9@NRC.GOV

**Reference:** (1) Friends of Lake Anna letter dated 12 Jun 06, Subject Request for extension of Public Comment period re the Federal Consistency Certification of the Dominion Nuclear North Anna Application for the Early Site Permit (ESP) Review and other related items

(2) Lake Anna Observer newspaper – June 1, 2006 Public Notice for the Environmental Project Comment Period re the Federal Consistency Certification of the North Anna ESP re the Federal Coastal Zone Management Act.

**Subject:** Lake Anna Cooling Lagoon concerns with the North Anna ESP

Dear Ms. Irons and Mr. Cushing,

On behalf of the 2,650 persons represented by the Friends of Lake Anna, it is requested that following three items be addressed in the U.S. Coastal Zone Management Act Federal Consistency Review and also it is requested that the re-designation of terms, limitations of water temperatures and changes in the point of compliance should be reflected in all NRC documents that are created. See below for details of each item together with the two attached references.

**(1). The Waste Heat Treatment Facility (WHTF) is an erroneous designation (not supported by state law) that is used throughout the ESP to describe the cooling lagoon portion of Lake Anna and its usage should be stopped. The cooling lagoons should simply be referred to as the "Cooling Lagoons".**

**(2). Limiting the Water Temperatures at the end of the Discharge Canal to no more then 104 degrees F.**

**(3). Changing the "Point of Compliance" from Dike 3 to the End of the Discharge Canal and re-designating the cooling lagoons as "quasi public waters".**

Our group, "The Friends of Lake Anna" is a citizen group whose mission is to protect Lake Anna (both main reservoir and cooling lagoons) and its surrounding landscape, together with any related concerns, within Louisa, Spotsylvania, and Orange Counties for the health, safety and welfare of current residents/users and for future generations. We are not anti-nuclear, nor do we have "not in my backyard" sentiments, but do support a wise and safe use of nuclear energy. Our goal is simply to protect Lake Anna for the 500,000 annual users and insure compliance with the law.

**(1). The Waste Heat Treatment Facility (WHTF) is an erroneous designation (not supported by state law) that is used throughout the ESP to describe the cooling lagoon portion of Lake Anna and its usage should be stopped. The cooling lagoons should simply be referred to as the "Cooling Lagoons". This WHTF designation has caused the cooling lagoons to be viewed and treated similar to a sewage treatment facility by many state agencies and as a result are viewed as private waters and not afforded the protections or other amenities afforded public waters. Please see below for details supporting this request.**

a. **Attachment 1 – "The North Anna Power Station – Lake Anna, Va. produced by Virginia Electric Power Company (VEPCO) in approximately 1970** denotes in part "The cooling lagoons and reservoir will be able to accommodate up to four million kilowatts of generating capability. Early in 1972, construction crews will put the finishing touches on a dam across the North Anna River in Louisa County. Slowly, over a period of many months, the water level will begin to rise higher and higher until a 13,000 acre lake is formed. When VEPCO's 17 mile long lake with more than 200 miles of shoreline is complete, experts believe the lake can be developed into a major recreational attraction. VEPCO is cooperating with the Virginia Commission on Outdoor Recreation in the preparation of a detailed development plan for the recreational use of the lake. The report which was later produced by the Theodore J. Wirth and Associates indicates the potential use of the lake could be in excess of two million visitors annually by the year 2000. The report also defines some potential commercial locations and the remainder would be private development of all lakeshore property, including the cooling lagoons.

*Note: This 1970 VEPCO (which is the predecessor to Dominion Power) publication does not mention a WHTF, nor does it imply that the cooling lagoons will be treated any differently then the reservoir*

b. **Attachment 2 is a map showing Lake Anna as it exists today that was produced by Lake Anna Realty, a local real estate firm.** The map has been enhanced by highlighting (1) the 3 dikes separating the reservoir from the cooling lagoons, (2) the ½ mile long Dominion Discharge Canal (3) The thermally heated discharge water circulation pattern going from the power plant through the discharge canal into the cooling lagoons;(4) then through Dike 3 and (5) then traveling back upstream to the power plant and (6) then repeating the cycle. Apparently with units 1 & 2 operating, 1.9 million gallons per minute are returned to the reservoir through Dike 3 when the lake is at a full water level of 250 Mean Sea Level (MSL) and only 18,000 gallons per minute are released over the dam. This is less then 1 % of the water flowing out of the reservoir from this small watershed and 99% going back upstream in the North Anna River.

The map also shows the 8 public streams that feed the cooling lagoons, where the public water flows through the cooling lagoons; then through Dike 3 into the North Anna River, which then eventually flows into the Atlantic Ocean by way of the Pamunkey River and the Chesapeake Bay.

Approximately 25% of the water cooling occurs in the North Anna Power Station Discharge Canal on Dominion property, about 50% of the water cooling occurs in the cooling lagoons waters and about 25% of the water cooling occurs in the North Anna River as a major portion of the water is circulated back upstream to the North Anna Power station. ***There is no "Treatment Facility" that processes the water in any fashion in the cooling lagoons***. The water simply circulates at a rate of approximately 2 million gallons a minute as result of the North Anna Power station (unit 1 & 2) pumps, with only approximately 50% of the cooling actually occurring in the cooling lagoons.

c. The recent Supreme Court decision (No 04-1527 S.D. Warren Company, Petitioner, v. Maine Board of Environmental Protection et al) defines that ***state/public waters should not be privatized and used for private purposes.*** **This decision also defines that there are two purposes of the clean water act (1) The protection and propagation of fish, shellfish, and wildlife and (2) providing for recreation in and on the water.**

Note that our research indicates the cooling lagoons currently have approximately 2,000 landowners and 8,000 persons using the waters on a typical summer weekend day. The lagoons also have a minimum of 8 public streams feeding them. The lagoons are currently being treated as private by various state agencies (The fisheries part of Fish & Game does not investigate fish kills, but the law enforcement part does enforce boating and buoy placement laws; the Dept of Health does not monitor the cooling lagoons for any health risks; Va. Dept of Environmental Quality (VDEQ) water monitoring does not enforce the Clean Water Act within the cooling lagoons and also does not enforce the Clean Water Act at Dike 3 because of discharge permit waivers that have been previously granted to Dominion Likewise there does not appear to be any state agency providing public protection for recreation in and on the cooling lagoon waters (as required by the Clean Water Act). Lake Anna has over 500,000 annual users.

d. Over the past 8 months, the Friends of Lake Anna has requested from various state personnel that they provide the Virginia state law that defines that the cooling lagoons should be designated a WHTF and treated similar to a sewage treatment facility (with no protections to the general public as afforded by the Clean Water Act and clearly defined in the recent Supreme Court decision). We have never received it, because apparently it does not exist.

**(2). Limiting the Water Temperatures at the end of the Dominion Discharge Canal to no more then 104 degrees F.** The U.S. Consumer Product Safety Commission and the Virginia State Health Commission (Dr. Robert Stroube), and Hot Tub Manufacturers have identified that water in excess of 104 degrees F is dangerous to human health. Dominion has stated that they have never exceeded 103.6 degrees F at the end of the discharge canal for the past 35 years. There are many options (spray in the discharge canal, design of cooling towers, location of cooling towers, design of 3rd reactor complex, reducing thermal heat discharge with current reactors) that Dominion can use to maintain the 104 degrees F limit (if and when it would become necessary, which it has not for past 35 years, even in extreme drought conditions). Since Dominion has designated in the ESP that they are running their current reactors (units 1 & 2) at 93% capacity, maintaining the less then 104 degrees F temperature at the end of the discharge canal in the future should not be a problem. As described in the Supreme Court decision, Congress passed the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters, with the national goal being to achieve "water quality which provides for (1) the protection and propagation of fish, shellfish, and wildlife and (2) provides for recreation in and on the water"

In order to comply with the U.S. Clean Water Act of providing for recreation in and on the water and the recent Supreme Court decision, it is requested that any federal or state permits issued to Dominion limits the water at the end of the ½ mile discharge canal (before it enters the cooling lagoons) to no more then 104 degrees Fahrenheit.

**(3). Changing the "Point of compliance" from Dike 3 to the End of the Discharge Canal and re-designating the cooling lagoons as "quasi public waters".** Dominion currently has a discharge permit waiver from the Clean Water Act so they do not have to comply with water temperature limitations at Dike 3 of 89.6 degrees F. Changing the point of compliance to the end of the ½ mile long discharge canal and providing Dominion with a variance that they cannot exceed 104 degrees F with real time monitoring available to the public, together with Dominion providing a real-time corrective action if they approached 104 degrees F, would achieve the same result.

The "quasi public water" designation would recognize that Lake Anna is unique for thermal cooling, unlike other power plants that discharge heated waters into ocean's or major free flowing rivers. It would also permit the state to treat the cooling lagoons as public waters and be afforded all the same protections as other public waters unless there is a nuclear disaster. This would also permit compliance with the recent Supreme Court Decision. If there is a nuclear disaster at the North Anna plant, it would recognize that the cooling lagoons are adjacent to a nuclear power plant and in the event of a nuclear disaster/accident only, nuclear by-products could be discharged into the cooling lagoons and be quarantined.

It is requested that the point of compliance be changed to the end of the discharge canal so that any future discharge permit renewals for the North Anna power plant will be waived from compliance with the U.S. Clean Water Act with a maximum temperature of 104 degrees F, together with Dominion being required to take real-time corrective action if the water temperature approaches 104 degrees F and thereby in agreement with the recent U.S. Supreme Court Decision.

Thank you in advance for your kind consideration of our requests. Our other concerns with the water temperature, water quality, safety aspects with local roads, impact on schools in two of the top 100 fastest growing counties in the U.S., consideration of spent nuclear fuel, etc. are still under review. Each of these items and others will be addressed in separate correspondence after we have had sufficient time to review each. If you have any questions, please do not hesitate to call. I'll look forward to your response.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

Attachments (Use Adobe software to open)

a. Attachment 1 – "The North Anna Power Station – Lake Anna, Va. produced by Virginia Electric Power Company (VEPCO) in approximately 1970

b. Attachment 2 is map showing Lake Anna as it exists today as produced by Lake Anna Realty, a local real estate firm

CC: U.S. Representative Eric Cantor (7th District) (via email – Lloyd.Lenhart@mail.house.gov)
Senator R. Edward Houck, 17th District of Virginia (via email – ehouck@adelphia.net)
Senator Ryan McDougal, 4th District of Virginia (via email – district04@sov.state.va.us
Delegate Christopher Peace, 97th District of Virginia (via email – delcpeace@house.state.va.us
Delegate Edward Scott, 30th District of Virginia (via email – delescott@house.state.va.us
Delegate William Janis, 56th District of Virginia (via email – delbjanis@house.state.va.us
Delegate Robert Orrock, Sr., 54th District of Virginia (via email – delborrock@house.state.va.us
Tony Banks – Dominion ESP Project Manager (via email – tony_banks@dom.com

## Ellis,Charles

**From:** Irons,Ellie
**Sent:** Monday, July 24, 2006 5:17 PM
**To:** 'cruz.francisco@epa.gov'; 'trulear.brian@epa.gov'; 'smith.mark@epa.gov'
**Cc:** Ellis,Charles
**Subject:** FW: Lake Anna partial list (3) of North Anna ESP concerns

I am forwarding some additional comments from the Friends of Lake Anna pertaining to the water temperature of the cooling lagoon and the point of application of the VPDES permit for your review and comment. This supplements the information which was sent to you in mid June. Looking forward to your comments on the questions submitted in that correspondence.

-----Original Message-----
**From:** Harry Ruth [mailto:HC.RUTH@LOUISA.NET]
**Sent:** Monday, July 24, 2006 4:29 PM
**To:** North Anna ESP Comments; Nitin Patel (NRC); Jack Cushing (NRC); Andrew Kugler (NRC); Chris Nolan (NRC); Irons,Ellie
**Cc:** Tony Banks (Dominion); Representative Eric Cantor (7th District); Senator Ryan McDougle; Senator R. Edward Houck; Senator Charles Colgan-2; Senator Charles Colgan; Delegate Robert Orrock, Sr (54th Dist).; Delegate Edward Scott (30th Dist); Delegate Chris Peace (97th Dist); Delegate Bill Janis (56th Dist); Delegate Clifford Athey (18th Dist); Senator Russell Potts (27th Dist)
**Subject:** Lake Anna partial list (3) of North Anna ESP concerns

Dear Ms. Irons and Mr. Cushing,

Attached please two (2) documents for both the NRC and VDEQ review re the North Anna Early Site Permit (ESP) public comments.

Document 1 is a letter to the VDEQ and NRC that identifies a partial list (#3) re concerns with the water temperature, noise, heat dissipation, etc. (Msword document) as a result of Dominion's application for the ESP for a 3rd and 4th nuclear reactor at the North Anna site.

Document 2 is an example picture of an inexpensive heat dissipation system (in adobe format) that could easily be employed during peak water temperature conditions.

We will forward additional concerns with the ESP after we have had sufficient time to the review the large volume of material.

Please do not hesitate to call if you have any questions. We will look forward to your responses to the questions we posed in the attached memo.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

## Ellis,Charles

**From:** Irons,Ellie

**Sent:** Monday, July 24, 2006 4:52 PM

**To:** Hassell,Joseph; Faha,Thomas; Wagner,Terry; Steers,Jeffery; Andrew Zadnik; Ray Fernald; Rene.Hypes@dcr.virginia.gov; robert.munson@dcr.virginia.gov; 'khizar.wasti@vdh.virginia.gov'; 'robert.stroube@vdh.virginia.gov'; 'Robert.J.Hume@NAO02.usace.army.mil'

**Cc:** Ellis,Charles

**Subject:** FW: Lake Anna partial list (3) of North Anna ESP concerns

I am forwarding some additional comments from Mr. Ruth for your review and comments as appropriate from your regulatory and other purviews.

-----Original Message-----
**From:** Harry Ruth [mailto:HC.RUTH@LOUISA.NET]
**Sent:** Monday, July 24, 2006 4:29 PM
**To:** North Anna ESP Comments; Nitin Patel (NRC); Jack Cushing (NRC); Andrew Kugler (NRC); Chris Nolan (NRC); Irons,Ellie
**Cc:** Tony Banks (Dominion); Representative Eric Cantor (7th District); Senator Ryan McDougle; Senator R. Edward Houck; Senator Charles Colgan-2; Senator Charles Colgan; Delegate Robert Orrock, Sr (54th Dist).; Delegate Edward Scott (3oth Dist); Delegate Chris Peace (97th Dist); Delegate Bill Janis (56th Dist); Delegate Clifford Athey (18th Dist); Senator Russell Potts (27th Dist)
**Subject:** Lake Anna partial list (3) of North Anna ESP concerns

Dear Ms. Irons and Mr. Cushing,

Attached please two (2) documents for both the NRC and VDEQ review re the North Anna Early Site Permit (ESP) public comments.

Document 1 is a letter to the VDEQ and NRC that identifies a partial list (#3) re concerns with the water temperature, noise, heat dissipation, etc. (Msword document) as a result of Dominion's application for the ESP for a 3rd and 4th nuclear reactor at the North Anna site.

Document 2 is an example picture of an inexpensive heat dissipation system (in adobe format) that could easily be employed during peak water temperature conditions.

We will forward additional concerns with the ESP after we have had sufficient time to the review the large volume of material.

Please do not hesitate to call if you have any questions. We will look forward to your responses to the questions we posed in the attached memo.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

24 July 2006

Ms. Ellie Irons, Environmental Impact Review Program Manager
Virginia Department of Environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
Via email to elirons@deq.virginia.gov

Mr. Jack Cushing, Environmental Project Manager for North Anna ESP Site Application,
U.S. Nuclear Regulatory Commission (NRC), Washington D.C. 20555
Via email to JXC9@NRC.GOV & North_Anna_Comments@NRC.GOV

**Reference:** (1) Friends of Lake Anna letter dated 14 June 2006: Subject Lake Anna Cooling Lagoon concerns with the North Anna ESP. (*Note this was resent on 24 Jul 06).*

(2) Friends of Lake Anna letter dated 15 June 2006: Subject Concerns with the data contained in the Dominion Letter dated April 13, 2006 in response to NRC Questions and also the North Anna ESP Application part 3 – Environmental Report Revision 6 dated April 2006 *(Note this was resent on 24 Jul 06)*

(3) Friends of Lake Anna letter dated 15 June 2006 – Subject: Partial concerns #2 with the data contained in Dominion's Application for the North Anna ESP 6 dated April 2006 and the related NRC Safety Report dated Sep 2005. *(Note this was resent on 24 Jul 06)*

(4) Friends of Lake Anna letter dated 24 Jul 06, Subject Request for extension of NRC Public Comment time.

**Subject:** **Partial Concerns #3 with the data contained in Dominion's Application for the North Anna ESP 6 dated April 2006.**

Dear Ms. Irons and Mr. Cushing,

On behalf of the 2,650 persons represented by the Friends of Lake Anna, it is requested that the following concerns with the data contained in the Dominion North Anna ESP Applications Revision 6 and the NRC Safety Report dated Sep 2005 be addressed in the U.S. Coastal Zone Management Act Federal Consistency Review and also by the Nuclear Regulatory Commission. Also please forward the concerns to the appropriate Commonwealth of Virginia department for comment if they do not come under the purview of the U.S. Coastal Zone Management Act.

These are only a partial list of concerns/comments identified thus far as a result of a brief and cursory look at the large volume of materials available to us for review. In addition, we have researched other related public documents that may have an impact on this ESP review. We thought it prudent to bring these concerns/comments to your attention soonest so both the NRC and VDEQ has adequate time to review them. Please see below for a description of each concern.

Our group, "The Friends of Lake Anna" is a citizen group whose mission is to protect Lake Anna (both main reservoir and cooling lagoons) and its surrounding landscape, together with any related concerns, within Louisa, Spotsylvania, and Orange Counties for the health, safety and welfare of current residents/users and for future generations. We are not anti-nuclear, nor do we have "not in my backyard" sentiments, but do support a wise and safe use of nuclear energy. Our goal is simply to protect Lake Anna for the 500,000 annual users and insure compliance with the law.

**Additional Concerns**

**1. Par 5.3.2.1 page 3-5-55** When discussion is made relative to "extreme summer months" by Dominion, the blowdown should be based on 100% reactor operations and not 96% as implied. We do not agree with Dominion's statement "blowdown discharges etc of Unit 3 would have very small, if not imperceptible, physical, chemical, biological or ecological impacts to Lake Anna".

*We believe the small impounded (not free flowing river) reservoir of Lake Anna will be affected by the additional water consumption due to "blowdown"* ***which will add to the thermal heating of the water.*** *Dominion plans to add chemicals to the water, which would affect the biological and ecological character of the water.* ***Recreational use of the lake will also be affected which is in violation of the U.S. Clean Water Act. Please see our 14 June 06 letter (resent 24 Jul 06) re limiting the water temperatures at the end of the discharge canal to no more then 104 degrees F.*** *A very inexpensive method to accomplish this is via sprayers in the discharge canal that would be activated during high water temperature times only (see adobe attachment to this email for picture and also refer to comment 7 below).*

**2. Par 5.3.2.2.2 page 3-5-60** Under a. **Physical effects,** we do not agree that as stated by Dominion the "1,905,565 gpm (units 1, 2 and 3) would have no impact at the Dike 3 discharge, the current VPDES point of compliance." "Impacts to aquatic organisms would be negligible. Mitigation would not be warranted".

*The recent Supreme Court decision (No 04-1527 S.D. Warren Company, Petitioner, v. Maine Board of Environmental Protection et al) makes "Mitigation warranted". It includes protections for not only limitations on aquatic but also recreational uses of the water also. The current VPDES point of compliance should be moved from the Dike # 3 to the end of the discharge canal. Dominion and VDEQ will need to revisit both the current and any future VPDES discharge permit. Please see our 14 June 06 letter for additional data.*

**3. Par 5.3.4 page 3-5-69 Impacts to Members of the Public,** Dominion added a sentence in the Revision 6 ESP application in this paragraph just to solidify their point in dealing with the public. Dominion states "Virginia Power considers the WHTF (Cooling Lagoons) to be an integral part of the power station, and as such it has never been operated as an extension of the North Anna Reservoir for the purposes of public recreational use."

*This is directly opposite to the Virginia Power public document from 1970 where they promoted the shoreline construction and recreational use of the entire lake both warm and cold sides. (Please refer to our 14 June 06 letter and attachments, which were resent on 24 Jul 06). With the fact that Dominion/Virginia Power allows homeowners of the shoreline to have access to both sides of the lake and also the fact that public waters from a minimum of 8 public streams flow into the cooling lagoons, buoys are installed, fishing laws are enforced, etc.; it is imperative that the cooling lagoons should be considered "quasi-public waters". These facts, coupled with the actual data that only about 50% of the cooling actually occurs in the cooling lagoons, while about 25% cooling occurs in the Discharge Canal and the other 25% occurs in the North Anna River after the waters re-enter at* Dike 3. *Privatization of public waters in the cooling lagoons violates the recent U.S. Supreme Court decision referenced above. How can the NRC, Environmental Protection Agency, National Oceanic Administration and Dominion not consider the cooling lagoons as quasi public waters? What is the North Anna River which provides about 25% of the water cooling for the power plant and the water eventually feeds into the Atlantic Ocean? We do not understand the difference, please explain.*

**4. Par 5.3.4 page 3-5-69 a - With the addition of the new units 3 and 4, Cooling Lagoon residences are stated by Dominion as being "one of the areas possibly affected by the noise from the new cooling systems".** As stated in par 5.8.1.5 page 3-5-183 "the current turbine building is 100 feet tall and the containment buildings are 130 feet tall. Dominion states the new turbine building for units 3 and 4 would be 230 feet tall with the associated cooling towers at 180 feet tall. On Jan 6, 2006, Dominion V.P Eugene Grecheck briefed the public, the press, and VDEQ reps at a stakeholders meeting at the power plant, that the new towers would not exceed 75 feet tall for wet/dry towers and 50 feet tall for dry units only. Now in this revised application Dominion states no decision on the height of the containment buildings but under the current units they are the tallest buildings. Dominion does not state the noise contributions of the turbine building. What is the noise that can be expected from the turbine building?

(a) *Why is the building 100 feet taller than the current one? The buildings should not be higher than the current tree lines surrounding the property. The new designs should employ visual and noise abatement solutions incorporated in designs with lower heights.*

*( b) Dominion states "Public use of the lake is transient and is less sensitive to noise impacts." We do not agree with this statement, since we have approximately 10,000 residential lots surrounding the lake in 3 different counties. Over the water there is no noise abatement and noise levels travel unimpeded. Lake residences, campground users, state park users, wildlife and the over 500,000 recreational users of the lake should be protected against excessive noise. Please refer to Concern 5 in our 15 June 2006(resent on 24 July 06) memo for additional comments on noise.*

*Also please note that Louisa County has noise ordinances (Chapter 51 of the County Code) that prohibits disturbing noise, where it should be unlawful to create any unreasonable loud, disturbing and unnecessary noise in the county, and noise of such character, intensity and duration as to be detrimental to the life or health of any person or to unreasonably disturb or annoy the quiet, comfort or repose of any person is hereby prohibited.*

**5. Par 5.3.4.1 page 3-5-71 a)**With discussion to **PAM (Primary Amoebic Meningoencephalitis),** Dominion states the "highest temperatures recorded are summarized in Table 5.3-9.

*(a) Once again the table is misleading due to the fact that no data is used after year 2002. In fact Dominion's data shows that on August 15, 2005, a temperature of 103.6 deg F. was recorded at the Discharge canal. The current data should be included.*

*(b) Dominion suggests postal mail, signage, or Internet for Virginia agencies to inform the public. Since Dominion's power plants are the cause of the increased temperature that can cause the PAM problem, they solely hold responsibility and liability and not Virginia agencies. If Dominion causes the proliferation of PAM in the cooling lagoons and main reservoir, then they should be held responsible for the proactive corrective actions to resolve any future problems with PAM.*

**6. Table 5.3-11 page 3-5-78 We feel this table is misleading due to the fact that all available data for temperature was not used.** If data is used from 6/1/2005 to 8/31/2005, the following results are seen:

*Table 5.3-11 Table Reconstructed using all current data through August 2005*

**Surface Temperatures at Monitoring Stations in WHTF and North Anna Reservoir.**

| | | | | | |
|---|---|---|---|---|---|
| | | **MAXIMUM DAILY TEMPERATURES** | | | |
| **Discharge** | | **Dike 3** | | **Intake** | |
| ***Actual*** | *Dominion's value* | ***Actual*** | *Dominion's value* | ***Actual*** | *Dominion's value* |
| **103.6** | 102.4 | **96.5** | 95.0 | **92.2** | 90.1 |
| | | **AVERAGE DAILY TEMPERATURES (July – August)** | | | |
| **100.5** | 95.0 | **92.7** | 88.9 | **87.1** | 83.8 |

*These actual temperatures are up to 5 degrees F hotter than reported by Dominion in the table. Why wasn't current data included? Is it possible that the heating of the North Anna River reservoir waters by Dominion has exceeded the standards for the U.S. Clean Water Act at the intake which is about 6.7 miles from Dike 3 and they have not been in compliance with their NPDES or VPDES permit?*

**7. Par 9.4.1 page 3-9-13 Heat Dissipation Systems.** The screening of Unit 3 Alternative Heat Dissipation Systems by Dominion for Spray Ponds (Alternative 5) is flawed.

*It appears that a fair analysis was not performed and the analysis presented was in support of the decision, which already was made. Spray ponds could be used as a supplemental peak load solution (not a stand-alone system for all the heat dissipation) to the heat problem in the hot summer months. These sprayers could be located in the discharge canal and would not affect the open area of the cooling lagoons or in the Ultimate Heat Sink (UHS) location or new ponds on site.*

*A photo is attached (in adobe format) which shows the use of such sprayers around Lake Anna already in place. Spray pond construction would not involve substantial earthwork as outlined by Dominion. The sprayers would not require large volumes of water as they use the current water systems in place and do not require off site sources of water. No additional land would be required and no additional state and local permits would be required as outlined by Dominion.*

*Dominion's conclusion that thermal impacts would be small is used to support their decision only and does not take into consideration the public's use of the lake. No data is presented which supports their conclusion. Sprayers were never intended to be the only source of heat dissipation for unit 3. They could be used to support peak periods of high water temperature dissipation without the need to reduce plant output. The same reasons apply to the sprayer on unit 4 in Alternative 11.*

*Dominion appears to forget that they promoted the recreational use and residential development around the entire lake (both main reservoir and cooling lagoons) in the 1960's/1970's when they proposed this nuclear power project. Now that their promotion (Lake Anna) has come to being 35 years later, they do not appear willing to protect the public with minimal peak load heat dissipation systems. Please see our 14 June 06 (resent on 24 July 06) memo for further details re limiting the water temperatures to no greater then 104 degrees F at the end of the discharge canal.*

**8. Summary.** Thank you in advance for your kind consideration of our concerns/comments. We will continue to review the voluminous documents (Draft Environmental Impact Statement – supplement 1 to NUREG-1811) and the revised new or supplemental Safety Report once we receive it and provide comments/concerns as we find them. Additional concerns with the water temperature, water quality, consideration of spent nuclear fuel, etc. are still under review. Each of these items and others will be addressed in separate correspondence after we have had sufficient time to review each. If you have any questions, please do not hesitate to call. I'll look forward to your response.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

CC: U.S. Representative Eric Cantor (7th District) (via email – Lloyd.Lenhart@mail.house.gov)
Senator R. Edward Houck, 17th District of Virginia (via email – ehouck@adelphia.net)
Senator Ryan McDougal, 4th District of Virginia (via email – district04@sov.state.va.us
Senator Charles Colgan, 29th District of Virginia (via email – cjcolgan@aol.com
Senator Russell Potts, 27th District of Virginia (via email – district27@sov.stte.va.us
Delegate Christopher Peace, 97th District of Virginia (via email – delcpeace@house.state.va.us
Delegate Edward Scott, 30th District of Virginia (via email – delescott@house.state.va.us
Delegate William Janis, 56th District of Virginia (via email – delbjanis@house.state.va.us
Delegate Robert Orrock, Sr., 54th District of Virginia (via email – delborrock@house.state.va.us
Delegate Clifford Athey, 18th District of Virginia (via email – DelCAthey@house.state.va.us
Tony Banks – Dominion ESP Project Manager (via email – tony_banks@dom.com

FILE

# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

*DEPARTMENT OF ENVIRONMENTAL QUALITY*
*Street address:* 629 East Main Street, Richmond, Virginia 23219
*Mailing address:* P. O. Box 10009, Richmond, Virginia 23240
Fax (804) 698-4500 TDD (804) 698-4021
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David K. Paylor
Director

(804) 698-4000
1-800-592-5482

July 27, 2006

MEMORANDUM

TO: Mary T. Stanley, VDOT
Michael Cline, VDEM
Ethel R. Eaton, DHR
Andrew K. Zadnik, DGIF
Robert S. Munson, DCR
J. Michael Foreman, DOF
Khizar Wasti, VDH
Susan E. Douglas, VDH-ODW
Ronald Rice, DSP
C. Lee Lintecum, Louisa County
Ted Coberly, Orange County
J. Randall Wheeler, Spotsylvania County

FROM: Charles H. Ellis III
Environmental ~~Review Coordinator~~
Office of Environmental Impact Review

cc: Harry Ruth, FOLA
Ellie L. Irons, DEQ-OEIR
David G. Melton, Louisa County Schools
William Crawford, Orange County Schools
Jerry Hill, Spotsylvania County Schools
Hunter Barnes, VDE

SUBJECT: Dominion Virginia Power Company's Application for an Early Site Permit from the Nuclear Regulatory Commission, Reviews: (1) Federal Consistency Certification (DEQ-05-079F) and (2) Supplement to Draft Environmental Impact Statement (DEQ-06-125F)

In the course of our federal consistency review and our review of the NRC Supplement to the Draft EIS concerning the information on the proposed new cooling method for the third nuclear reactor unit at the North Anna Power Station, we have received a letter from a citizens' organization, the Friends of Lake Anna. The letter raises several questions pertaining to environmental and other issues arising from the possible construction and use of the third and fourth nuclear reactor units. We ask that you include consideration of this letter in your comments on the consistency review and the Supplement to the Draft EIS.

As some of you know, we are presently involved in two review processes concerning the Early Site Permit application by Dominion. For those of you who are not familiar with these processes or time frames, I am enclosing the text of a letter we prepared to help members of the public understand the differences.

The public hearing for the consistency review (August 16) will allow testimony on matters relating to the enforceable policies of the coastal program, but not questions and answers. The Nuclear Regulatory Commission's public meeting (August 15) may allow some questions and answers as well as testimony on environmental impacts, but the NRC is not responsible, to the same degree as state and local entities, for addressing the issues raised by the citizens' letter. The issues may, in any event, be discussed at one or both of the public hearings. For these reasons, we would like to share the citizens' letter with you and solicit your comments on the issues it raises. We will use your comments in our responses to the consistency certification and the Supplement to the Draft EIS. You may find them useful in addressing the issues as they affect, or are affected by, your responsibilities and jurisdiction.

We invite your attention to the issues raised, according to the listing below. We begin with an acronyms list for state agencies:

| | |
|---|---|
| VDOT: | Department of Transportation |
| VDEM: | Department of Emergency Management |
| VDE: | Department of Education |
| DHR: | Department of Historic Resources |
| VDH: | Department of Health, Division of Health Hazards Control |
| VDH-ODW: | Department of Health, Office of Drinking Water |
| DSP: | Department of State Police |
| DEQ-DWR: | Department of Environmental Quality, Division of Water Resources |
| DEQ-OEIR: | Department of Environmental Quality, Office of Environmental Impact Review |

| Citizens' concerns | Agencies invited to comment* |
|---|---|
| #1, workers and residential growth, small roads | VDOT, DSP, DHR, DOF, Counties |
| #2, emergency evacuation | VDOT, DSP, VDEM, Counties |
| #3, need for new schools | VDE, DHR, County Schools, Counties |
| #4, meeting water needs with lake, river | VDH-ODW, DEQ-DWR, DGIF, DCR, Louisa and Spotsylvania Counties |
| #5, cooling towers: noise, height, fog | VDH, DCR, DOF, DHR, VDOT, Counties |
| #6, lake level raising for drought preparedness | DEQ-DWR, DCR, DGIF, VDH-ODW, DOF, DHR, Counties, VDOT, VDEM |
| #7, water levels, flows, and temperatures | DEQ-DWR, DCR, DGIF (already under consideration) |
| #8, confusing documentation and processes | *(no specific agency recommended by DEQ)* |
| #9, safety report | VDH, VDEM |

***Note:** The invitation to comment includes, but is not limited to, the agencies listed.

Again, the due dates for comments to this Office are **August 9** (for comments on the Supplement to the Draft EIS) and **September 8** (for comments on the consistency review). Thank you for your assistance in this matter. Please feel free to contact me if you have questions (telephone (804) 698-4488, e-mail chellis@deq.virginia.gov).

Enclosures

Dear Sir/Madam:

Thank you for your comments on the proposed Early Site Permit for the addition of third and fourth nuclear reactor units to Dominion Virginia Power Company's North Anna Power Station. This project proposal is the subject of two different review processes with two separate public hearings.

Please note that DEQ staff may **only** use the public comments made at the **Wednesday, August 16** hearing in developing its comments on the consistency of the proposed project with the enforceable policies of the Virginia Coastal Resources Management Program. DEQ staff may **not** use public comments made in the NRC hearing on August 15. However, DEQ staff will observe the NRC hearing. Similarly, NRC staff will observe the DEQ hearing on August 16.

**DEQ Review Process**

The process administered by DEQ is the federal consistency review process, mandated by the Coastal Zone Management Act (Spotsylvania County, which abuts Lake Anna, and the North Anna River are in Virginia's coastal zone). Our purpose is to evaluate, with the aid of public comments, whether the proposed project (including the new cooling system for the third unit) would, if licensed by the Nuclear Regulatory Commission, be consistent with the enforceable policies of the Virginia Coastal Resources Management Program. Pertinent details:

DEQ public hearing on federal consistency:

**Wednesday, August 16, 2006**
**Time:** **7:00 PM to 10:00 PM**
**Information session:** **6:00 PM to 7:00 PM**

**Place: Louisa County Middle School, Mineral, Virginia**

*Conduct:*

- DEQ hearing officer
- Statements by members of the public (time allotted to each speaker will be determined after sign-in)
- Questions and discussion **only** at information session

*Deadline for additional written comments to DEQ on consistency:*

**September 8, 2006**

*Deadline for DEQ comments on consistency to Dominion and to NRC:*

**November 3, 2006**

**NRC Review Process**

The process administered by the Nuclear Regulatory Commission (NRC) is the environmental impact review process mandated by the National Environmental Policy Act. The purpose of the NRC, in preparing the Supplement to the Draft Environmental Impact Statement, is to evaluate all environmental impacts associated with the new cooling method, with the aid of public comments, before making a decision on the Early Site Permit.

Again, the Early Site Permit, if issued by the Nuclear Regulatory Commission, would allow Dominion to reserve the site, undertaking studies and related construction and site preparation, while the company decides whether to apply for a construction and operating license for the new reactor units. Pertinent details relative to the NRC process:

NRC public meeting on environmental impacts:

**Tuesday, August 15, 2006**

**Time:** **7:00 PM**
**Information session:** **6:00 PM**

**Place: Louisa County Middle School, Mineral, Virginia**

*Conduct:*

- NRC hearing officer and other staff
- Statements by members of the public (typically 3-minute limit, additional material in writing)
- Questions and answers may be possible

*Deadline for additional written comments to NRC:*

**August 25, 2006**

I hope this information is helpful to you. Thank you for writing.

Sincerely,

Ellie Irons

15 June 2006

Ms. Ellie Irons, Environmental Impact Review Program Manager
Virginia Department of Environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
Via email to elirons@deq.virginia.gov

Mr. Jack Cushing, Environmental Project Manager for North Anna ESP Site Application,
U.S. Nuclear Regulatory Commission (NRC), Washington D.C. 20555
Via email to JXC9@NRC.GOV

**Reference:** (1) Friends of Lake Anna letter dated 12 Jun 06, Subject Request for extension of Public Comment period re the Federal Consistency Certification of the Dominion Nuclear North Anna Application for the Early Site Permit (ESP) Review and other related items

(2) Lake Anna Observer newspaper – June 1, 2006 Public Notice for the Environmental Project Comment Period re the Federal Consistency Certification of the North Anna ESP re the Federal Coastal Zone Management Act.

(3) Friends of Lake Anna letter dated 14 June 2006: Subject Lake Anna Cooling Lagoon concerns with the North Anna ESP

(4) Friends of Lake Anna letter dated 15 June 2006: Subject Concerns with the data contained in the Dominion Letter dated April 13, 2006 in response to NRC Questions and also the North Anna ESP Application part 3 – Environmental Report Revision 6 dated April 2006

**Subject:** **Partial Concerns #2 with the data contained Dominion's Application for the North Anna ESP 6 dated April 2006 and the related NRC Safety Report dated Sep 2005.**

Dear Ms. Irons and Mr. Cushing,

On behalf of the 2,650 persons represented by the Friends of Lake Anna, it is requested that the following concerns with the data contained in the Dominion North Anna ESP Applications Revision 6 and the NRC Safety Report dated Sep 2005 be addressed in the U.S. Coastal Zone Management Act Federal Consistency Review and also by the Nuclear Regulatory Commission. Also please forward the concerns to the appropriate Commonwealth of Virginia department for comment if they do not come under the purview of the U.S. Coastal Zone Management Act.

These are only a partial list of concerns/comments identified thus far as a result of a brief and cursory look at the large volume of materials available to us for review. In addition, we have researched other related public documents that may have an impact on this ESP review. We thought it prudent to bring these concerns/comments to your attention soonest so both the NRC and VDEQ has adequate time to review them. Please see below for a description of each concern.

Our group, "The Friends of Lake Anna" is a citizen group whose mission is to protect Lake Anna (both main reservoir and cooling lagoons) and its surrounding landscape, together with any related concerns, within Louisa, Spotsylvania, and Orange Counties for the health, safety and welfare of current residents/users and for future generations. We are not anti-nuclear, nor do we have "not in my backyard" sentiments, but do support a wise and safe use of nuclear energy. Our goal is simply to protect Lake Anna for the 500,000 annual users and insure compliance with the law.

**Concern 1 Too many workers & residents, with a small 2 lane road (Route 652 – Kentucky Springs Road)**

– Dominion plans to bring in 5,000 construction workers for a 5 year period re the new plant.
- They currently bring in about 1,000 construction workers twice a year for planned maintenance on the existing two reactors
They currently employ about 800 permanent workers
They will add about an additional 1120 permanent workers when the new 3rd and 4th reactors are activated
- Cut-A-Long Development is about 1,000 homes development is a few miles away on Route 652
. - The Waters Development is about 400 homes development is a few miles away on Route 652
- Other developments also use Route 652 – (Brandywood, Tall Pines, Tara Woods, Aspen Hill, Both Waters, Bear Castle, Oak Landing, Pine Harbor, Pine Point, Overton Fork, Seclusion Shores, Ruth Estates, Lakewood Landing, Oakleigh 1 & 2, Cuckoo's Nest, Plum Tree, Long Acres, Edgewood Bay, Noah's Landing, etc.)
- New truck facility for stones/concrete on Route 700 (adjoining route) will also use Rt 652.

- ***Discussion***: Proffers should be made by Dominion and/or Federal Government to widen Route 652 since this nuclear energy is a national priority *Prior to beginning of any new construction* or we will experience a traffic nightmare. Note that if/when the ESP is granted, that pre-construction activities (clearing the site, building support buildings, adding railroad spurs, etc) can begin. So this issue cannot wait until the Construction and Operating License Phase. It takes many years to plan and fund road construction.

**Concern 2 – Emergency Evacuation surrounding the entire lake in Louisa, Spotsylvania and Orange Counties. Only 2 lane roads surround the lake.**

Because of the recreational aspects of the lake, most of the 500,000 annual users of the lake and residents have boats and boat trailers. Many vacationers during the summer pull large camping trailers. These facts coupled with the large residential developments currently and planned surrounding the lake in Louisa, Spotsylvania and Orange Counties would create a traffic nightmare if there was a nuclear accident or terrorist attack that necessitated an emergency evacuation. Note that both Louisa and Spotsylvania Counties are in the top 100 fastest growing counties in the U.S.

**Discussion:** Pro-offers should be made by Dominion and/or Federal Government to widen all roads surrounding the lake prior to the beginning of any new construction or we may experience many deaths if residents and users around the lake tried to flee in a panic situation as a result of a nuclear accident or terrorist attack.

Most of the roads are simply small winding 2 lane roads. There are only a few local small gas stations to provide fuel. As more nuclear reactors are added, the risk of terrorist attacks and the possibility of a nuclear accident increase.

The applicant, state and federal governments should work together to ensure that the public is not put in harms way. They jointly should increase the road width's, etc. prior to any new construction beginning as a result of the ESP or COL that accommodates the emergency evacuation of 7,000 to 8,000 Dominion employees/construction workers together with all the local residents and recreational users of the lake.

**Concern 3 Major influx of new persons to Louisa, Spotsylvania, and Orange Counties will result in need for new schools**

See concern 1 above for new worker numbers. Since this construction project for unit 3 is projected to be 5 years in length, most of the 5,000 construction workers and 1,120 new employees will most likely relocate to either Louisa or Spotsylvania counties since they are the closest to the power plant construction site. A few new workers may locate in Orange County which is a greater distance away.

- **Discussion**: This major influx of new residents to Louisa, Spotsylvania and Orange Counties will have a major impact on school requirements. Since the nuclear plant may be a national priority, then possibly school construction grants can be provided by the Federal government to assist with new school construction. The current residents and taxpayers of the area should not be expected to fund new schools as a result of this major construction project.

**Concern 4 – Using the North Anna River/Lake Anna for any future water needs of Louisa and Spotsylvania Counties.**

**Discussion**: Both Louisa and Spotsylvania Counties have been designated in the top 100 fastest growing in the U.S. Both counties rely on wells and septic tanks for the majority of their water supply. With the major increased growth projected and demand for water resources, it would be reasonable to project that one or both counties may look to Lake Anna (the 3rd largest lake in the state) as a water source for drinking water and public use. How will the new 3rd and 4th reactors (if built) diminish either counties ability to use the lake as a future water source for pubic water consumption?

**Concern 5 - Dominion is planning on constructing cooling towers that will be between 150 and 180 feet (15 - 18 stories) in height. These cooling towers will have huge fans that are planned to emit noise levels at about 65 decibels 24 hours a day – 7 days a week. These cooling towers will emit plumes of water/ steam/ fog formation which can create fog/icing conditions in the vicinity an average of 70 hours per year (or if 3 hours per day this equates to 23 extra days a year of fog and/or icing conditions on the adjoining roadways)**

**Discussion:** Eugene Grecheck, Dominion V.P. on Jan 6, 2006 briefed the public, the press, and VDEQ reps at a stakeholders meeting at the power plant, that the new towers would not exceed 75 feet tall for wet/dry units and 50 feet for dry units only. This application requesting towers up to 180 feet tall is a break of the public's trust by Dominion. If we can't believe a senior vice president within Dominion, who can we believe? Current trees in area are approximately 50 feet to 75 in height, with a few going up to about 100 feet. Noise travels long distances if not distorted by various barriers (trees, buildings, etc.). Louisa Noise Ordinance says no more then 55DP (at night) in residential neighborhoods. *It is requested that the cooling towers be no higher then 80 feet (equivalent of an 8 story building) to mitigate the noise and also provide an esthetically pleasing profile of the adjoining skyline.* In addition, the noise created by the cooling tower fans should not exceed 55 decibels. The towers should not exceed 80 feet so they blend in with the treeline. The water/fog plumes coming up from the towers will detract rural peaceful setting of the lake, without having 18 story towers which would be an eyesore. What type of mitigation can be done to avoid any traffic problems on adjoining roadways as a result of the fog and icing conditions approximately an extra 23 days a year?

**Concern 6 – Possibly raising the lake level 6 to 12 inches to retain more water in the lake so it would help in times of drought.**

Discussion: Louisa, Spotsylvania and Orange Counties have thousands of adjoining landowners on Lake Anna. Raising the lake level would create major hardships and destruction of private property to all adjoining landowners and businesses that have piers, boathouses, launching ramps, bulkheads, etc. It would also destroy many lake front business locations.

**Concern 7 – Water levels, water flows, water temperatures**

It is unclear from the many various documents: the ESP application, NRC requests for additional information and Dominion responses to determine exactly what the impact on both the cold side and cooling lagoons water level's, water flows, and water temperatures are when the 3rd and 4th reactors are activated.

The documents do not reflect common every day language that can easily be understood. They also do not use the common Fahrenheit degrees for all temperatures. In some cases they use C, (which requires the public to convert to Fahrenheit degrees. In other cases they use a notation of thermal heat added to the water without any regard to what this means to Fahrenheit degree temperatures. Dominion and the NRC should standardize the use Fahrenheit degrees so the public can easily understand its impact in all ESP and COL documentation.

It appears that these various uses of F, C, and Thermal heat added methods that impact the water temperature are used to deceive and confuse the public.

It is also designated that the water cooling towers will create a discharge of "blowdown" water into the existing discharge canal, but it does not designate any limiting temperature of the water. It also does not designate how the flow rate when combined with the existing 2 million gallons per minute currently discharged may impact the private residence boat houses, piers, etc. in the cooling lagoons.

It is unclear on exactly how many inches/feet the entire lake will drop at what times of the year as a result of the increased water usage for the cooling towers. Will this increase water usage create any problems with the entire watershed and possibly increase drought cycles?

**Concern 8 – Too many supplemental confusing documents, using inconsistent terminology to insure that all items have been reviewed to protect the public's interest. There are also many supplemental Requests for Information and Responses from Dominion with in some cases unclear responses. The NRC is planning to issue a supplemental draft environmental and supplemental draft safety report. How is the public going to keep track of all these changes?**

**Discussion**:" There is over 1,000 pages of data to review in too short a time period to insure that all the Louisa, Spotsylvania, Orange County residents and the 500,000 annual recreational users of the Lake are protected.

This is also complicated by the fact that both the Va. Dept of Environmental Quality and the Nuclear Regulatory Commission have different public comment periods. It is not easily understood who has jurisdiction over what concerns.

It is recommended that both the state and federal agencies have one only joint hearing and invite all associated federal and state departments that may play a role in this major project, so the public is not confused on whom to report what issues to and expect a reasonable response.

This is also true within the NRC who issues a Safety Report, without having any public involvement and appears to be inconsistent in some cases with the Environmental Report

The planned issuance of a supplemental safety and supplemental environmental report will only add to the confusion of many thousands document pages. How can you expect the public to keep track of what is the current version of the application vs. the RAI's, vs. the responses vs. supplemental reports, etc. ?

**Concern 9 - NRC Safety report not reviewed by Commonwealth of Virginia Departments or the public**

**Discussion**: Why is the public or the Commonwealth of Virginia departments not involved in reviewing the NRC's Safety Report? There should be a draft safety report public comment period, similar to the ESP process, so the public and state agencies have a chance to review and comment on the NRC's safety findings. Safety is one of the public's main concerns with any federal project.

Where is the spent nuclear fuel kept and when are plans to move it offsite? Emergency Evacuations? Terrorist Attacks? Melt-down of nuclear reactor? Release of nuclear by-products into the atmosphere? Reasonable safety concerns with wet and dry cooling towers? Education of the public for safety precautions taken? Where is water taken from the North Anna river for the plant – how does this major flow of water (approximately 2 million gallons per minute) endanger the safety of the fish swimming and people recreating in the area? How safe will the proposed 180 feet towers be for aircraft flying in the area? How safe will it be to drive on adjacent roadways with more fog and ice on adjoining roadways when the cooling towers are in operation? How safe is the temperature and water quality of the cooling waters ejected into the discharge canal and eventually into the lake's circulation pattern where 99% of the water stays within the lake and used by the public for recreation? How safe is the water when it is heated 14 to 18 degrees F – does this increase the bacteria count??

There are those sections that should definitely be reviewed by the Va. Dept of Water Resources, Fish & Game together with Transportation Dept and inaccurate statements in the safety report that should be corrected. For example, the Safety Report has a Hydrology section (2.4), which is one of main topics of concern for the commonwealth and the public. In the Emergency Planning section 13.3 the report indicates that the applicant stated that the road network surrounding the NAPS site, which includes the ESP site, can adequately accommodate anticipated vehicular traffic. This statement simply is not true in any sense of the word (see concern 1 above). The report also identifies that there will be minimal population growth in the area through 2065 (almost 40 years into the future). Currently both Spotsylvania and Louisa counties are in the top 100 fastest growing counties in the U.S.

There are many other examples within the Safety Report that should undergo the public review, with a public hearing and comment period. Why is the NRC afraid to let the public review this document prior to its publication? After publication, it will be used as a source of justification for many items because the NRC and federal government approved all the data within the safety report and therefore it must be correct. We respectfully request that this process be changed so that both the commonwealth and the public are invited to review and comment on this important document prior to publication.

Thank you in advance for your kind consideration of our concerns/comments. We will continue to review the voluminous documents and provide comments/concerns as we find them. Additional concerns with the water temperature, water quality, consideration of spent nuclear fuel, etc. are still under review. Each of these items and others will be addressed in separate correspondence after we have had sufficient time to review each. If you have any questions, please do not hesitate to call. I'll look forward to your response.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

CC: U.S. Representative Eric Cantor (7th District) (via email – Lloyd.Lenhart@mail.house.gov)
Senator R. Edward Houck, 17th District of Virginia (via email – ehouck@adelphia.net)
Senator Ryan McDougal, 4th District of Virginia (via email – district04@sov.state.va.us
Delegate Christopher Peace, 97th District of Virginia (via email – delcpeace@house.state.va.us
Delegate Edward Scott, 30th District of Virginia (via email – delescott@house.state.va.us
Delegate William Janis, 56th District of Virginia (via email – delbjanis@house.state.va.us
Delegate Robert Orrock, Sr., 54th District of Virginia (via email – delborrock@house.state.va.us
Tony Banks – Dominion ESP Project Manager (via email – tony_banks@dom.com

## Ellis,Charles

**From:** Irons,Ellie
**Sent:** Tuesday, August 01, 2006 11:10 AM
**To:** Ellis,Charles
**Subject:** FW: Pro-active planning for the future of Louisa, Spotsylvania & Orange County Infrastructure & Schools

Fyi. Mr. Ruth followed up and your memo to school supers!

Ellie Irons
Program Manager
Office of Environmental Impact Review
629 East Main Street, Room 631
Richmond, VA 23219
Telephone: (804) 698-4325
Fax; (804) 698-4319
email address: elirons@deq.virginia.gov
http://www.deq.virginia.gov

-----Original Message-----
**From:** Harry Ruth [mailto:HC.RUTH@LOUISA.NET]
**Sent:** Tuesday, August 01, 2006 11:01 AM
**To:** Irons,Ellie
**Subject:** Fw: Pro-active planning for the future of Louisa, Spotsylvania & Orange County Infrastructure & Schools

FYI

----- Original Message -----
**From:** Harry Ruth
**To:** Sheila Clark (Spotsy spvr clerk) ; Emmit Marshal (Spotsy supvr) ; T.C. Waddy (Spots supvr) ; Robin Horne (L-Sch Bd) ; Harold Schaffer (L Sch Bd) ; Vyvyan Powers (L Sch Bd) ; Brian Huffman (L Sch Bd) ; Gail Proffitt (L Sch Bd) ; Sherman Shifflett (L Sch Bd) ; Gregory Strickland (L Sch Bd) ; Willie Harper (LCBS) ; Willie Gentry (LCBS) ; Jack Wright (LCBS) ; Fitzgerald Barnes (LCBS) ; Eric Purcell (LCBS) ; Allen Jennings (LCBS) ; Richard Havasy (LCBS)
**Cc:** Gary & Linda Bullis ; Willie Gentry (LCBS) ; Sharon Brill (Wyndemere) ; Sandra Brockel (The Waters) ; Ken Remmers ; Jim Burdge ; George & Gerry Heino ; Gary Muller ; Dick Bolon (LACA) ; Dennis Schaible ; Bob Richards ; Bob Kepley (LACA) ; Bill Murphey (LACA) ; Bill McGrath (Pine Harbour) ; Barbara Kempf ; Jerry & Sheryl Giaccai ; Carlos Santos (Richmond Times) ; Lake Anna Observer Attn: Ed Kube ; Bernice Kube (Editor) ; Rusty Dennen (Freelance Star) ; Paul Akers (Freelance Star) ; Megan Rowe (Daily Progress) ; Irene Luck (Central Virginian) ; Deanna Meredith (Central Virginian) ; Billy Seay (School)
**Sent:** Monday, July 31, 2006 11:22 AM
**Subject:** Pro-active planning for the future of Louisa, Spotsylvania & Orange County Infrastructure & Schools

Dear Louisa, Spotsylvania & Orange County Board of Supervisors and School Boards,

Please be pro-active in planning for the future of Louisa, Spotsylvania and Orange County Infrastructure and Schools. We need your help now to plan for managed growth within the county as a result of the construction of new nuclear reactors and the influx of 5,000 - 7,000 workers for a 5 year time period. Although all the approvals for the nuclear power plant are still undergoing review, the time to address your planning concerns, apply for federal or state grants is now. According to the forwarding memo, VDEQ needs your response for many of the items no later then August 9, 2006 because of time limits placed on them by the NRC.

The attached letter dated 15 June 2006 from the Friends of Lake Anna to the Nuclear Regulatory Commission (NRC) and Virginia Department of Environmental Quality (VDEQ) re partial concerns with the data contained in Dominion's Application (Revision 6) for the North Anna ESP dated April 2006 and the related NRC Safety Report dated Sep 2005 was sent to all three county administrators, with copies to the school superintendents, that surround Lake Anna for comment by the VDEQ on July 27, 2006 (Contact Charles Ellis, Environmental Review Coordinator, VDEQ at (804) 698-4325 for additional information).

Note: The letter was also sent to Va. Dept of Transportation, Dept of Emergency Management, Dept of Education, Dept of Historic Resources, Dept of Health, Dept of State Police, Dept of Water Resources (VDEQ) for comment .

When VDEQ receives all governmental comments from all governmental parties, they will consolidate the comments from various Commonwealth of Virginia departments and local governments and forward those onto the NRC.

The concerns are summarized below. Please see the attached memo for details.

1. Too many workers & residents, with a small 2 lane road (Route 652 - Kentucky Springs Road)
2. Emergency Evacuation surrounding the entire lake in Louisa, Spotsylvania and Orange Counties (only 2 lane roads surround the lake)
3. Major influx of new persons to Louisa, Spotsylvania, and Orange Counties will result in need for new schools.
4. Using the North Anna River/Lake Anna for any future water needs of Louisa and Spotsylvania counties.
5. Dominion is planning on constructing cooling towers that will be between 150 and 180 feet (15 to 18 stories) in height. These cooling towers will have huge fans that are planned to emit noise levels at about 65 decibels 24 hours a day - 7 days a week. These cooling towers will emit plumes of water/steam/fog formation which can create fog/icing conditions in the vicinity an average of 70 hours per year (or if 3 hours per day this equates to 23 extra days a year of fog and/or icing conditions on the adjoining roadways).
6. Possibly raising the lake level 6 to 12 inches to retain more water in the lake so it would help in times of drought.
7. Water levels, water flows, water temperatures.
8. Too many supplemental confusing documents, using inconsistent terminology to insure that all items have been reviewed to protect the public's interest. There are also many supplemental Requests for Information and Responses from Dominion with in some cases unclear responses. The NRC is planning to issue a supplemental draft environmental and supplemental draft safety report. How is the public going to keep track of all these changes?

Thank you in advance for using your management expertise to do the correct things now to influence the planning for the future. Please do not hesitate to call if you have any questions.

Sincerely,

Harry Ruth
for the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

## Ellis,Charles

**From:** John Kauffman [John.Kauffman@dgif.virginia.gov]
**Sent:** Monday, June 19, 2006 8:28 AM
**To:** Irons,Ellie
**Cc:** Ellis,Charles; Andrew Zadnik
**Subject:** RE: FW: Lake Anna Cooling Lagoon concerns with the NorthAnnaESP

I will know better on Wed after I meet with Martel to discuss the draft letter being prepared.

>>> "Irons,Ellie" <elirons@deq.virginia.gov> 06/19/06 08:12AM >>>
We would like agency comments ASAP in advance of the public hearing in order to be well prepared about the issues. Did you need additional time?

-----Original Message-----
From: John Kauffman [mailto:John.Kauffman@dgif.virginia.gov]
Sent: Friday, June 16, 2006 8:31 AM
To: Irons,Ellie
Subject: Re: FW: Lake Anna Cooling Lagoon concerns with the North AnnaESP

does this change the agency comment time or is that still the end of June? thanks

>>> "Irons,Ellie" <elirons@deq.virginia.gov> 06/15/06 05:35PM >>>
Dominion Virginia Power Company submitted an Early Site Permit (ESP) to the Nuclear Regulatory Commission (NRC) to secure a site at Dominion's existing North Anna Power Station in Louisa County near Mineral for future construction of two new reactor units. Dominion has also submitted a certification that the addition of two new reactor units would be consistent with the Virginia Coastal Program. DEQ is reviewing the certification and additional information, and seeks public comments as part of the review. The ESP, if issued, would allow the applicant to reserve the site for as long as 20 years for the two proposed reactor units, and possibly to undertake site preparation and preliminary construction activities.

First, DEQ has extended the public comment deadline for this review from June 16 to September 1, 2006.

In the course of this review, citizens have raised questions regarding federal and state water resources permitting jurisdiction. Specifically, the citizens raise the question whether the "hot side" of Lake Anna (referred to by Dominion as the Waste Heat Treatment Facility) is in fact subject to Virginia Pollutant Discharge Elimination System (VPDES) and other state and federal regulatory jurisdiction. We are forwarding an e-mail received from the Friends of Lake Anna that raises this and other questions.

We request your review of the four-page letter from the Friends of Lake Anna (attached), and your comments on the issues raised in the letter. In particular, we would like your comments on:

provisions of law or regulation that exempt the "hot side" of Lake Anna from your regulatory purview

monitoring responsibilities, and the differences, if any, in how they are carried out in different parts of Lake Anna;

the characterization of agency responsibilities (see attached letter, item (1)c., second paragraph): are these characterizations correct with regard to your agency responsibilities?

temperature limits in applicable permits (attached letter, item (2);

We hope to use your responses to these and other issues raised in the letter to clarify and enhance our understanding of water quality and water flow issues in particular, and other issues which may bear upon our review of the federal consistency certification.

Please provide your responses to DEQ-OEIR (this Office) on these matters not later than July 17, 2006. Thank you.

-----Original Message-----
From: Harry Ruth [mailto:HC.RUTH@LOUISA.NET]
Sent: Wednesday, June 14, 2006 12:33 PM
To: Irons,Ellie; Jack Cushing (NRC)
Cc: Representative Eric Cantor (7th District); Delegate Bill Janis (56th Dist); Delegate Chris Peace (97th Dist); Delegate Edward Scott (30th Dist); Delegate Robert Orrock, Sr (54th Dist).; Senator Ryan McDougle; Senator R. Edward Houck; Tony Banks (Dominion)
Subject: Lake Anna Cooling Lagoon concerns with the North Anna ESP

Dear Ms. Irons (VDEQ) and Mr. Cushing (NRC),

Attached please find three documents (1) Lake Anna Cooling Lagoon concerns with the North Anna ESP (Msword), (2) The North Anna Power Station proposed (Adobe), and (3) A Lake Anna Map w-cooling lagoon streams (Adobe). that we are submitting to identify our initial concerns and supporting documentation with the North Anna Early Site Permit (ESP) (Revision 6). We will forward additional concerns with the ESP after we have had sufficient time to review the material.

Please do not hesitate to call if you have any questions.

Sincerely,

Harry Ruth

for the Friends of Lake Anna

C/O 230 Heather Drive, Bumpass, Va. 23024

Phone 540-872-3632

**Ellis,Charles**

**From:** Stanley, Mary T. [Mary.Stanley@VDOT.Virginia.gov]
**Sent:** Wednesday, August 16, 2006 1:43 PM
**To:** Ellis,Charles
**Subject:** FW: North Anna ESP

---

**From:** Proctor, Charles C.
**Sent:** Wednesday, August 16, 2006 1:33 PM
**To:** Stanley, Mary T.
**Cc:** Giometti, John A. P.E.; Woodcock, Wayne C.
**Subject:** North Anna ESP

Mary,

After reviewing the additional information provided by Wayne Woodcock I have some additional comments:

The Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP does not provide any traffic analysis to show what the impact will be from this construction activity or the expansion of the normal work force to support the unit expansion. The report gives some general level of service for the surrounding roads and some possible road that would be impacted. It does not provide any intersection analysis to quantify the impact.

The report provides references to several plans and recommendations to improve some of the roadways around the Lake Anna and in this area of the County and does acknowledge that the plans and recommendations are not tied to any time frame or funding source. The report states that these improvements would alleviate congestion on the local roads.

The report states that a plan will be developed and implemented to address the construction traffic. The plan will include adding turn lanes, signage, and intersection improvements to address congestion caused by the activities. It also will include shift scheduling and car/van pools will be used to reduce trips to and from the site. In addition the report states that Dominion would repair any damage caused by the increased construction traffic.

In regards to the Response to the "Friends of Lake Anna", I have the following comments:

The department will work with Dominion Power to insure that the roads in the area of the plant are maintained and that the necessary improvements are in-place prior any major activities on the site. As part of our review process the department has requested Dominion power provide a traffic impact analysis that reviews the intersections and roadway surrounding the site. The analysis will compare the future traffic (background traffic) with the future traffic with the construction traffic (total traffic) added and will identify locations where there are impacts. These impacts some temporary during construction and some permanent resulting from and increase in the general plant work force are the responsibility of Dominion Power. The analysis will also provide mitigations measures to address these impacts.

An evacuation plan was not include in the Environmental Report beyond the basic transportation review and therefore cannot be addressed.

If there are any additional questions please forward them to my attention.

Thank you,

Chuck

Charles C. Proctor III
District Transportation Planner (PD-10)
Culpeper District
1601 Orange Road
Culpeper, Virginia 22701
540-829-7558
charles.proctor@VDOT.virginia.gov

# Louisa County Public Schools

**DAVID G. MELTON, Superintendent**
**Post Office Box 7**
**953 Davis Highway**
**Mineral, Virginia 23117**
**(540) 894-5115 FAX (540) 894-0252**

RECEIVED
SEP 07 2006
DEQ-Office of Environmental Impact Review

September 6, 2006

Mr. Jack Cushing
Environmental Project Manager for North Anna ESP Site Application
U.S. Nuclear Regulatory Commission (NRC)
Washington D.C. 20555
(via email: JXC9@NRC.GOV and North_Anna_Comments@NRC.Gov )

Ms. Ellie Irons
Environmental Impact Review Program Manager
Virginia Department of Environmental Quality (VDEQ)
629 East Main Street, Richmond VA 23219
(via email elirons@deq.virginia.gov)

Subject: Comments on the Draft Supplemental Environmental Impact Statement (EIS) and Federal Consistency Certification on the Early Site Permit for North Anna Nuclear Power Plant and request for assistance in obtaining a federal grant.

Dear Mr. Cushing and Ms. Irons,

This letter is addressing concerns of the Louisa County School District, in Louisa County, Virginia in regard to the possibility of Dominion Power building two new reactors at the North Anna site. As a non-political entity, the Louisa County School District feels it should remain neutral concerning whether or not the additional reactors should be built. However, we do feel the need to prepare for the eventuality of what amounts to substantial construction in our county, and the potential impact it will most likely have on both our student population and the faculty of our school district. We are in disagreement with several items in the Impact Study and therefore find it prudent to request assistance in obtaining a federal grant to mitigate any adverse impact of the potentially large influx of workers and their families.

The Draft Environmental Impact Study indicates that the impact on demography, housing, and education would all be "small" and "mitigation is not warranted". We

disagree with this assessment. The study indicates that construction activities would last at least five years and employ 5000 workers. It also assumes that 4000 of those workers will be from within a 50-mile radius, with the remaining 1000 moving here from other localities. Assuming these estimates are accurate, and even considering that some of 1000 will be engineers who will be rotating in on a semi-permanent basis, this still leaves the possibility of a large number of workers who will want to live as close as possible to the construction site, especially considering the current cost of commuting. This presents us, as a school district, with two major areas of concern.

1) Large Increase in student population.

The first problem we see is the possibility of providing services to a large increase in our student population in a relatively short time period. We currently have approximately 4,400 students in our system and our facilities are at capacity. An immediate increase of even 100-200 students will create a financial and educational burden. The advertisement that Dominion took out in the Central Virginian newspaper (Aug. 10, 2006) talks about the millions of dollars that will benefit our county. It is a given that tax revenues will increase if two new reactors are built, but those taxes will not be forthcoming until each reactor is at least partially on line. In the interim, our schools will more than likely be impacted with a significant increase in student population and will invariably include many more students for whom English is a second language. The impact study also indicates that few construction workers would be moving to Louisa County due to "localized shortages of available housing". When the first two reactors were built, there was little available housing. But even so, as the attached graphs show, our student population increased by almost 21% during that construction period with most of the increase taking place during actual reactor construction.

At this time, three new subdivisions have already been approved by Louisa County for development in near proximity to the construction site: 1) The Waters at Lake Anna (about 400 units), 2) Cutalong development (about 1000 units), and 3) Noah's Landing (about 400 units), for a total of approximately 1800 potential homes that could be built in the next few years, all within just a few miles of the North Anna site. With the much greater availability of housing during future reactor construction, we would have to anticipate an even larger percentage of increase in student population. An influx of ESL (English as a Second Language) students would also increase the local financial burden even more, as the educational cost of an ESL student is 25-30% more than that of an English-speaking student.

2) Teacher Retention due to increased housing costs.

The second conclusion with which we have issue is the impact on housing itself. Because of our location, we have many young teachers at our schools due to turnover. As it is, it's very hard for them to find adequate affordable housing. This is probably the main reason for teacher turnover in our county. It will be very hard for them to compete in the rental market with 3 or 4 young single (or "situational bachelor") construction

workers pooling their resources. Again, the expense of being forced to commute will affect our teacher retention.

Request for assistance in obtaining a federal grant

The federal government has shown that it has a keen interest in nuclear energy, and in this project, by funding 50% of the impact study (a cost of $8-10 million.) Because of this federal interest, and in the interest of education and future nuclear power construction, we feel the federal government might also be interested in providing grant money to Louisa County in order to offset the negative impact of such a large construction project in a rural county such as ours. Therefore, we are asking the Virginia Department of Environmental Quality and the U.S. Nuclear Regulatory Commission to petition the federal government, on our behalf, for funding to allow us to minimize any adverse impact from this construction.

Please contact me for any additional information that you may need.

Sincerely,

Robin L. Horne, Chairman
Louisa County School Board
2562 Peach Grove Rd.
Louisa, VA 23093
(540) 967-0069
coganh@hotmail.com

Harold A. Schaffer, Vice-Chairman
Louisa County School Board
162 Scarlet O'Hara Ct.
Bumpass, VA 23024
(540) 894-8989
(halschaffer@earthlink.net)

## Ellis,Charles

**From:** Hassell,Joseph
**Sent:** Friday, June 16, 2006 10:24 AM
**To:** Irons,Ellie
**Cc:** Kudlas,Scott; Wagner,Terry; Murphy,Michael; Ellis,Charles
**Subject:** Lake Anna Cooling Lagoon concerns with the North Anna ESP

I have reviewed the comment memorandum from the Friends of Lake Anna with the subject line "Lake Anna Cooling Lagoon concerns with the North Anna ESP" and have the following comment. Neither the ESP, DEQ, NRC nor Dominion contemplates any additional thermal load to Lake Anna from either new unit. The Friends of Lake Anna are concerned with the operation of the existing 2 units, which is not the subject of the Early Site Permit application.

I am also sending for your information via internal mail copies of two memorandums from the Attorney Generals office circa 1979 and 1989 regarding what is and what is not State waters with regard to treatment facilities. You may or may not find it useful with regard to your request regarding "provisions of law or regulation that exempt the "hot side" of Lake Anna from your regulatory purview." Although not stamped as such, I believe these documents are attorney client privileged and should be treated as such.

MEMORANDUM

TO: JEANNIE MARSH

FROM: FREDERICK S. FISHER
ASSISTANT ATTORNEY GENERAL

SUBJECT: STATE WATERS AS A SETTLEMENT POND

DATE: September 19, 1979

Section 62.1-44.3 (4) of the Code of Virginia (1950), as amended, defines "State Waters" to mean "all water, on the surface and under the ground, wholly or partially within or bordering the state or within its jurisdiction." The Loan Star Corporation has created a pond connected to the James River by mining sand and gravel. This would necessarily be State Waters and would also be considered to be navigable waters. Can this pond be used as a settling basin?

To resolve this problem we must look at the purpose of the Water Pollution Control Laws. The purpose is to require those causing the production of waste to treat their waste to Uniform National Standards so that the receiving waters will not receive excessive pollution loads. One way to treat waste is to provide a settling pond or lagoon. These have long been recognized in the State and National Programs. All lagoons contain State Waters but most are not connected to navigable waters. The fact that a pond is connected to navigable waters should make no difference if the effluent from that pond meets the nationally established effluent limits.

This pond, although containing State Waters as do other lagoons, is a sewage treatment facility and should be treated that way. Even though ic may constitute navigable waters, and the public may have a right to navigate thereon, this should not preclude its being used as a settlement pond. The water pollution control laws were enacted to protect existing navigable waters, not to regulate the discharge into treatment plants. Since the discharge from this settlement pond meets the NPDES permit limits, the effect on the James River is same as if treatment were by a landlocked lagoon or by some other method.

4:23-cjc

VIEW THE NOTE

From: WCB004DP--VWCB Date and time 07/07/89 16:01:2
To: WCB007MF--VWCB

From: Dave Paylor
Subject: Curls Neck Tarmac Permit
A month or so ago you met with JR and Paul to discuss the permit at Curls Neck
Currently we have an AGO opinion the the embayment is not state waters. You apparently agreed to investigate this issue again with the AGO. Do we have a response from them yet?

cc: WCB007FH--VWCB WCB004JB--VWCB

E N D O F N O T E

PF1 Alternate PFs PF2 File NOTE PF3 Keep PF4 Erase PF5 Forward Note
PF6 Reply PF7 Resend PF8 Print PF9 Help PF10 Next PF11 Previous PF12 Return
ALT-F10 HELP | VT-100 | FDX | 19200 E71 | LOG CLOSED | PRT OFF | CR | CR

# COMMONWEALTH of VIRGINIA

## Office of the Attorney General

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Human & Natural Resources Division

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Judicial Affairs Division

Walter A. McFarlane
Deputy Attorney General
Finance & Transportation Division

Stephen D. Rosenthal
Deputy Attorney General
Public Safety & Economic Development Division

Deborah Love-Bryant
Executive Assistant

MEMORANDUM

TO: MARTIN G. FERGUSON
Permits Manager
State Water Control Board

FROM: JOHN R. BUTCHER
Assistant Attorney General

DATE: July 27, 1989

RE: Lone Star Gravel Pit

You ask whether the water in a Lone Star gravel pit that is dug into private property, that is connected directly to the James River below the fall line, and into which the company discharges mining wastes is "surface water" for the purpose of the discharge or whether the discharge begins at the connection between the pond and the river.

### Applicable Regulation

Section 1.5 of the Permit Regulation, VR 680-14-01 (State Water Control Board, 1988), requires a VPDES permit for any discharge of any pollutant to surface water. Section 1.1 of the same regulation defines "surface water" to mean

> i. all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tides;
>
> ii. all interstate waters, including interstate "wetlands";
>
> iii. all other waters such as inter/interstate lakes, rivers, streams (including intermittent stream), mud flats, sand flats, "wetlands", sloughs, prairie pot holes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) which are or could be used by interstate or foreign travelers for recreational or other purposes.
(2) from which fish or shell fish are or could be taken and sold in interstate or foreign commerce;
(3) which are used or could be used for industrial purposes by industries and interstate commerce.

iv. all impoundments of waters otherwise defined as surface waters under this definition;

v. tributaries of waters identified in paragraphs (i)-(iv) of this definition;

vi. the territorial sea;

vii. "wetlands" adjacent to waters, other than waters that are themselves wetlands, identified in paragraphs (i)-(vi) of this definition.

The Lone Star pond is "surface water" unless it is a lagoon."

I understand that the Lone Star pond in question has been dredged by the company in private land that the company owns or leases adjacent to the river. I will assume for the purposes of this memorandum that the pond is private property and not subject to navigation by the public. See, Kaiser Aetna v. United States, 444 U.S. 164 (1979). Such property is nonetheless subject to regulation by the United States under the Commerce Clause, id. at 174, and by the Commonwealth under its police power.

The pond in question is subject to "the ebb and flow of the tides." Thus the pond meets the formal requirements of the permit regulation, and discharges into it would appear to be subject to the NPDES.

Nonetheless, there is a distinction to be drawn here between a privately-owned lagoon, dug for treatment purposes, and a privately-owned pond that is connected to

and part of the river ecosystem. Although the water in a treatment lagoon might appear to meet the definition of "surface water," the Board has not sought to regulate the owner's discharge into such a lagoon. On the other hand, if the pond is larger than is required for treatment, if it is dug into a stream bed or wetland, and particularly if it contains either part of the riverine food chain or any aquatic creatures that migrate in and out from the river, then the pond should be "surface water" and subject to regulation just as any other privately-owned river or lake.

In short, the Lone Star pond is "surface water" and discharges entering it require VPDES permits unless the pond itself is a treatment lagoon.

The question whether the Lone Star pond is a treatment lagoon is a factual issue, to be decided by your agency. I would advise you to seek and consider information regarding the purpose of the pond, its present use, its size with respect to the use, whether it is dug in wetlands or a stream bed, and whether the pond and its waters are part of the James River ecosystem. If the agency determines that the pond is a treatment lagoon, then no permit is required for discharges into the pond, and the mouth of the pond will be the point source discharge to the River. On the other hand, if the pond is <u>not</u> a treatment lagoon, then any discharge into the pond would be subject to regulation.

6:5-c220/308B

**Ellis,Charles**

**From:** Hassell,Joseph
**Sent:** Tuesday, August 15, 2006 2:28 PM
**To:** Ellis,Charles
**Subject:** Comments on Friends of Lake Annas Concerns

Please allow my comments on CZM consistency to also serve as my comments on the Supplemental EIS for the revised Early Site Permit application.

Regarding FOLA's concerns, I have no comments on Concern 1,2,3, 5 and 9.

Regarding Concern 4, Using Lake Anna for public water supply, I am not sure I agree with the premise that Lake Anna is the logical water source for the two Louisa and Spotsylvania. Spotsylvania seem set for the foreseeable future with their recently permitted projects and Louisa is looking at water from the James via fFluvanna, water from the Rapidan via Orange and water from Bowlers Mill Reservoir. There is also the irrational fear factor of getting drinking water out of a reservoir used to cool a nuclear reactor.

Regarding concern 6, raising the Lake 6 to 12 inches; no one is proposing that. DGIF suggested surcharging the lake 3 inches in the Spring to boost instream releases over the summer. That is an interesting suggestion but we are not in favor of it without further study.

Regarding Concerns 7 and 8 on the surfeit of documents and revisions, it is indeed confusing, but I don't know what can be done about it. The changes are largely the result of comments meant to improve the project and there have been a great many changes.

Regarding concern 8 I do not agree that DWR should review thoroughly the section on safety. This is out of the area of our expertise. Making sure there is sufficient water to cool the reactors, should be the extent of the DWR safety review and the project passes that test.

Joe Hassell
Division of Water Resources - DEQ
P. O. Box 10009
Richmond, VA 23240 (804) 698-4072

## Ellis,Charles

**From:** Ellis,Charles
**Sent:** Monday, August 28, 2006 11:59 AM
**To:** Hassell,Joseph; Faha,Thomas; 'John Kauffman'; 'Andrew Zadnik'; 'Khizar.wasti@vdh.virginia.gov'; 'Rene Hypes'; 'Stanley, Mary T.'
**Cc:** Irons,Ellie; 'Robert Munson'; 'susan.douglas@vdh.virginia.gov'
**Subject:** FW: Comments on SDEIP for Dominion for North Anna Units 3 and 4

WPOA VDEQ CZMA of 1972 certifi...

Everybody - Please review the attached three-page letter and provide any comments that you think would be appropriate for our response to NRC on the Supplement to the Draft EIS (due very soon, i.e., next week) and/or for our response on the federal consistency certification (we have a little more time for that). Thanks very much.

Charlie
DEQ-OEIR
8/28/06

-----Original Message-----
From: Irons,Ellie
Sent: Monday, August 28, 2006 10:05 AM
To: Ellis,Charles
Subject: FW: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Please send to Joe, Tom, John etc for any comments they may have.

Ellie Irons
Program Manager
Office of Environmental Impact Review
629 East Main Street, Room 631
Richmond, VA 23219
Telephone: (804) 698-4325
Fax; (804) 698-4319
email address: elirons@deq.virginia.gov http://www.deq.virginia.gov

-----Original Message-----
From: Kenneth Remmers [mailto:remmerskd@verizon.net]
Sent: Monday, August 28, 2006 8:50 AM
To: Irons,Ellie; JXC9@NRC.GOV; North_Anna_Comments@NRC.GOV
Subject: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Subject: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Enclosed are the written comments I have made for the ESP request by Dominion for North Anna unit 3 and 4. Please include these in the Official Public Comments.

Thank you of the opportunity to voice our opinion.

Kenneth Remmers WPOA President

Kenneth Remmers

**VDEQ Coastal Zone Management Act of 1972**
**Consistency Certification**

**August 28, 2006**

Ms. Ellie Irons,
Environmental Impact Review Program Manager
Virginia Department of environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
(via email to elirons@deq.virginia.gov

Mr. Jack Cushing
Environmental Project Manager for North Anna ESP Site Application
U.S. Nuclear Regulatory commission (NRC),
Washington D.C. 20555
(via email to JXC9@NRC.GOV and North_Anna_Comments@NRC.GOV

Subject: Comments on the Federal Consistency Certification and the Draft Supplemental Environmental Impact Statement (EIS) on the Early Site Permit for North Anna Nuclear Power Plant.

Dear Ms. Irons, and Mr. Cushing

**My Name is Kenneth Remmers and I reside at 2301 Waterside Drive, Bumpass, VA. My credentials are that I am the Lake Anna Civic Association's (LACA) Water Quality Chairman. I am also the Waterside Property Owners Association (WPOA) President of whom I am representing today.**

1. **WPOA.** WPOA is a small community on the reservoir side of Lake Anna near the dam. Our community is in favor of the expansion of the current North Anna Nuclear power plants only if the project is handled in a way so as not to destroy health, safety, and welfare of the current residents, users, and future generation at Lake Anna. Dominion (formerly VEPCO) has been a good steward of the lake over the years. I request that all the environmental issues identified by LACA and FOLA with the addition of two new plants with respect to water, water temperatures, lake level, noise, and health and welfare be resolved; then an NRC Early Site Permit and a VDEQ Federal Consistency Certification can be issued.

2. **Consistency Concerns:**

   a) Chemical discharge. Make up water for Dominion's Units 3 and 4 and their Ultimate Heat Sink (UHS) require treatment with biocides, antiscalants and dispersants. What does this do to the water returning to the lake? Not only the thermal impacts, there will be chemical impacts at high water temperatures. Who is looking at "applicable EPA criteria for this? VDEQ VPDES? One must look at the human and aquatic life impacts of this. The use of phosphates could present problems with algae growth. Does Dominion have "chlorophyll a" readings in the cooling lagoons? This will also affect the algae and dissolved oxygen levels.

b) Transportation. Dominion indicated it would develop and implement a construction traffic management plan. We request that the plan be worked out with the public, VDOT and Louisa County and include in it the current workforce as well as the increased workforce with the new units. The intersection of Rt. 700 and Rt 652 needs to be improved as well as the addition of a full red light.

NRC staff has determined that the transportation network in Louisa County and in the ESP site vicinity is ***well developed.*** Local officials have stated that this would need to be evaluated prior to the start of the construction. This conflict needs to be resolved now.

c) Bald Eagle. The Commonwealth of Virginia requires a ¼ mile buffer zone from construction activities for any bald eagle nest. What is the closest DGIF documented nest and how is Dominion going to protect it?

d) Safety Issue. The SDEIS states cooling tower plums would be 3200ft tall and have a length of 16,000 feet from the tower. Fogging would occur 1000 feet to the south-southeast from the cooling towers. This would direct the fog over the cooling lagoons and reservoir in the direction of the dam. This will present safety issues on the lake and adjoining roads.

e) Lake Levels. The SDEIS discusses the lake level several times. At the conclusion of their remarks, they always say it is up to the Virginia regulators to decide. Who is making this decision? What state agencies are involved? What is their input? Dominion has stated that they are not considering this possibility. How can the Lake Anna citizens be assured that the lake level will not change from the 250 msl?

f) Total Dry Cooling. The blowdown and makeup water taken from the Reservoir would be 38.7cfs at 100% power level of unit 3. The discharge over the dam is 40 or 20cfs in a drought. This uses as large a volume of water as is the discharge amount when the lake is at 250 feet or less. Total dry cooling of unit 3 at a 12% expense seems to be the best solution to preserve the little water that is in the watershed.

g) Noise. The SDEIS states noise from the cooling towers would be less than 65 dB at the boundary. Louisa county ordinance is less than 55db. How can this difference be resolved? The boundary noise should be less than 55db including any noise from the turbine building that is not discussed.

h) VPDES Permit. The SDEIS states that the new plant can operate to a 242ft lake level and an inlet water temperature of 100F. This temperature far exceed the variance set by the VDEQ in their VPDES permit. Current NAPS 1 and 2 can operate up to an inlet temperature of 95F. Real temperature limits need to be set. The 316(a) study does not address these high temperatures. Thermal limits cannot be just the heat rejected from the cooling lagoons to the reservoir as the amount calculated with all reactors running at full power. The VDH needs to put some limitation on the temperature of the water at the exit of the power plant. Currently record high temperatures have been seen all around the lake. This trend will not go away with the addition of the unit 3. It will only get worst.

i) Use of Sprayers to Cool Peak Temperatures. I suggest that Dominion, NRC, and VDEQ look into sprayer located in the discharge canal as a means of reducing the peak temperatures of the discharge water. These sprayers would be used only during the hot days of the summer. Currently the existing NAPS units 1 and 2 employ sprayers in their Ultimate Heat Sink (UHS). These existing sprayers are periodically turned on. Dominion can evaluate the effectiveness of the sprayers with available data or data they can easily obtain. DEQ could use this data to evaluate the need for this in the VPDES permit.

j) SER. The SER or the Supplemental SER has not been evaluated by the public or by VDEQ. This document may contain information pertinent to the CMA and its evaluation. The Supplemental SER just came out August 15, 2006 and in not on the NRC ADAMS website. We have requested a hard copy from NRC. We recommend that VDEQ review this document for information affecting the consistency certificate.

## Ellis,Charles

**From:** Ellis,Charles
**Sent:** Tuesday, August 29, 2006 8:13 AM
**To:** Hassell,Joseph; Faha,Thomas; 'John Kauffman'; 'Andrew Zadnik'; 'Khizar.wasti@vdh.virginia.gov'; 'Rene Hypes'; 'Stanley, Mary T.'
**Cc:** Irons,Ellie; 'Robert Munson'; 'susan.douglas@vdh.virginia.gov'
**Subject:** FW: Comments on SDESP for Dominion for North Anna Units 3 and 4

WPOA NRC esentation.doc (32

Sprayers.pdf (70 KB)

Everybody - please review this additional letter from Mr. Remmers. I should have sent it yesterday -- it differs from yesterday's letter which had the centered heading. As with yesterday's letter, please send any comments you think would be appropriate for our response to NRC on the Supplement to the Draft EIS and/or for our response on the federal consistency certification. Thanks very much.

Charlie
DEQ-OEIR
8/29/06

-----Original Message-----
From: Kenneth Remmers [mailto:remmerskd@verizon.net]
Sent: Thursday, August 24, 2006 6:52 AM
To: JXC9@NRC.GOV; North_Anna_Comments@NRC.GOV; Irons,Ellie
Subject: Comments on SDESP for Dominion for North Anna Units 3 and 4

Enclosed are the written comments I have made for the ESP request by Dominion for North Anna unit 3 and 4.

Thank you of the opportunity to voice our opinion.

Also at the NRC Public meeting on August 15, 2006, a question was asked as to how many temperature sensor locations does Dominion have? I responded with 12. After checking with Dominion, they have only 11. This does not include the LACA Water Quality readings or VDEQ's

Kenneth Remmers

## Ellis,Charles

**From:** Irons,Ellie
**Sent:** Tuesday, August 29, 2006 7:46 AM
**To:** Ellis,Charles
**Subject:** FW: Comments on SDESP for Dominion for North Anna Units 3 and 4

WPOA NRC esentation.doc (32

Sprayers.pdf (70 KB)

Charlie:

Ken Remmers sent two letters. You transmitted one but not this one. Reviewers should get both. Thanks. Ellie

Ellie Irons
Program Manager
Office of Environmental Impact Review
629 East Main Street, Room 631
Richmond, VA 23219
Telephone: (804) 698-4325
Fax; (804) 698-4319
email address: elirons@deq.virginia.gov http://www.deq.virginia.gov

-----Original Message-----
From: Kenneth Remmers [mailto:remmerskd@verizon.net]
Sent: Thursday, August 24, 2006 6:52 AM
To: JXC9@NRC.GOV; North_Anna_Comments@NRC.GOV; Irons,Ellie
Subject: Comments on SDESP for Dominion for North Anna Units 3 and 4

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Kenneth Remmers

Mr. Jack Cushing
Environmental Project Manager for North Anna ESP Site Application
U.S. Nuclear Regulatory commission (NRC),
Washington D.C. 20555
(via email to JXC9@NRC.GOV and North_Anna_Comments@NRC.GOV

Ms. Ellie Irons,
Environmental Impact Review Program Manager
Virginia Department of environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
(via email to elirons@deq.virginia.gov

Subject: Comments on the Draft Supplemental Environmental Impact Statement (EIS) and Federal Consistency Certification on the Early Site Permit for North Anna Nuclear Power Plant.

Dear Mr. Cushing and Ms. Irons,

**My Name is Kenneth Remmers and I reside at 2301 Waterside Drive, Bumpass, VA. My credentials are that I am the Lake Anna Civic Association's (LACA) Water Quality Chairman. I am also the Waterside Property Owners Association (WPOA) President of whom I am representing today.**

1. **WPOA.** WPOA is a small community on the reservoir side of Lake Anna near the dam. Our community is in favor of the expansion of the current North Anna Nuclear power plants only if the project is handled in a way so as not to destroy health, safety, and welfare of the current residents, users, and future generation at Lake Anna. Dominion (formerly VEPCO) has been a good steward of the lake over the years. I request that all the environmental issues identified by LACA and FOLA with the addition of two new plants with respect to water, water temperatures, lake level, noise, and health and welfare be resolved; then an NRC Early Site Permit and a VDEQ Federal Consistency Certification can be issued.

2. **Concerns and Inconsistencies.**

   a) **Pre-lake water flows.** The SDEIS on page 2-10 Section 2.6 Water, states "the historical pre-dam minimum flows [usually less than 5cfs during dry summer months]" is in conflict the Department of Game and Inland Fisheries (DGIF) where they state in their letter dated July 7, 2006 that "pre-lake during dry conditions in late summer is a minimum of 12cfs flow. This is found in table 1 of the letter. This is a large difference and the effects are important relative to the amount of water flow into the watershed. The difference needs to be resolved.

   b) **Use of Sprayers in the Discharge Canal.** The existing NAPS units use a spray pond for an Ultimate Heat Sink (UHS). Why is it so difficult to add sprayers to the discharge canal to reduce peak water temperatures when necessary to keep the discharge temperature below 104 F?

   c) **Water Level and Temperature for Plant Operations.** Unit 3 is stated to operate until the water level drops to 242 feet lake level and water temperature at

the reservoir inlet of 100 F. Why does page 5-39 say 243.5 feet for unit 3 and 245.2 feet for NAPS units 1 and 2? It also states those units 1 and 2 can operate up to an inlet temperature of 95 F. These temperatures far exceed the variance granted in the VPDES permit. Controls on this temperature need to be delineated in the permit.

d) **Chemicals added to Blowdown Water.** Blowdown from unit 3 would be 12.9cfs at 100 F for 100% reactor power. Chemicals will be added including Phosphates. This combined with the temperature could affect the algae bloom. Phosphates should not be used. Are the 100 F temperature tied in with the maximum inlet water temperature or is there some heat transfer from the cooling towers heating this water to this temperature?

e) **Third unit Cooling with Air Cooled Towers.** Other plants overseas use this technique. Why can't Dominion use this method for unit 3 as well as unit 4? Why doesn't Dominion step up to the plate and use this method for unit three?

f) **Cost Savings with Reduced Intake Size with Cooling Towers.** Dominion states that the addition of cooling towers will add 200 million dollars to the 2.5 billion needed to construct the each plant. The original intake was 150 feet long and 200 feet wide and required dredging and shoreline reshaping. The current intake will be significantly smaller. It would be 70 feet long by 70feet wide with no modification to the shoreline. What is the cost differential for this smaller intake versus the increased cost for cooling towers? This was not discussed by Dominion.

g) **Duration for Flow over the Dam 20cfs.** NRC concludes (page 5-11) that the discharge at 20cfs will increase from 6% to 11% of the time if unit 3 operates as proposed. This equates to 40 days versus 22 days currently. Dominion stated in their presentation that the 20cfs discharge would go from 5.2 to 7%. Please explain the difference.

h) **Temperature Data.** Temperature data used by Dominion even in the updated revisions of the submittals do not reflect the current temperatures of the last few years. That data shows the discharge canal temperatures have reached 104.6 F. This is above the hot tub limits set by governmental regulators. Sprayers in the discharge canal or other alternative cooling methods could alleviate this problem during the hottest weeks at minimum cost.

i) **Unit 4.** Not enough attention has been given to unit 4 and its dry cooling. The NRC needs to address this issue and Dominions answer that "new technology in the next 10 to 15 years will solve the problem" is not acceptable. Since the ESP is good for 20 years, why not include unit 3 with this same technology, a technology currently used by overseas where they have no local water source? Please explain this new technology and state why it will not be available for unit 3. Is Dominion ready to go for a COL for unit 3 right away? I think the public is due an answer on this question. Why should Dominion cover up what their intentions are?

Please contact Kenneth Remmers, President WPOA, Address, 2301 Waterside Dr., Bumpass, VA 23024 Phone 804-448-9784 for any additional information that you may need.

Sincerely,

Kenneth Remmers, President WPOA

## Ellis,Charles

**From:** Khizar Wasti [Khizar.Wasti@vdh.virginia.gov]
**Sent:** Friday, September 08, 2006 2:59 PM
**To:** Ellis,Charles
**Subject:** RE: Comments on SDESP for Dominion for North Anna Units 3 and 4

I did not find any point for which a VDH response was in order. Please let me know if I missed something.

Khizar
==========

Khizar Wasti, Ph.D.
Director, Division of Public Health Toxicology
Virginia Department of Health
109 Governor Street, Room 341
Richmond, VA 23219
Telephone: (804) 864-8182
FAX: (804) 864-8190

Email: khizar.wasti@vdh.virginia.gov
-----Original Message-----
From: Ellis,Charles [mailto:chellis@deq.virginia.gov]
Sent: Tuesday, August 29, 2006 8:13 AM
To: Hassell,Joseph; Faha,Thomas; John Kauffman; Andrew Zadnik; Khizar.Wasti@vdh.virginia.gov; Rene Hypes; Stanley, Mary T.
Cc: Irons,Ellie; Robert Munson; Susan.Douglas@vdh.virginia.gov
Subject: FW: Comments on SDESP for Dominion for North Anna Units 3 and 4

Everybody - please review this additional letter from Mr. Remmers. I should have sent it yesterday -- it differs from yesterday's letter which had the centered heading. As with yesterday's letter, please send any comments you think would be appropriate for our response to NRC on the Supplement to the Draft EIS and/or for our response on the federal consistency certification. Thanks very much.

Charlie
DEQ-OEIR
8/29/06

-----Original Message-----
From: Kenneth Remmers [mailto:remmerskd@verizon.net]
Sent: Thursday, August 24, 2006 6:52 AM
To: JXC9@NRC.GOV; North_Anna_Comments@NRC.GOV; Irons,Ellie
Subject: Comments on SDESP for Dominion for North Anna Units 3 and 4

Enclosed are the written comments I have made for the ESP request by Dominion for North Anna unit 3 and 4.

Thank you of the opportunity to voice our opinion.

Also at the NRC Public meeting on August 15, 2006, a question was asked as to how many temperature sensor locations does Dominion have? I responded with 12. After checking with Dominion, they have only 11. This does not include the LACA Water Quality readings or VDEQ's

Kenneth Remmers

## Ellis,Charles

**From:** Faha,Thomas
**Sent:** Thursday, September 07, 2006 9:37 AM
**To:** Ellis,Charles
**Subject:** Lk Anna Comments

Charlie,

Here are my comments on Mr. Remmers August 28 letter and undated to Ellie and Jack Cushing. I have only responded to those comments that are related to the VPDES permit. The two letters essentially contained the same comments. My comments follow the outline in 7Mr. Remmers August 28 letter.

**2. Consistency Concerns**

**a) Chemical discharge** - Chemical usage and effluent discharge concentrations will be evaluated against applicable water quality criteria if and when Dominion applies for a modification of their VPDES permit for Units 3 and 4. The permit will contain the necessary conditions to assure that the water quality standards are met.

**e) Lake Levels** - The existing VPDES permit does not have any requirement for maintaining the lake level at 250ft. I do not know of any requirement to maintain the lake level at 250ft. Dominion tries to maintain this level but I do not believe they do so out of any state requirement. Perhaps maybe DCR Dam Safety has issued a permit containing conditions addressing the dam and maximum lake level.

**h) VPDES Permit and 316(a) variance** – The 316(a) variance does not set a maximum temperature level of the effluent or for temperatures in the lake. In accordance with 9VAC25-260-90, the temperature criteria in 9VAC25-260-50 through 9VAC25-260-80 are superseded because Dominion demonstrated in a 316(a) study and through subsequent annual fishery monitoring that the heat rejection limits set forth in the VPDES permit do not impair the fishery of Lake Anna or the North Anna River.

**i) Sprayers** – The use of sprayers is up to Dominion. In setting effluent limits and permit conditions in VPDES permits, DEQ does not dictate the processes or treatment units permittees are to use to comply with effluent limits. If Dominion believes sprayers will assist in compliance with their permit they may install them.

Let me know if you have any questions concerning the above.

Thomas A. Faha
Water Permit Manager
DEQ-NVRO
13901 Crown Ct
Woodbridge, VA 22193
703/583-3846

**Ellis,Charles**

**From:** Stanley, Mary T. [Mary.Stanley@VDOT.Virginia.gov]
**Sent:** Tuesday, September 05, 2006 8:40 AM
**To:** Ellis,Charles
**Subject:** RE: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Charlie,

Our August 16 comments sufficiently address the attached letter.

Thanks - Mary

-----Original Message-----
From: Ellis,Charles [mailto:chellis@deq.virginia.gov]
Sent: Monday, August 28, 2006 11:59 AM
To: Hassell,Joseph; Faha,Thomas; John Kauffman; Andrew Zadnik; Khizar.wasti@vdh.virginia.gov; Rene Hypes; Stanley, Mary T.

Cc: Irons,Ellie; Robert Munson; susan.douglas@vdh.virginia.gov
Subject: FW: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Everybody - Please review the attached three-page letter and provide any comments that you think would be appropriate for our response to NRC on the Supplement to the Draft EIS (due very soon, i.e., next week) and/or for our response on the federal consistency certification (we have a little more time for that). Thanks very much.

Charlie
DEQ-OEIR
8/28/06

-----Original Message-----
From: Irons,Ellie
Sent: Monday, August 28, 2006 10:05 AM
To: Ellis,Charles
Subject: FW: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Please send to Joe, Tom, John etc for any comments they may have.

Ellie Irons
Program Manager
Office of Environmental Impact Review
629 East Main Street, Room 631
Richmond, VA 23219
Telephone: (804) 698-4325
Fax; (804) 698-4319
email address: elirons@deq.virginia.gov
http://www.deq.virginia.gov

-----Original Message-----
From: Kenneth Remmers [mailto:remmerskd@verizon.net]
Sent: Monday, August 28, 2006 8:50 AM
To: Irons,Ellie; JXC9@NRC.GOV; North_Anna_Comments@NRC.GOV

Subject: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Subject: Comments on SDEIP for Dominion for North Anna Units 3 and 4

Enclosed are the written comments I have made for the ESP request by Dominion for North Anna unit 3 and 4. Please include these in the Official Public Comments.

Thank you of the opportunity to voice our opinion.

Kenneth Remmers WPOA President

Kenneth Remmers

## Ellis,Charles

**From:** Irons,Ellie
**Sent:** Tuesday, September 05, 2006 3:45 PM
**To:** Ellis,Charles; Murphy,Michael
**Cc:** Hassell,Joseph; 'John Kauffman'; Andrew Zadnik
**Subject:** FW: FOLA concerns-4 with Dominion's credibility & U.S. Environmental Goals

Charlie: Please add to FOLA comments. Mr. Ruth is making a case for complete dry cooling for Unit 3 as a safety measure in addition to the environmental concerns associated with the small watershed.

Ellie Irons
Program Manager
Office of Environmental Impact Review
629 East Main Street, Room 631
Richmond, VA 23219
Telephone: (804) 698-4325
Fax; (804) 698-4319
email address: elirons@deq.virginia.gov
http://www.deq.virginia.gov

-----Original Message-----
**From:** Harry Ruth [mailto:HC.RUTH@LOUISA.NET]
**Sent:** Tuesday, September 05, 2006 3:22 PM
**To:** North Anna ESP Comments; Nitin Patel (NRC); Jack Cushing (NRC); Irons,Ellie
**Cc:** Kevin Magerr (EPA); Steers,Jeffery; Tony Banks (Dominion); Senator Russell Potts (27th Dist); Delegate Clifford Athey (18th Dist); Delegate Bill Janis (56th Dist); Delegate Chris Peace (97th Dist); Delegate Edward Scott (3oth Dist); Delegate Robert Orrock, Sr (54th Dist).; Senator Charles Colgan; Senator Charles Colgan-2; Senator R. Edward Houck; Senator Ryan McDougle; Representative Eric Cantor (7th District)
**Subject:** FOLA concerns-4 with Dominion's credibility & U.S. Environmental Goals

Dear Nuclear Regulatory Commission (NRC) and Va. Dept of Environmental Quality (VDEQ),

Attached please find a letter addressed to the NRC and VDEQ, re Dominion's application for the North Anna ESP, requesting your assistance to establish procedures (1) So big business does not dominate future public hearing processes; (2) Have the public involved with the Safety Report; (3) Insuring that a probabilistic safety analysis of probable events is made to take into consideration various events throughout the world that may affect the North Anna Plant and (5) Request for extension of public comment times so we can review continuous changing documents that are being made by Dominion and the NRC.

Thank you in advance for your kind consideration of our request. If you have any questions, please do not hesitate to call. I'll look forward to your response.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 239 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

**FRIENDS OF LAKE ANNA, VIRGINIA**

5 September 2006

Ms. Ellie Irons, Environmental Impact Review Program Manager
Virginia Department of Environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
Via email to elirons@deq.virginia.gov

Mr. Jack Cushing, Environmental Project Manager for North Anna ESP Site Application,
U.S. Nuclear Regulatory Commission (NRC), Washington D.C. 20555
Via email to JXC9@NRC.GOV & North_Anna_Comments@NRC.GOV

**Reference:** (1) Friends of Lake Anna letter dated 24 July 2006: Subject Partial Concerns #3 with the data contained in Dominion's Application for the North Anna ESP 6 dated April 2006.

(2) Friends of Lake Anna email dated 17 Aug 2006 that forwarded the total presentations, plus additional details, made in the two public hearings (1) NRC on Aug 15, 2006 and (2) VDEQ on Aug 16, 2006

**Subject: Partial Concerns #4 with the data contained in Dominion's Application for the North Anna ESP 6 dated April 2006 and the NRC/VDEQ public hearings.**

Dear Ms. Irons and Mr. Cushing,

On behalf of the 2,650 persons represented by the Friends of Lake Anna, it is requested that the following concerns with the data contained in the Dominion North Anna ESP Applications Revision 6 and the NRC Safety Report dated Sep 2005, plus the apparent Dominion attempt to influence the NRC & VDEQ public hearings be addressed in the U.S. Coastal Zone Management Act Federal Consistency Review and also by the Nuclear Regulatory Commission. Also please forward the concerns to the appropriate Commonwealth of Virginia department for comment if they do not come under the purview of the U.S. Coastal Zone Management Act.

These are only a partial list of concerns/comments identified thus far as a result of a brief and cursory look at the large volume of materials available to us for review. In addition, we have researched other related public documents that may have an impact on this ESP review. We thought it prudent to bring these concerns/comments to your attention soonest so both the NRC and VDEQ has adequate time to review them. Please see below for a description of each concern.

Our group, "The Friends of Lake Anna" is a citizen group whose mission is to protect Lake Anna (both main reservoir and cooling lagoons) and its surrounding landscape, together with any related concerns, within Louisa, Spotsylvania, and Orange Counties for the health, safety and welfare of current residents/users and for future generations. We are not anti-nuclear, nor do we have "not in my backyard" sentiments, but do support a wise and safe use of nuclear energy. Our goal is simply to protect Lake Anna for the 500,000 annual users and insure compliance with the law.

## Additional Concerns

**1. Disappointment with Dominion's attempt to influence NRC & VDEQ public hearings.**

We are very disappointed at Dominion's apparent approach in trying to influence the NRC and VDEQ public hearings held on 15 and 16 August. It appears that it is more then a coincidence that over 50% of the public speakers at both hearings were Dominion employees, retirees or contractors, all of which had only positive comments about the proposed 3rd and 4th reactors. Whenever a Dominion person spoke, a busload consisting of approximately 60 Dominion/Virginia Electric Power Plant retired persons would clap loudly and voice approval of the Dominion person's comments. Prior to the conclusion of the VDEQ hearing, an announcement was made by one of the retirees that the VEPCO/Dominion bus was leaving for Richmond and about 60 persons got up and left the hearing.

**The above simply makes a mockery of the public hearing process**. The meeting room in the Louisa Middle School held about 300 persons, of which about 150 plus were Dominion employees/retirees/contractors. When most non-Dominion speakers made any comment that reflected concerns with the safety or environmental issues of the proposed 3rd and 4th reactors, many of the Dominion crowd would make negative comments, apparently in an attempt to influence newspaper reporters present. **With this type of an apparent attempt by Dominion to influence both the NRC and VDEQ public hearings, how can the National Environmental Goals which are expressed by the National Environmental Policy Act (NEPA) of 1969 public law 91-190, 83 Stat. 852 receive a fair and impartial public hearing**.

As defined in the law, "it is the continuing responsibility of the Federal Government to use all practicable means consistent with other essential consideration of national policy to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may *(in part only)* (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations: (2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasant surroundings; and (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

This mockery of the NRC and VDEQ public hearings sort of reminds you of the elections in other dictatorial countries, where 99.9% of the voters, all vote to keep the current dictator in power. This is simply not the American way where big business should attempt to dominate the public hearing process. How can the NRC and VDEQ prevent this from happening in future public hearings?

**2. Public involvement with Safety Report.** In our 15 August NRC public hearing presentation, we identified our concerns with "Where are the NRC safety protections for terrorist attacks against the plant and dam. If the dam is blown up and breaks. The Lake Anna water will run downstream. How will the reactors be cooled? Will 1/3 of Virginia be without power. How long will the power outage last? Will Dominion have to build a new dam and wait 3 years for the lake to fill up before you can restart the reactors and restore power to 1/3 of Virginia? Is building another water-cooled reactor that is dependent on a lake that takes 3 years to fill up the best approach to protect Virginia's and the U.S. electrical needs when a dry-air cooled reactor will eliminate this problem? The public must be involved with the safety of the nuclear reactors, whether it is at the plant, at the dam, together with how, where and how long the spent nuclear fuel is stored.

In March 1979, an event occurred at the Three Mile Island (TMI) Unit 2 that resulted in the first case of melted fuel in a full scale commercial nuclear power plant. What Good was supposed to come from the TMI event? (1) Operator Training (2) Emergency Planning (3) Dissemination of industry information and (4) Use of probabilistic safety assessment and analysis of more probable events.

With regard to probabilistic safety assessment and analysis of more probable events, the public must be involved and the safety assessments must be updated to take into considerations the various events throughout the world that could impact the North Anna plant (i.e. terrorist attacks on the plant or the dam).

If the cooling water supply for the nuclear reactors is depleted by draining Lake Anna, then hopefully another TMI event could not occur at North Anna where the reactor continued to heat the reactor coolant. At TMI the reactor coolant pumps continued circulating the water to the steam generators, however no heat could be removed by the secondary side since there was no water in the steam generators, which caused the reactor coolant system to heat up, etc

Although the NRC issued two new regulations (NUREG-0696 and NUREG 0737) as a result of TMI, neither regulation appeared to take into account the lack of water from the primary cooling source (ocean, major river or small lake (i.e. Lake Anna) with a small watershed providing the cooling waters for the lake that was estimated to take 2 to 3 years to fill.

It is essential that both the NRC and VDEQ consider the above scenario prior to approving an Early Site Permit or a Federal Consistency Certification for a 3rd nuclear reactor that would depend on any additional water from Lake Anna. A 3rd unit requiring additional water from a small watershed simply does not make sense when the dry air technology for unit 4 could be used which would negate any water cooling concerns. Let's all hope that the above scenario never plays out and the current units 1 & 2 become in danger of losing their cooling waters

**3. Summary.** Thank you in advance for your kind consideration of our concerns/comments. We will continue to review the voluminous documents (Draft Environmental Impact Statement – supplement 1 to NUREG-1811) and the revised new or supplemental Safety Report once we receive it and provide comments/concerns as we find them.

It is essential that the public can review the safety report prior to the closing of the public comment period for ESP process. In a discussion with Nitin Patel (NRC) Safety Officer today, I was told that he is unsure when the Safety Report will be issued since Dominion is now again revising some portions of their report. He also indicated that he was unaware of the above public comments with the potential for the dam breaking and no water available for cooling the reactors.

This ESP process for both the draft environmental report and safety report continues to *resemble a three ring circus without having a ring master to direct all of the acts, but the time keeper is making sure that the public/audience moves out of the big top so the next schedule performance can begin.*

We will continue to review the documents that we have and provide any additional concerns with the water temperature, water quality, consideration of spent nuclear fuel, safety, etc. Each of these items and others will be addressed in separate correspondence after we have had sufficient time to review each.

***Again, we request that the public comment period be extended to provide adequate time for the review of all these voluminous documents and the continuing changes that are being made by the applicant and the NRC.*** If you have any questions, please do not hesitate to call. I'll look forward to your response.

Sincerely,

Harry Ruth
For the Friends of Lake Anna
C/O 230 Heather Drive, Bumpass, Va. 23024
Phone 540-872-3632

CC: U.S. Representative Eric Cantor (7th District) (via email – Lloyd.Lenhart@mail.house.gov)
Senator R. Edward Houck, 17th District of Virginia (via email – ehouck@adelphia.net)
Senator Ryan McDougal, 4th District of Virginia (via email – district04@sov.state.va.us
Senator Charles Colgan, 29th District of Virginia (via email – cjcolgan@aol.com
Senator Russell Potts, 27th District of Virginia (via email – district27@sov.stte.va.us
Delegate Christopher Peace, 97th District of Virginia (via email – delcpeace@house.state.va.us
Delegate Edward Scott, 30th District of Virginia (via email – delescott@house.state.va.us
Delegate William Janis, 56th District of Virginia (via email – delbjanis@house.state.va.us
Delegate Robert Orrock, Sr., 54th District of Virginia (via email – delborrock@house.state.va.us
Delegate Clifford Athey, 18th District of Virginia (via email – DelCAthey@house.state.va.us
Tony Banks – Dominion ESP Project Manager (via email – tony_banks@dom.com
VDEQ – Ellie Irons – Environmental Impact Review - via email – elirons@deq.virginia.gov
VDEQ – Jeff Steers – No. Va. Regional Director – via email – jasteers@deq.virginia.gov
NRC – Jack Cushing – Environmental Project Mgr – via email –JXC9@NRC.GOV
NRC – Nitin Patel – Safety Project Mgr – via email – NXP1@NRC.GOV
NRC – Public comments for North Anna ESP – via email – North_Anna_Comments@NRC.GOV
EPA – Kevin Magerr- NEPA Environmental Engineer – via email – majerr.kevin@epa.gov

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October 25, 2006

David K. Paylor, Director
Department of Environmental Quality
629 East Main Street
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Richmond, VA 23240

**VIA FACSIMILE AND EMAIL**

Donald S. Welsh, Regional Administrator
US EPA, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

**VIA FACSIMILE AND EMAIL**

Re: North Anna Nuclear Power Plant and
Lake Anna Jurisdictional Issues

Dear Mssers. Paylor and Welsh:

We are writing about the controversy that has arisen with regard to the jurisdiction under state and federal law over the portion of Lake Anna that is separated from the main body of the reservoir by a series of dikes. As you know, this side of the lake is variously known as the "waste heat treatment facility" for Dominion's North Anna nuclear plant or the "hot side of the lake". There are concerns about water quality in both sides of Lake Anna, recreational uses of both sides of the Lake, reduced flows in the North Anna River downstream of the Lake due to evaporative losses associated with additional nuclear reactors, and more that could be influenced by a determination that those waters remain "waters of the United States".

It appears that DEQ ceded jurisdiction over that portion of Lake Anna to Dominion with the issuance of the original NPDES permit for thermal discharges from the North Anna nuclear plant in the 1970s. Regardless of the propriety of that decision under state law, we do not believe it is consistent with federal jurisdiction over "waters of the U.S." under the Clean Water Act. Granted, Lake Anna was formed by Dominion's construction of a dam on the North Anna River, specifically to serve as a source of cooling water for the North Anna nuclear plant. Also, EPA regulations do allow for waste treatment ponds or lagoons to be treated as private waters, exempt from the jurisdiction of the Clean Water Act, under certain circumstances. See 40 C.F.R. § 122.2, which provides in part, "waste treatment systems, including treatments ponds or lagoons

designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States".

However, neither EPA regulations nor judicial precedent allow for the conversion of "waters of the U.S." to private waters by the construction of waste treatment ponds or lagoons that encompass those waters. The so-called "waste heat treatment facility" in Lake Anna encompasses at least eight streams that were tributaries to the North Anna River, and were undoubtedly jurisdictional "waters of the U.S." under the Clean Water Act, that were inundated upon the formation of Lake Anna. Whether by oversight or otherwise, the privatization of these waters through conversion to a "waste heat treatment facility" appears to have been made in violation of the Clean Water Act.

The history of the waste treatment exemption indicates that the "waste heat treatment facility" in Lake Anna should be considered a "water of the U.S." subject to Clean Water Act's jurisdiction. In 1979, EPA developed a regulatory definition for "navigable waters" that included an exemption for waste treatment systems:

> (6) Wetlands adjacent to waters identified in paragraphs (1-5) of this section ... ; *provided that waste treatment systems (other than cooling ponds meeting the criteria of this paragraph) are not waters of the United States.*

40 C.F.R. § 122.3(t) (1979) (emphasis added).

In May 1980, EPA modified the exclusion for waste treatment systems in paragraph 6 as follows:

> Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 C.F.R. § 423.11(m) which also meet the criteria of this definition) are not waters of the United States. *This exclusion applies only to man made bodies of waters which neither were originally created in waters of the United States (such as a disposal area in wetlands) nor resulted from the impoundment of waters of the United States.*

45 Fed. Reg. 33,290, 33,424 (May 19, 1980) (emphasis added).

In adding this language to the waste treatment system exclusion. EPA explained in the Federal Register that "[b]ecause CWA was not intended to license dischargers to freely use waters of the United States as waste treatment systems, the definition makes clear that treatment systems created in those waters or from their impoundment remain waters of the United States." 45 Fed. Reg. at 33,298 (1980).

In July 1980, however, EPA "suspended" the explanatory language. 45 Fed. Reg. 48,620 (1980). According to EPA:

> The agency's purpose in the new last sentence was to ensure that dischargers did not escape treatment requirements by impounding waters of the United States and claiming the impoundment was a waste treatment system, or by discharging wastes into wetlands. Petitions for review were filed in several courts of appeals by industries and an environmental group seeking review of the May 19 consolidated regulations. Certain industry petitioners wrote to EPA expressing objections to the language of the definition of "waters of the United States." *They objected that the language of the regulation would require them to obtain permits for discharges into existing waste treatment systems, such as power plant ash ponds, which had been in existence for many years.* In many cases, they argued, EPA has issued permits for discharges from, not into, these systems. They requested EPA to revoke or suspend the last sentence of the definition.
>
> EPA agrees that the regulation should be carefully re-examined and that it may be overly broad. Accordingly, the agency is today suspending its effectiveness. EPA intends promptly to develop a revised definition and to publish it as a proposed rule for public comment. At the conclusion of that rulemaking, EPA will amend the rule, or termination the suspension.

id. (emphasis added).

To date, EPA has not developed a revised definition for the waste treatment exemption. However, it is clear from the regulatory history that the suspension of the explanatory language occurred because, as written, it applied to waste treatment systems that had been in existence for years before the Clean Water Act's enactment. The suspension did not indicate a fundamental change in EPA's position regarding future proposals to create in-stream waste treatment systems.

In fact, it would appear that EPA's original intent in creating the waste treatment exemption was to limit its application to systems where wastewaters are contained or confined within physical barriers separate from waters of the U.S. such as separate cooling ponds. EPA still contends that hydrologic isolation "from other waters of the U.S., [is indispensable or] a *sine qua non* for a waste treatment system." 58 Fed. Reg. 7610, 7621 (February 8, 1993) (regarding general permits for CAFOs). "When the Agency promulgated the wastewater treatment system exemption, its intent was merely to exclude treatment systems such as holding ponds and closed cycle treatment lagoons from the definition of 'waters of the United States'". In the Matter of: Borden, Inc./Colonial Sugars, 1984 EPA App. LEXIS 19 at *31.

In *West Virginia Coal Association v. Reilly*, 728 F. Supp. 1276 (S.D. W.Va 1989), *aff'd*, 932 F2d 964 (4th Cir. 1991), the District Court considered whether sedimentation ponds constructed in streams remain jurisdictional for purposes of the Clean Water Act. The District Court summarized EPA's position on the interpretation of the waste treatment exemption in the following way:

> EPA counters that in-stream treatment ponds and the water above such ponds are included in the definition of waters of the United States because they constitute an

> "impoundment of waters otherwise defined as waters of the United States under this definition," *see* 40 C.F.R. § 232(q)(4) (1988), and that the exclusion for treatment ponds was never meant to apply to treatment ponds constructed in United States waters. According to EPA, the last sentence was not definitional, rather it was merely explanatory in nature. Accordingly, EPA contends, the suspension of the last sentence has no effect on the clear definitional mandate that impoundments of waters of the United States remain "waters of the United States."

728 F. Supp. At 1290. The court upheld EPA's assertion of jurisdiction.

The U.S. Supreme Court also recently confirmed that, regardless of treatment under state law, one cannot privatize waters of the United States under federal law. *See S. D. Warren Company v. Maine Board of Environmental Protection,* 547 U.S. ___, n. 5 (2006) ("... nor can we agree that one can denationalize national waters by exerting private control over them. ... ([T]hat the running water in a great navigable stream is capable of private ownership is inconceivable")) (citation omitted).

We realize that both DEQ and Dominion Power have treated the "hot side of the lake" as Dominion's private property since the issuance of the initial NPDES permit, that EPA approved that conversion and that, in the meantime, a considerable residential community has grown up around the shores of Lake Anna in its entirety, including on that side. We sincerely believe that long-standing issues about jurisdiction over the "hot side of the lake" can be resolved through a collaborative conversation among state and federal regulators, Dominion Power, and concerned members of the public, including Lake Anna homeowners.

However, in the meantime, we urge both DEQ and EPA to refrain from compounding this historic error by continuing to treat the so-called "waste heat treatment facility" as private waters under the Clean Water Act. Dominion has applied for an Early Site Permit from the U.S. Nuclear Regulatory Commission that would designate the existing site of the North Anna Nuclear Plant as appropriate for the construction of one or two additional nuclear reactors. State agencies and the public have expressed concern about the potential discharge of additional heated wastewaters to Lake Anna, and the potential reduced flows caused by evaporation of cooling water from either Lake Anna or cooling towers. To its credit, Dominion has taken steps to resolve concerns with direct thermal discharges; however, concerns with evaporation and reduced flows downstream remain unresolved.

Dominion's request for certification that additional reactors at North Anna would be consistent with Virginia's Coastal Zone Management Program is currently pending before DEQ. If Dominion decides to build the additional reactors at North Anna, it will have to apply for an additional NPDES Permit and presumably CWA Section 401 Certification from DEQ. We believe it is essential for purposes of all three decisions (CZMA, 401, NPDES) that jurisdiction over the "hot side of the lake" be resolved under the Clean Water Act once and for all.

Thank you for your consideration of our views, and we look forward to a prompt resolution of this issue.

Sincerely,

Morgan W. Butler
Richard A. Parrish
Southern Environmental Law Center

cc via email: Honorable Robert F. McDonnell, Attorney General of Virginia
L. Preston Bryant, Jr., Secretary of Natural Resources
Ellen Gilinsky, Director, Water Quality Division, DEQ
Benjamin H. Grumbles, Director, Office of Water, US EPA
Jon Capacasa, Director, EPA R3 Water Protection Division
Lillian Cuoco, Dominion Power
David Lewis, Counsel to Dominion Power
Michele Boyd and Melissa Kemp, Public Citizen
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Christopher E. Paine, Natural Resources Defense Council
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September 8, 2006

Ms. Ellie Irons
EIR Program Manager
Office of Environmental Impact Review
Department of Environmental Quality
629 East Main Street, 6th Floor
Richmond, Virginia 23219

Re: CZMA consistency determination for Dominion Nuclear North Anna

Dear Ms. Irons,

The Southern Environmental Law Center submits these comments on the Coastal Zone Management Act (CZMA) consistency certification that Dominion Nuclear North Anna, LLC (Dominion) has proposed in connection with its application to the Nuclear Regulatory Commission (NRC) for the issuance of an Early Site Permit (ESP) or site suitability determination for two additional nuclear reactors at the North Anna Power Station in Louisa County, Virginia. We submit these comments on behalf of Public Citizen, the Nuclear Information and Resource Service and the Blue Ridge Environmental Defense League as a supplement to earlier comments we submitted by letter dated October 25, 2005 and at the public hearing in August 2006.

Dominion's revised cooling system design for Unit 3 significantly reduces concerns with the discharge of heated water to Lake Anna. However, concerns about reduced flows downstream in the North Anna and Pamunkey Rivers remain as evaporation from the cooling towers would equal or possibly surpass evaporation from the surface of the Lake under the once-through cooling system originally proposed. DEQ must resolve the potential impact of reduced flows on aquatic habitat, on recreational uses of the rivers, and on availability for drinking water in the North Anna and Pamunkey Rivers and below before granting a consistency determination.

We are also concerned with jurisdictional issues relating to the "hot side" of Lake Anna -- the portion of the lake that is separated from the rest by dikes and serves as the nuclear reactors' "waste heat treatment facility." Dominion continues to neglect potential thermal impacts on the "hot side" of Lake Anna by insisting that, under state law, it may treat this part of the lake as its own private property. Granted, Lake Anna was created when Dominion built a dam along the North Anna River to trap a supply of cooling water for the nuclear plant. However, regardless of ownership of the land under or surrounding the lake, the "hot side" inundated numerous existing streams and remains "waters of the U.S." which must comply with federal laws such as the CZMA and the Clean Water Act. The water in that portion of the lake is fed by natural streambeds and is already heated to abnormal levels that are certainly not

consistent with Virginia's water quality standards. DEQ should take steps to reduce existing thermal impacts within the "hot side" of the lake by requiring compliance with water quality standards to be measured at the point of discharge from the plant. Though this issue relates more closely to the renewal of Dominion's NPDES permit, it should be analyzed thoroughly before issuing a consistency determination under the CZMA.

Potential Impacts

Even with Dominion's recent decision to change the cooling system for Unit 3 from a once-through cooling system to a combination wet/dry cooling tower, evaporation of lake water, and therefore adequacy of flows downstream of the dam, remains a significant concern.

The Lake Anna watershed is a relatively small one, with a mean annual flow at the Lake Anna Dam ("Dam") of approximately 370 cubic feet per second (cfs).[1] As such, the ability of both Lake Anna and the North Anna River to withstand additional consumptive use of water must be closely scrutinized. For instance, under the Tennant rating system – a stream flow grading technique based on percentages of mean annual flow – a stream flow of 0 % to 10 % of the stream's mean annual flow is rated as "severe degradation."[2] Dominion's VWPP permit for the existing reactors requires an absolute minimum discharge of 20 cfs from the Dam to the North Anna River. A minimum release of 20 cfs equals only 5.4% of the North Anna River's mean annual flow at the Dam. With the additional evaporative losses caused by the operation of the third reactor unit at the North Anna site, the duration of time that the release rate of water from the Dam to the North Anna River would be 20 cfs or less, representing a severely degraded condition, would increase from 5.8 percent to 7.3 percent of the time according to Dominion's own analyses,[3] or to 11% of the time according to the NRC's initial review. See Supplemental Draft EIS at 5-11.

These reductions in water releases to the North Anna River could have a number of impacts that would conflict with the enforceable policies of Virginia's Coastal Resources Management Program. For example, reduced flows in the North Anna River could adversely impact anadromous fish habitat, thereby directly affecting Virginia's coastal zone by impacting the state's management of its coastal fisheries. As set forth in a 2004 study of the relationship between fish abundance and flow patterns in the North Anna River, many fish species undergo their spawning and early life stages during the typically drier months of the year (July through October). Substantial flows during this period are critical for a significant number of these species, and there exists a "direct relationship between the magnitude of flow and abundance."[4]

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[1] February 10, 2004 letter from E. Irons, DEQ, to P. Faggert, Dominion, at p. 3. It is worth further note that the North Anna River had an average flow rate of approximately 286 cfs in this area before Lake Anna was constructed. March 3, 2005 letter from E. Irons, DEQ, to M. Lesar, NRC, at p. 8.
[2] Id. at p. 8.
[3] DEIS at p. 5-7.
[4] Dean Fowler, Virginia Department of Game and Inland Fisheries. *An Analysis of Fish Abundance and Flow Patterns in the North Anna River, Virginia.* June 18, 2004.

If durations of low-flow periods are increased during this critical time of year, these anadromous fish species could be adversely affected.[5]

Additional water evaporation from the Lake and the corresponding reductions in releases from the Dam could also impact recreational uses of Lake Anna and the York River watershed, potentially affecting fishing and boating both in the Lake and downstream.

Finally, as reflected in the DEIS, one county upstream of Lake Anna and three counties downstream of the Lake are considering whether or not the North Anna or Pamunkey Rivers could serve as sources for drinking water.[6] The NRC refused to even consider the how this potential conflict over the limited water in the North Anna River may be resolved, asserting that "[a]ny future conflicts over water use fall within the regulatory authority of the Commonwealth of Virginia." These competing demands for water highlight even further the potential problems that reduced lake levels and downstream flows would cause, and they undermine the Commonwealth's CRMP policy goal of avoiding coastal resource use conflicts.[7]

In light of these significant potential impacts of even a wet/dry cooling tower system for proposed Unit 3 at the North Anna site, we recommend that the consistency certification be denied, or that the certification be conditioned upon a commitment by Dominion to use <u>only</u> air-cooling systems for both new reactors so as to minimize potential impacts on Virginia's coastal resources. If DEQ does not deny the certification outright, DEQ should issue an 'objection' rather than a 'conditional concurrence' and continue to maintain that objection until Dominion incorporates those recommendations into its project design. If DEQ issues a 'conditional concurrence' instead, there is no certainty that those conditions will ever be incorporated.

Thank you for your consideration of these comments. Please let us know if you have any questions about our comments.

Sincerely,

Rick Parrish

Morgan W. Butler
Associate Attorney
Richard A. Parrish
Senior Attorney

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[5] It bears mention that populations of striped bass and American shad downstream of Lake Anna in the Pamunkey River have been used as brood stock for restoring and augmenting populations of those species elsewhere in the state. Impacts on these important populations could severely impact these fisheries.

[6] DEIS at p. 2-23.

[7] DEIS at p. 7-3. Hanover County has proposed to withdraw 46 cfs of water from the North Anna River downstream of the Lake Anna Dam as part of a plan to provide additional drinking water to its residents. As acknowledged in the DEIS, a withdrawal of 46 cfs would exceed the 40 and 20 cfs minimum release rates from the Lake Anna Dam that are required by the Commonwealth's Lake Level Contingency Plan.

cc via email: Michele Boyd, Public Citizen
Paul Gunter, NIRS
Lou Zeller, BREDL
Counsel for Dominion Nuclear North Anna
(Lillian M. Cuoco, David R. Lewis, Robert B. Haemer, Timothy J.V. Walsh)
Counsel for NRC
(Robert M. Weisman, Ann P. Hodgdon, Patrick A. Moulding)

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June 16, 2006

**VIA Email**

Ms. Ellie Irons
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Department of Environmental Quality
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Richmond, Virginia 23219

Re: CZMA consistency determination for Dominion Nuclear North Anna

Dear Ms. Irons,

The Southern Environmental Law Center submits this request in connection with the Coastal Zone Management Act (CZMA) consistency certification that Dominion Nuclear North Anna, LLC (Dominion) has proposed in connection with its application to the Nuclear Regulatory Commission (NRC) for the issuance of an Early Site Permit (ESP) or site suitability determination for two additional nuclear reactors at the North Anna Power Station in Louisa County, Virginia. We submit this request on behalf of Public Citizen, the Nuclear Information and Resource Service and the Blue Ridge Environmental Defense League as a supplement to any comments or requests these organizations submit to you separately.

We respectfully request that the Virginia Department of Environmental Quality (DEQ) extend the public comment period on Dominion's requested consistency certification until approximately the date on which the public comment period closes on the forthcoming Supplemental Draft Environmental Impact Statement (EIS) for an ESP at the North Anna ESP site. According to a May 4, 2006 letter from Ninin Patel, Project Manager at NRC, to David A. Christian, Senior Vice President and Chief Nuclear Officer at Dominion, the milestone for issuance of the Supplemental Draft EIS is July 21, 2006, and the milestone for closing the public comment period on the draft EIS is September 4, 2006.

We feel an extension is necessary because the public must rely heavily upon public agencies for technical analysis of the operational impacts of Dominion's revised cooling system proposal for Unit 3. The general public is unlikely to have the resources to undertake an extensive technical analysis of its own, so that it becomes imperative that it is given time to review the analysis that NRC will present in the Supplemental Draft EIS, and to then incorporate

the NRC's analysis and conclusions into its own comments regarding compliance with the Commonwealth's Coastal Resources Management Program (CRMP).

It is also our hope that, during the extended comment period we are requesting, DEQ will make available to the public its own analysis and conclusions regarding the impacts of Dominion's revised proposal and its consistency with the CRMP. DEQ's findings will be of equal importance to the public in formulating informed comments on the consistency certification.

Finally, we would like to request that, in addition to an extension of the public comment period, DEQ provide a public hearing on the consistency issue. In light of what we feel are the significant potential coastal resource impacts of additional reactors at the North Anna site—even with Dominion's recent revision to the cooling system for Unit 3—a public hearing will help ensure that this issue gets the consideration it requires.

Sincerely,

Morgan Butler
Staff Attorney

cc via email: Michele Boyd, Public Citizen
Paul Gunter, NIRS
Lou Zeller, BREDL
Counsel for Dominion Nuclear North Anna
(Lillian M. Cuoco, David R. Lewis, Robert B. Haemer, Timothy J.V. Walsh)
Counsel for NRC
(Robert M. Weisman, Michael A. Woods)

September 8, 2006

Ms. Ellie Irons, Environmental Impact Review Program Manager
Virginia Department of Environmental Quality (VDEQ)
629 East Main Street, Richmond, Va. 23219
Via email to elirons@deq.virginia.gov

Dear Ms. Irons:

On behalf of the Natural Resources Defense Council (NRDC), a national environmental organization with some one million members and on-line activists, some of whom reside in Virginia, I am writing to comment on Dominion Power's request for state concurrence that the terms of its proposed NRC Early Site Permit (ESP) for two new reactors at its North Anna, VA nuclear power plant are consistent with the enforceable policies of Virginia's Coastal Zone Management Program (VCP).

After studying the matter, we find that we have a number of serious objections to the state providing its concurrence at this time. These concerns are summarized in the numbered sections below.

**(1) Concurrence Now Would be Premature and Not in the Interests of Ensuring Protection of Virginia's Coastal Zone Management Area.**

We draw your attention, first of all, to the fact that an ESP is not a required step in NRC's licensing process, but merely affords the applicant the opportunity and convenience of resolving and permanently disposing of site-specific environmental issues years—and possibly decades—ahead of the actual inception of reactor construction. While Dominion is seeking an ESP, other companies, such as Progress Energy, South Carolina Electric & Gas, Duke Power, and Constellation Energy, are electing to resolve environmental siting issues at the subsequent Construction and Operating License (COL) stage, and many of these companies have announced nominal target dates for submitting COL license applications that are in the same time frame as Dominion's (Fall 2007).

Moreover, environmental concerns that the NRC deems to have been "resolved" during an ESP proceeding cannot be raised again at a subsequent stage of NRC's "streamlined" licensing process. Faced with a project whose design is continually evolving, this foreclosing aspect of the ESP process is not in the state's favor. And finally, as you well know, once a state concurs, even with conditions, once having done so it "retains no further consistency authority over the project..." and cannot, through the CZMA, enforce its conditions after it has concurred (Federal Register, Vol., 65, No. 237, page 77127). But by objecting, VDEQ preserves its option either to continue its objection or to revisit the issue if Dominion agrees to conditions that are fully protective of the environmental equities at stake.

<u>Since the ESP is an optional early stage process devised primarily for the convenience of the applicant, and the environmental impacts of Dominion's continually evolving proposal are at this point still defined by a general "plant parameter envelope," comprised of nominal operating values rather than those pertaining to a site-specific detailed plant</u>

design, we see no advantage, and significant disadvantages, to VDEQ offering its concurrence (or conditional concurrence) at this time.

**(2) Understanding of the Long-Term and Cumulative Environmental Impacts from Operating Dominion's Proposed Unit 3 "Wet-Dry" Hybrid Cooling System is Currently Insufficient to Support a Federal Consistency Determination..**

A major issue confronting the VDEQ is whether the newly proposed "wet-dry" cooling system will reduce environmental impacts sufficiently to warrant concurring in Dominion's federal consistency determination for the pending ESP. VDEQ's "Consistency Status Report" to Dominion, dated August 3, 2006, states: "That new method involves a new, closed cycle wet and dry cooling method that would reduce the water demands associated with the once through cooling proposed in the original certification. During periods of relative surplus (when lake levels are at or above 250 feet above mean sea level), wet towers would be used. During dry periods (lake levels under 250 feet for 7 consecutive days or more, a dry cooling tower would be used, unless weather conditions dictate otherwise (the "maximum water conservation mode") [see Draft EIS Supplement, pages 3-8 and 3-9]

From our reading of the NRC's July 2006 Supplemental Draft Environmental Impact Statement (SDEIS), the preceding represents an incomplete and possibly mistaken view of how the proposed system would actually operate. During full power operation and "a hot and humid atmosphere at tower level" – fairly typical conditions for a peak power summer day in Central Virginia – the applicant is committing only that "*a minimum of one-third* of the rejected heat from Unit 3 would actually be removed by the dry tower system. The remaining excess heat would be dissipated by the wet tower system." [NUREG-1811, SDEIS, at 3-11 and K-4]

However, "During periods of favorable [but unspecified] atmospheric conditions, *more than one-third* (and *possibly* as much as 100 percent) of the rejected heat may be dissipated through the dry towers." [SDEIS, at K-4, emphasis added] "Therefore, although the MWC [Maximum Waster Conservation Mode] mode uses less water than the EC mode, it is possible that *up to two-thirds of the total heat load* would be dissipated by wet cooling." [SDEIS at 3-11] Not only possible, but probable. It's clear to us that this is the only binding commitment the applicant is making. After all, operating the dry cooling tower increases the parasitic load and would cost Dominion money, so one would expect that like any profit-seeking entity, Dominion will at all times and in all places seek to minimize its costs while complying with its minimum commitment to dissipate "at least one-third" of the Unit 3 reject heat through dry cooling.

**3. The SDEIS prepared by the NRC Staff Fails to Analyze a Reasonable Range of Reasonably Foreseeable Impacts from Operating Unit 3.**

Here are some of the nominal critical parameters listed by the NRC for the originally proposed once-through cooling system that VDEQ found unacceptable:

Rate of Lake water Withdrawal: 1,140,000 gallons per minute (gpm);

Induced Evaporation Rate: 28 cubic feet per second (cfs)

Additional Lake Level Drawdown under Drought Conditions: 3.4 feet

Here are the Supplemental DEIS estimates for the same parameters as above, for the wet-dry semi-closed loop system:

Maximum Rate of Lake water Withdrawal: 22, 269 gpm in (normal) "Energy Conservation Mode"

Induced Evaporation Rate: 20 cfs

Additional Lake Level Drawdown under Drought Conditions: 1.6 ft

These estimated impacts are still quite significant. In particular, the induced evaporation rate from operation of the wet-dry cooling system *is still 71 percent of the environmentally unacceptable once-through system*. The additional lake level drawdown under simulated drought conditions is still *almost half that of the once-through system*, and there are major uncertainties associated with this calculation that the NRC and Dominion have not bounded with a sensitivity analysis. (This analysis should be based on plausible excursions from and negative feedback interactions between their model's input parameters over the projected period in which the three reactors will be withdrawing water from Lake Anna.)

**4. The Projected Lake Levels Pose Environmental and Energy Security Risks That Require Further Detailed Analysis Before Concurrence Can be Granted.**

Under the Lake Level Contingency Plan (a condition of the North Anna plant's VPDES permit), releases from the dam are designed to maintain the lake level as close to 250 ft. above Mean Sea Level (MSL) as possible. When the lake level elevation drops below 250 MSL, releases from the North Anna Dam are reduced to 40 cfs. If the lake level drops below 248 MSL, releases are cut to 20 cfs. Releases are increased to 40 cfs when the lake level rises again to 248 ft MSL, and increased further when the lake level rises above 250 ft MSL.

According to the NRC's analysis, from 1978 to 2003, Lake Anna has been under the 250 ft MSL target level 62.7 percent of the time due to the combined effects of reduced inflows and the evaporative effects of operating Units 1 and 2. According to the NRC staff's historical simulation, the addition of the Unit 3 wet-dry cooling system would have increased that overall figure slightly, to 66.4 percent of the period spent under the target lake level, while also reducing the total time the lake level was at or above the target level by 3.7%.

So, *looking backward*, the addition of the Unit 3 wet-dry cooling system would clearly have reduced flows to the lower North Anna-Pamunkey river system. The biggest impact

would have been registered in the increased number of days in which the lake level would have been at or below 248 feet, causing releases into the lower reaches of the North Anna river to be cut in half from 40 to 20 cfs. According to the NRC staff, these significantly reduced flow days would have increased by 6.2% over the 25 year period had the Unit 3 wet-dry cooling system been in operation.

As might be expected, there are numerous and severely debilitating problems with the NRC-Dominion water budget analysis for Lake Anna. As the NRC staff itself notes, "inherent in this analysis is the assumption that the 23-year period of record simulated would be representative of future conditions (e.g. inflows, precipitation, etc.) at the site. " (NUREG-1811, SDEIS, Appendix K-13, emphasis added).

In light of the National Environmental Policy Act (NEPA) requirement that an EIS analyze all "*reasonably foreseeable*" impacts, the NRC analysis clearly falls short, because its water budget model is not predicated on any credible, forward-looking scientific estimates of what hydrological conditions within the North Anna-Pamunkey drainage could be like for the next 40 – 60 years, including population increases, water-table levels and recharge rates, competing uses for surface waters that could limit inflows to the lake, projected climate trends and attendant effects on evaporation rates, population increases, and so forth.

Moreover, the NRC staff estimate of historical inflows to the lake is not based on actual measurement of flows in the North Anna River drainage area, but estimated from flows in a smaller nearby (Little River) drainage for which there was historical data, and then scaling the results to estimate inflows to Lake Anna. Local precipitation is estimated based on rain gauges at the Richmond Airport, some 40 miles away. This methodology, and its historical bias, suggests that the model results are at best a gross approximation, and heightens the importance of a sensitivity analysis of the results

But there is no evidence that the NRC performed an analysis to test the sensitivity of its historical model results to plausible variances in the input data. For example, what is the effect on lake temperatures, on natural and induced evaporation rates, and coolant intake requirements if one assumes a small but steady increase in average surface temperatures over the next 60 years, punctuated by periods of that combine reduced precipitation with above-average summer temperatures?

One can envision the formation of a damaging negative feedback loop, in which increased natural heating of cooling intake water increases the evaporation rate of both the wet-dry and existing once-through cooling systems, leading to higher discharge temperatures and/or increased net withdrawals from the lake, leading to reduced lake volume via increased lake-surface and/or coolant tower evaporation (the heat has to be dissipated somewhere), leading to further heating of the reduced volume of intake water, and the cycle repeats itself. At this point, no one knows how vulnerable the proposed setup is to such a negative feedback loop scenario, but under stressful conditions of increased climate warming, falling water tables, and reduced rainfall, regulators might well be faced under the current ESP proposal with choosing between shutting down or

reducing power at one or more North Anna units, or incurring serious ecological damage to the North Anna-Pamunkey river system and the recreational uses of Lake Anna, which are now extensive. This is not a hypothetical danger, as water-cooled reactors in Europe and the United States, all located on water bodies or rivers more substantial than Lake Anna, were forced in the summer of 2006 to temporarily shut down or reduce power due to excessive coolant intake temperatures and/or excessive thermal discharges.

To bound the possible effects of Unit 3 cooling on Lake Anna water levels and downstream releases, the NRC analysis purports to examine the simulated impacts of operating Unit 3 wet-dry cooling during what was a critical drought period between April 2001 and February 2003. This simulation is hardly encouraging. Operation of Unit 3 with wet-dry cooling would have dropped the minimum lake level experienced during this period by an additional 1.7 feet, to 243.5 MSL. That is only 1.5 feet above the minimum operational plant intake level of 242 ft MSL, where the North Anna reactors would be forced to shut down. Given possible errors and plausible variances in the model's input data, we do not believe this provides a sufficient or safe operating margin.

Aside from miles of mudflats surrounding the residences, docks, marinas and State Park lining the shores of Lake Anna, this scenario suggests a disturbing vulnerability in Virginia's electrical supply. Units 1 and 2 already account for about 15% of the state's electric power generation, and adding Unit Three's 1560 MWe would probably boost the NAPS contribution to 25% or more of the state's total. Putting the state's public safety and economy at the mercy of a prolonged heat wave, or possible sabotage of the North Anna dam, does not suggest to us a responsible energy policy for the State.

**5. The Status Quo is Not an Acceptable Baseline for NEPA Analysis.**

The NRC analysis is implicitly predicated on the assumption that the current environmental impacts of Units 1 and 2 are themselves an acceptable environmental baseline, when such operations have already resulted in excessive temperatures in the main body of Lake Anna (i.e. well outside of the cooling lagoons), and produced many days of reduced flows into the lower reaches of the North Anna River.

A more credible baseline for analysis, and for estimating cumulative environmental impacts, would be the temperatures, flows and fauna in the North Anna river system before the river was impounded to form Lake Anna. For example, prior to dam construction, flows of 25 cfs or lower would occur for about 10 weeks once every 10 years. From NRC's modeling data, one can calculate that operation of Units 1 and 2 has increased that frequency to 30 weeks every ten years, tripling the number of low flow days that prevailed before impoundment of the North Anna River. Such an analysis would appear to be required under NEPA's requirement to consider cumulative impacts.[1]

[1] From SDEIS Table K-3: Data is from 1978-2003 inclusive, so 26 years x 52 weeks = 1352 weeks x 0.057 time fraction at 20 cfs reduced flow = 77 weeks over 26 years or 77/2.6 = 29.64 weeks over ten years.

**6. The NRC's DEIS Unreasonably Discards Dry-Cooling for Unit 3 as an Alternative Worthy of Detailed Analysis, but VDEQ Should Not.**

In its prior review of NRC's original DEIS for the North Anna ESP, VDEQ's Division of Water Resources expressed its concern for the adequacy of Lake Anna as a source of cooling water, based on the fact that a once-through design transfers all the reject heat to the aquatic environment. According to the SDEIS, this increased heat load would have pushed warmer water out of the cooling lagoons further into Lake Anna, extending lagoon-like conditions into about 19% of the total volume of the lake, and reducing the productivity of fish populations that are sensitive to temperature. The Division looked at other nuclear reactors along the East Coast to compare the water resources available to them with the water resources at North Anna. This review demonstrated:

- Most of the intake locations are tidal and have an essentially unlimited water supply;
- Of the remaining locations, the North Anna location has the least abundant water supply, based on the average flow of a small watershed (342 square miles) and a medium-sized reservoir;
- A limited number of nuclear power stations are located on non-tidal rivers, but in these cases, the power plants are on large rivers such as the Connecticut and the Susquehanna; and
- The only location remotely similar to North Anna's situation is the Oconee plants on Lake Keowee in South Carolina, but immediately below Lake Keowee is Hartwell Lake, so the section of non-tidal stream affected by consumptive loss is very short.

Dominion itself has recognized that Lake Anna would not support once-through, wet-cooling, or even a combination wet and dry cooling system for a fourth unit, and is therefore proposing an exclusively dry cooling system for this unit, construction of which is purely speculative at this point. Of course, this fact begs the question of why dry-cooling could not also be employed for the proposed Unit 3. This alternative is briefly mentioned as a "System Design Alternative" in the Supplemental DEIS issued July 2006, but it is dismissed in three paragraphs (out of a several hundred page document). It benefits are briefly summarized as follows:

"The use of a dry cooling system design versus the proposed combination wet and dry cooling system design for Unit 3 would largely eliminate the [unit's] impacts on aquatic biota in Lake Anna and the North Anna River downstream. The Lake would not be heated by rejected heat from Unit 3, and there would be no additional consumptive water use." (SDEIS at 8-5, emphasis added)

Despite these very sizable environmental benefits, the SDEIS fails to identify the dry-cooling option as an" environmentally preferable" alternative deserving of further analysis. As justification, it merely states that "dry cooling systems are more expensive to build and are not as efficient as wet cooling systems." In support of this contention the SDEIS cites recent Dominion estimates that "the power needed to operate dry cooling towers would be 8.5 to 11 percent of the plant power output," or about 150 MW(e), reducing the net power output of the plant, versus a predicted parasitic load of "1.7 – 4 percent" to operate the wet-dry cooling system.

Relying on this scant body of evidence and analysis, the NRC staff concludes that, "based on its analysis that Lake Anna could support Unit 3 using a combination wet and dry cooling system, and given the environmental impact of increased use of resources [i.e. more land area and electricity] needed by using a less efficient dry cooling system, a combination wet and dry cooling system is [environmentally] preferable to a dry cooling system for Unit 3. (SDEIS at 8-5). But coincident with its judgment that a parasitic load of 150 MW(e)—if indeed it is that large—would be too burdensome on the Unit 3 project, Dominion and the NRC staff revised the ESP permit to increase the thermal output of Unit 3 by 200 MW(t), thereby allowing them to recover almost half of the electric output that would be "lost" to operation of the dry-cooling system.

According to GE, the ESBWR has a rated generating capacity of 1560 MW(e) and thermal power of 4500 MW(t). If the parasitic load to operate the dry tower cooling is 8.5–11 percent of plant output, then the load would be in the range of 133-172 MW(e), or "about 150 MW(e)" in the words of the NRC staff analysis. So the recent increase in the "plant parameter envelope" from 4300 to 4500 MW(t) implies that until very recently the "plant envelope" was 1490 MW(e), and that the recent power increase would allow recovery of some 70 MW(e) or about half of the estimated parasitic load for dry cooling..

Assuming that the project was deemed economically viable at the previous power level with the proposed wet-dry cooling system consuming up to 4% of output, or 60 MW(e): then the net output of Unit 3 with *wet-dry cooling before the power increase* would have been 1430 MW(e); and the net electrical output of Unit 3 with *dry-air cooling after the power increase* would be 1410 MW(e). It's difficult to understand why the difference of a mere 20 MW(e) would make or break the economics of a project of this magnitude, or lead NRC staff to summarily dismiss the dry-cooling option as being environmentally inferior to Dominion's preferred wet-dry system. One suspects that the real calculus here is not environmental benefits or lack thereof but the forecast profitability of the project, which may be marginal even with the eight-year 1.8 cent/kWh production tax credit. Whatever the real motives at work, the SDEIS analysis of the dry-cooling alternative for Unit 3 is clearly inadequate, and the VDEQ should demand more information on this option before offering its concurrence.

**7. Before Concurring that the Environmental Impacts of Activities Described in Dominion's Early Site Permit Are Consistent with the Enforceable Policies of the Virginia's Coastal Zone Management Program, VDEQ Has a Duty to Resolve Outstanding Issues Surrounding the Existing VPDES Permit for the North Anna Power Station,.**

According to the testimony of citizen groups ("Friends of Lake Anna," and the "Lake Anna Civic Association" ) at the August 16, 2006 public hearing held in Mineral , VA., their water studies indicate that the North Anna River (3 miles before it enters Lake Anna) is 13 degrees cooler than the central part of the lake (above the Rt. 208 Bridge). These groups contend that several areas in the main body of the lake have recently experienced temperatures in the low to high nineties, which clearly exceed the 89.6 degree F temperature limitation in the Clean Water Act as defined in the NPDES.

We understand that Lake Anna is primarily an impoundment where the vast preponderance of the lake volume is re-circulated, which in turn causes the entire Lake to heat up. If water temperatures frequently exceed 90 degrees F at many locations around the lake, as alleged, we would concur in the assessment that Dominion appears to be in violation of the U.S. Clean Water Act and the terms of their current 316 variance, which cannot plausibly be interpreted to sanction thermal discharges sufficient to produce overheating of the entire lake. "The purpose of the variance is because the water temperatures in Lake Anna, *in the vicinity of Outfall 001* (i.e. the Dike 3 cooling water discharge point into the main body of the lake) *and in the shallow reaches near its tributaries,* occasionally exceeds the maximum criteria of 32C. Without the variance, Dominion would be subject to enforcement actions" [VA0052451 at 15, emphasis added]. This language does not appear to permit the kind of extensive heating that has occurred throughout the Lake, and suggests to us that Dominion might be subject to an enforcement action even under the terms of its existing variance. What does seem clear, however, is that excessive and heating of Lake Anna is occurring in violation of national standards.

In our view, the North Anna Power Station VPDES permit is one of the "enforceable policies" of Virginia's Coastal Zone Management Program. <u>If the current 316A variance granted by the VPDES has led to overheating of Lake Anna in violation of the Clean Water Act, it follows that any future VPDES permit will probably also be in violation if immediate changes to protect the lake and downstream resources are not made a part of the state's concurrence process for federal consistency certification under the Coastal Zone Management Program.</u>

We note that there are serious unresolved discrepancies between the Lake Anna water temperature data and monitoring conclusions contained in the draft VPDES Permit of 12/22/05 [Fact Sheet for VPDES Permit VA0052451] and the data and conclusions reached by LACA and FOLA. According to the draft permit, "Except for [the summer of] 2002, the temperatures in Lake Anna did not exceed the 32 deg. C water quality criteria value. By letter dated July 5, 2005, the permittee formally stated that conditions have not

changed substantially and thereby requested continuation of the 316 (a) variance." [VA0052451 Attachment 10, at 2.]

These conclusions are disputed by citizens groups that monitor water temperatures in Lake Anna, and we see no reason at this point to discount their independent findings in favor of the applicant's obviously self-interested assertions. The state must resolve this matter before any serious consideration can be given to concurring in a program that seems likely to produce *even further heating* of the lake (through evaporative loss reductions is average lake volume) in violation of CWA standards. If there is considerable uncertainty as to what the true current environmental baseline is, we do not see how anyone can claim to possess an adequate understanding of the incremental impacts on Virginia's CZMA from the addition of Unit 3 cooling to the mix, and therefore we urge that the state continue its objection to federal certification on that basis alone.

We also note that there appears to be a significant and consequential historical error in the permit as currently drafted. Specifically, the draft permit asserts, "The value of 13.54E9 BTU/hr is the limit *originally assigned to the facility in the 401 certification in 1973*, and is what was used in part to design (size) the WHTF. The limit is carried forward since *the design and operating parameters for Units 1 and 2 have not changed* and there have been no water quality problems with the heat leaving Outfall 001."

We believe this statement is most likely incorrect and must be further investigated. In fact, the thermal power of each existing NAPS was "uprated" (increased) by 4.2 percent in August 1986, for a total station increase of 236 MW(t). So the statement that the operating parameters for Units 1 and 2 have not changed since 1973 is incorrect. We note that a recent nuclear industry document cites an analysis performed for the Department of Energy regarding a further 5% uprating of these existing units with once-through cooling.[2] <u>VDEQ should query Dominion regarding the thermal discharge effects of this potential upgrade before renewing the NAPS VPDES permit and variance or offering its concurrence in the granting of the Early Site Permit for Units 3 and 4</u>.

We further note that the existing 316(a) variance is expressed as permission to discharge an unlimited condenser coolant outflow containing a certain *calculated* amount of reject heat, rather than as permission to discharge a *maximum* flow of x gallons per day that shall not exceed a specific (and continuously *measured* ) outfall temperature. Such a loose compliance scheme obviously misses the combined effect on the cooling lagoons from both above-nominal discharges of reject heat and weather-induced heating, and therefore seems prone to chronically underestimating the heat transferred to the main body of the lake at the Dike 3 discharge point. In support of this point, we note that the waters of the Lake Anna cooling lagoons reached 106 degrees on August 3, 2006 as recorded by local residents. The Lake Anna Civic Association (LACA) Water Quality Team recorded 104.6 degrees F at the end of the discharge canal on the same day at a different time.

[2] Nuclear Energy Institute, "Nuclear Energy in Virginia" Factsheet, May 2006, p. 2

We are aware of legal arguments advanced by some citizens groups that the Clean Water Act applies both to the main body of the Lake Anna reservoir *and* the diked cooling lagoons, since under the CWA cooling lagoons are considered "navigable waters" of the U.S. In addition, they point to the fact that the U.S. Army Corps of Engineers (USACE) which administers CWA Section 404—Dredge and Fill of Navigable Waters of the U.S—requires the issuance of 404 permits for dredge and fill activities in the NAPS cooling lagoons. This is necessarily predicated on the determination by USACE that the cooling lagoons are jurisdictional waters of the United States. The "Friends of Lake Anna" (FOLA) assert that the definition for Waters of the United States under the Sec. 404 implementing regulations at 33 USC Section 328.3 is identical in all necessary respects to that of the NPDES regulations implementing 402 (40 CFR Section 122.2)

Thus, FOLA asserts that there is "no question" that the cooling lagoons are waters of the U.S. and as such are subject to three federal regulations:

(1) 404 (Dredge and Fill of Navigable Waters of the U.S.. administered by the U.S. Army Corp of Engineers)
(2) 402 (National Pollution Discharge Elimination System – NPDES)
(3) 401 (Water Quality Certifications as administered by VDEQ).

FOLA asserts, "VDEQ and the Virginia State Water Control Board do not have the authority to de-nationalize national waters and designate the Lake Anna cooling lagoons as a waste heat treatment facility....Federally delegated programs such as VPDES can be more stringent then the national program, but cannot be less. The Virginia State Water Control Board cannot arbitrarily exclude U.S. surface waters from the regulatory purview of its delegated national program."

FOLA wants monitoring of the VPDES permit compliance to begin at the end of the North Anna power plant discharge canal, since the cooling ponds are national waters. FOLA also wants VDEQ to correct the existing VPDES regulations that exempt cooling lagoons from the definition of surface waters. They allege that VDEQ is in conflict with the national program (NPDES – 40 CFR Section 122.2) providing that cooling lagoons/cooling ponds which meet the definition of waters of the U.S. are not waste treatment systems.

We have not yet had the opportunity to conduct the legal research necessary to form an independent opinion as to the strength of these legal claims, but we have noted some pertinent facts. The lagoons are navigable, not otherwise polluted except thermally,[3] and are fed by the waters of some eight creeks and streams, in addition to the coolant water pumped from Lake Anna, and these waters ARE presumably exempt from appropriation as "private waters" not subject to regulation under the CWA. <u>So irrespective of the legal merits to the claim that the State has erred in continuing to designate the lagoons as a private "Waste Heat Treatment Facility," Dominion cannot plausibly have it both ways, claiming these waters are indeed private, but then evading strict monitoring of CWA</u>

[3] Except that elevated levels of PCB's have recently been found in fish that inhabit the lake, and the source of this pollution has not yet been identified.

compliance at the Dike 3 point where these waters discharge into the regulated surface waters of the United States.

If VDEQ is unwilling to revise its longstanding regulatory approach to treating the lagoons as an unregulated "Waste Heat Treatment Facility," then at a minimum a strict CWA-complaint regime for detecting and preventing excessive heat loads and temperatures must be established at the Dike 3 discharge point to ensure that Lake Anna and the North Anna-Pamunkey river system are adequately protected. Such a regime must be in place and operating reliably before any concurrence is given to the ESP for Units 3 and 4. The existing poorly monitored variance appears to be nothing more than a license for Dominion to save money by spreading the burden of dissipating its thermal discharges where it doesn't belong, on the protected surface waters of the United States.

**8. The NRC's Early Site Permit Review Process is Defective and Hinders Meaningful Participation by the Public.**

The NRC has either deliberately devised or negligently allowed the ESP process to evolve in a way that overtaxes and bamboozles the public and even state regulators with a continuing and chaotic blizzard of ever-changing project documentation.

We note that the *Friends of Lake Anna* (FOLA) and others attempting to participate meaningfully in the process have definite objections to the way the NRC has chosen to conduct its review. As longstanding participants in the NRC's proceedings, we can only concur in the objections raised by FOLA to the current process:

> "The NRC does not provide for any public scrutiny of a draft Safety Evaluation Report prior to its issuance. The public's safety should be the primary focus of any government agency. The public's review of any safety projects is essential. *It appears the NRC is basing decisions on 5 year old data and has not considered recent property development around the lake or world events in any of their decision making.* The NRC's staff projected population increase for the North Anna site through 2065 is not anywhere in the ballpark, Louisa County is currently the 73rd fastest growing county in the U.S.
>
> "*The NRC continues to accept many changes to the ESP, without automatically extending the public comment period each time a change is issued.* Currently we are reviewing Revision 6 to the North Anna ESP, which is over 1,000 pages of technical data. In addition, just last month (July 2006) you issued a supplemental Draft Environmental Impact Statement relating to Revision 6 only, that was about 500 pages, which related to your first draft Environmental Impact Statement which was another 600 or 700 pages. You have also just within the past few weeks, issued Revision 7 and a Revision 8 with no automatic extension of the public comment.
>
> "*While the Draft Environmental Impact Statement (DEIS) is still under review, Dominion continues to make revisions to issues that are analyzed [in the*

*DEIS]*. Hence our review of the DEIS is a moving target, without the NRC automatically extending the public comment period and giving the public sufficient time to review the changes. (emphasis added)

"It seems like everyone is spinning wheels in trying to keep up with all the Dominion and NRC revisions, Requests for Information, Responses for Request for Information, additional revisions, draft environmental impact statements that pertain to the earlier revision only, and [this] is making a mockery of an extremely important governmental process…."[4]

We would hazard a guess that the logistical, analytical, and sheer time demands of keeping up with the NRC's chaotic permit review process have deterred many citizens from participating in it at all, and discouraged others as soon as they became aware of its daunting demands and perverse complexity. The process effectively excludes anyone from meaningful participation who does not have the patience, time, and particular skill set to wade through the documentary swamp the NRC has generated. While our review stops at Revision 6 of the ESP, we understand that Dominion has recently submitted Revisions 7 and 8. As we have other things to do in our professional lives besides track the NRC's paper trail, we are unable at present to comment on those revisions. <u>But given the NRC's conduct in this matter, we obviously feel that VDEQ is entitled to treat the date of the last revision as constituting a new Dominion certification of federal consistency under the CZMA, and to extend the concurrence response date accordingly</u>.

**9. The NRC's Site Comparison Methodology is Flawed and Obscures Important Environmental Advantages of Alternative Sites.** We are far from persuaded by the NRC staff determination that another site is not "obviously superior" on environmental grounds to the North Anna site, and note that this criterion begs the question of whether one or more alternative sites may be merely "superior" on environmental grounds to the North Anna site. The NRC criterion employed in assessing whether a proposed ESP site should be rejected in favor of an alternative site is whether the alternative site is "clearly and substantially" superior to the proposed site. Under prior NRC rulings, a proposed ESP site may not be rejected in favor of an alternative site when the alternative is "marginally better" than the proposed site, but only when it is "obviously superior."

According to the NRC, an "environmentally preferred" alternative site is "a site for which the environmental impacts are sufficiently less than the proposed site so that the environmental preference for the alternative site can be established" (NUREG-1811 SDEIS, p. 9-1, citing NRC proceedings from 1978). If the Early Site Permit EIS process identifies one or more such "environmentally preferred" sites, then to uncover an "obviously superior alternative site," the NRC staff then believes it must further determine that "(1) one or more important aspects, either singly or in combination, of a reasonably available alternative site are obviously superior to the corresponding aspects

[4] Presentation of Harry Ruth on behalf of the *Friends of Lake Anna* to the U.S. Nuclear Regulatory Commission public hearing on August 15, 2006 at Louisa Middle School, Louisa, Va., p. 2.

of the applicant's proposed site" and (2) the alternative site does not have "offsetting deficiencies" in other important areas. A staff conclusion that an alternative site is "obviously superior" would normally lead to a recommendation that the application for the ESP at North Anna be denied.

Since the NRC staff employs inherently fuzzy qualitative – "SMALL," "MODERATE," and "LARGE" – rather than quantitative criteria to compare environmental impacts at the alternative sites, this allows important differences between sites to be obscured by choosing "MODERATE" to describe harmful impacts at the Proposed Site that are actually environmentally significant, while "offsetting deficiencies" at alternative sites – such as visual impairment of an historical view shed, can subjectively be described as "LARGE" (without considering design or mitigation alternatives) thereby eliminating any prospect of ever making an "obviously superior" determination for an alternative site.

Aside from this sloppy methodology, which seemingly allows the NRC staff to recommend any site Dominion prefers short of causing an obvious environmental catastrophe, the NRC's NEPA process raises three sets of legal issues:

(1) Has the NRC's shoddy ESP process violated citizen's due process rights under the Administrative Procedures Act, the National Environmental Policy Act, and NEPA's implementing regulations;

(2) Has the NRC's tailored alternatives analysis unreasonably failed to identify one of Dominion's alternative sites – such as the existing Surrey Plant on the lower James River – as "obviously superior" to the proposed North Anna site, when both the impacts of heat dissipation and water withdrawal at the Surrey site, and possibly other sites, are clearly less than they are at North Anna; and

(3) has NRC correctly analyzed – or indeed performed ANY analysis – of the vulnerability of the North Anna site to both climate change and terrorist threats – i.e. what are the impacts if the lake steadily dries up in a future local climate of reduced rainfall and higher than average temperatures, and what are the impacts if terrorists manage to blow a hole in the dam, suddenly draining the lake and disabling the three units that depend wholly or in part on cooling water withdrawals from the lake, or attack the spent fuel storage pools.

Analysis of the climate change scenario seems indicated given the projected 60 year life span of a reactor and the recent spate of reactor cooling problems triggered by heat and drought conditions in Europe and the Midwestern U.S. And a recent 9th Circuit Court decision directing the NRC to analyze the reasonably foreseeable environmental impacts of a terrorist attack on a California reactor's spent fuel storage facility suggests that such analysis should be part of the NEPA coverage for the North Anna ESP. <u>The lack of these analyses in the present DEIS and SDEIS is yet another substantive reason for the State to object to Dominion's certification of federal consistency for the ESP</u>.

Please do not hesitate to contact me if you have any questions regarding these comments.

Sincerely,

Christopher E. Paine
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August 16, 2006

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**Re: Federal Consistency Certification for North Anna Early Site Permit, DEQ-05-079F**

Dear Ms. Irons:

On behalf of the Blue Ridge Environmental Defense League, I write to provide further comments on Dominion Virginia Power Company's certification of consistency submitted to the Virginia Department of Environmental Quality.

Dominion has requested consistency certification with regard to its application for an Early Site Permit (ESP) for construction of two or more additional nuclear reactors on Lake Anna. The process of determining consistency has been an arduous one because of Dominion's initial attempt to limit the scope of DEQ's coastal zone review and the company's continual failure to provide adequate information. At issue is whether Dominion's action would be consistent with the Virginia Coastal Resources Management Program and the federal Coastal Zone Management Act. At this point, the question is: Has Dominion now provided enough information for DEQ to make a full assessment required under the law? The answer is: No.

In November, The DEQ rightly stayed its review of the consistency determination to allow Dominion to present a revised approach to the cooling of a third nuclear reactor. The letter from DEQ to Dominion stated:

> Dominion's announcement of a revised approach to cooling the proposed third nuclear power plant at North Anna did not include the detailed analysis needed to implement the approach. We understand this detailed information is currently being developed. (1)

Following substantial changes in the cooling system for the proposed Unit 3 reactor and other modifications, Dominion submitted new information as required by Virginia DEQ. The Nuclear Regulatory Commission published a Supplement to the Draft Environmental Impact Statement on July 2006 (NUREG-1811, Supplement 1, Draft) which is based on the new information provided by Dominion.

Dominion revised its method of cooling the proposed third nuclear reactor unit at the North Anna Power Station by utilizing a closed cycle, combination wet and dry cooling system to reduce the

volume of water drawn from Lake Anna. The plan for the air cooled fourth unit is unchanged. But Dominion's Early Site Permit application contemplates two or more new atomic reactors. The North Anna power station now has two pressurized water reactor units each rated at 2893 MWth. With its most recent request, Dominion plans to add 9000 MWth of new power generating capacity. This presents a problem because, even if the plant parameter envelope (PPE) is bounded by the thermal power benchmark, what assurance does the Commonwealth have that the water usage for more than two units will not exceed safe levels?

The PPE is detailed in the July 2006 Supplement to the Draft Environmental Impact Statement; seven possible reactor designs are contemplated: ACR-700, ABWR, AP-1000, ESBWR, IRIS, GT-MHR and PBMR. Five of these designs are light water reactors; two are gas-cooled. The SDEIS indicates where the approximately 1,800 acre footprint for the reactors would be, but the PPE review for the reactors themselves is based on educated guesswork because Dominion apparently cannot provide to the NRC with the necessary data. The Environmental Standard Review Plan (NUREG-1555, Volume 1) and other guidance are supposed to assist the Nuclear Regulatory Commission staff to perform a thorough, consistent and disciplined review of early site permit applications. The SDEIS notes that there is "missing information" in Dominion's submission which undermines the NRC's ability to perform an independent assessment:

> Because PPE values were used as a surrogate for design-specific values, the staff expected Dominion to provide information sufficient for the staff to develop a reasonable independent assessment of potential impacts to specific environmental resources. In some cases, the design-specific information called for in the ESRP were not provided in the Dominion ESP application because it did not exist or was not available. Therefore, the NRC staff could not apply the ESRP guidance in those review areas. In such cases, the NRC staff used its experience and judgment to adapt the review guidance in the ESRP and to develop assumptions necessary to evaluate impacts to certain environmental resources to account for the missing information. (2)

The SDEIS continues, "Because the Dominion PPE values do not reflect a specific design, *they were not reviewed by the NRC staff for correctness*." (2) (emphasis added) In this case, the standard which the NRC employed in its environmental review was that PPE values were "not unreasonable." This not-unreasonable standard is not supportable and is not acceptable. DEQ cannot proceed with a consistency determination on this basis.

Further, in the SDEIS NRC anticipates an as-yet unsubmitted combined operating license application (COL) before addressing whether the actual plant design will fall within the PPE. In other words, the NRC has left the Plan Parameter Envelope unsealed. The ESP is the NRC's official determination that two or more additional nuclear reactors can be built and operated at the Lake Anna site without undue environmental impacts. Consequently, DEQ's assessment of consistency with the Coastal Zone Management Act and the Coastal Resources Management Program must include the potential impacts on coastal resources from both construction and operation of two or more actual reactors, not virtual reactors based on guesswork.

Moreover, these actions must be fully evaluated under the National Environmental Policy Act. NEPA requires consideration of cumulative impacts and connected actions. The SDEIS itself conflates the ESP permit and the pending Combined Operating License. They are connected actions as defined in the Council on Environmental Quality regulations at 40 CFR 1508.7.

> Cumulative impact is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The Nuclear Regulatory Commission as a federal agency is bound by federal laws regulating environmental quality:

> The regulations in this subpart also address the limitations imposed on NRC's authority and responsibility under the National Environmental Policy Act of 1969, as amended, by the Federal Water Pollution Control Act Amendments of 1972, Pub. L. 92-500, 86 Stat. 816 et seq. (33 U.S.C. 1251 et seq.) In accordance with section 511(c)(2) of the Federal Water Pollution Control Act (86 Stat. 893, 33 U.S.C 1371(c)(2)) the NRC recognizes that responsibility for Federal regulation of nonradiological pollutant discharges into receiving waters rests by statute with the Environmental Protection Agency. (3)

Finally, the Nuclear Regulatory Commission is restricted by the Coastal Zone Management Act which stipulates compliance in no uncertain terms:

> Any Federal agency which shall undertake any development project in the coastal zone of a state shall insure that the project is, to the maximum extent practicable, consistent with the enforceable policies of approved state management programs. (4)

All potential impacts from construction and operation of two or more new nuclear reactors at North Anna must be examined before DEQ considers certifying the consistency of Dominion's ESP with the Coastal Zone Management Act.

Thank you for the opportunity to submit these comments.

Respectfully submitted,

Louis Zeller, Campaign Coordinator
Blue Ridge Environmental Defense League

References

(1) M. Murphy, DEQ to P. Faggert, Dominion, Federal Consistency Certification under Coastal Zone Management Act, Virginia Coastal Resources Management Program: North Anna Early Site Permit Application DEQ05079F, November 3, 2005 at http://www.deq.state.va.us/eir/documents/04-216FNorthAnnaFCCStayLetter.pdf

(2) NUREG-1811, Supplement 1, July 2006, Section 3.2, page 3-5

(3) 10CFR51.10(c) Subpart A, National Environmental Policy Act Regulations Implementing Section 102(2)

(4) CZMA § 1456 Coordination and cooperation (Section 307)(c)(2)

COMMONWEALTH OF VIRGINIA
HOUSE OF DELEGATES
RICHMOND

BILL JANIS
POST OFFICE BOX 3703
GLEN ALLEN, VIRGINIA 23058-3703

FIFTY-SIXTH DISTRICT

COMMITTEE ASSIGNMENTS:
COURTS OF JUSTICE
FINANCE
HEALTH, WELFARE AND INSTITUTIONS
MILITIA, POLICE AND PUBLIC SAFETY

August 14, 2006

Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration, Mailstop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Sir:

As the elected Delegate representing the 72,000 residents of Louisa, Goochland and northwestern Henrico counties in the Virginia General Assembly, I am writing to express my support for Dominion's early site permit (ESP) application for the North Anna Power Station site. It is my understanding that the U.S. Nuclear Regulatory Commission staff's preliminary recommendation was that the ESP should be issued, and I concur in that recommendation.

As a former Navy officer who served in nuclear submarines, I know that nuclear power plants such as North Anna provide safe, reliable and affordable electricity that is important to our economy, and helps our Commonwealth and Nation achieve greater energy independence. Dominion's North Anna and Surry power stations provide 34 percent of the electricity used by customers in Virginia.

North Anna Power Station is one of the nation's most efficient and cost-effective nuclear generation facilities. Because our Nation's demand for affordable electricity continues to grow, at a time when we face growing competition from China and India for the world's finite petroleum reserves, it is critically important to our economy and national security that nuclear energy remain an option to meet this growing demand. Although Dominion has reportedly made no decision as yet to actually build a third reactor at North Anna, approval of the ESP would preserve such an option.

Dominion is an excellent corporate neighbor and has demonstrated a longstanding commitment to work with its Louisa County neighbors. Dominion has built up significant community goodwill by its willingness to listen and respond to the concerns of those who live on Lake Anna.

Specifically, in response to concerns voiced by Lake Anna residents regarding the thermal impact on the lake of the "once-through" cooling method of the existing reactors, Dominion has agreed to spend $200 million on a cooling tower system for any potential third reactor at the North Anna site, thereby obviating the need for using lake water for cooling, despite the lack of any scientific evidence of any adverse public health or environmental impact of the existing Waste Heat Treatment Facility.

DISTRICT: (804) 726-5856 • CAPITOL: (804) 698-1056 • E-MAIL: DELBJANIS@HOUSE.STATE.VA.US

The NRC staff has performed a rigorous review of the potential environmental impacts associated with operation of additional reactors at the North Anna site. I support the NRC staff's preliminary conclusions contained in the supplemental draft environmental impact statement and urge the NRC to issue the early site permit.

With kind regards, I remain

Very Respectfully,

Bill Janis

W. R. "Bill" Janis

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September 8, 2006

**BY E-MAIL AND HAND-DELIVERY**

Ms. Ellie Irons
Program Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street, 6th Floor
Richmond, Virginia 23129

RE: Comments on Federal Consistency Certification
for North Anna Nuclear Power Station on behalf of Bear Island Paper Company

Dear Ms. Irons:

On behalf of our client, Bear Island Paper Company ("Bear Island"), we are submitting comments on the pending Federal Consistency Certification for the North Anna Nuclear Power Station ("Station") in connection with the proposed expansion of the Station by Dominion Nuclear North Anna, LLC ("Dominion").

Based upon Bear Island's review of the proposed expansion of the Station now under consideration by the Nuclear Regulatory Commission for issuance of an Early Site Permit, substantial increases in the number and severity of low-flow conditions in the North Anna River are contemplated. Bear Island relies on the North Anna River at points below the Lake Anna Dam for water intake and for discharge of treated industrial wastewater and stormwater associated with its facility in Doswell, Virginia. The additional periods and severity of low-flow conditions that would result from the proposed Station expansion can be expected to materially and adversely impact the operations of Bear Island at its facility by restricting its ability to withdraw water from the River as needed and as permitted by law, as well as putting at increased risk the ability of the combined wastewater flows from Bear Island and the County of Hanover to meet current permit requirements and water quality standards.

More specifically, Bear Island refers to comments the County filed concerning this Certification as further reasons for its concerns noted above. Likewise, we note and reference the concerns about negative impacts on downstream flows from Lake Anna raised by the Department itself in its March 2005 comments on the November 2004 draft Environmental Impact Statement prepared for the Station expansion. While plans for the Station expansion have been modified somewhat to address those earlier stated concerns of the Department, as described in recent documents prepared for the Station expansion, Bear Island believes that such

modifications do not fully address the negative consequences noted earlier and the increased risk to downstream users of the North Anna River such as Bear Island. As a result, Bear Island respectfully requests that the Department not approve the Certification, or at least require further assessment by Dominion to evaluate the effects on downstream users and appropriate alternative designs and potential mitigation opportunities.

Bear Island appreciates the need for careful and prudent energy resource and facility development, but such development must account for and avoid wherever possible such significant adverse impacts to other water resource users as is contemplated by the latest proposal for the Station expansion.

Bear Island greatly appreciates the Department's consideration of these comments in its deliberation of the pending Certification. Should the Department have any questions concerning Bear Island's comments as set forth herein, please do not hesitate to contact me.

With kindest regards, I am

Very truly yours,

Henry R. Pollard, V

Cc: Mr. Jacques Beauchesne
Christopher M. Gill, Esquire

777940

**(Presentation to the Virginia Department of Environmental Quality public hearing on August 16, 2006 at Louisa Middle School, Louisa, Va.)**

**Dear Virginia Department of Environmental Quality, Ladies and Gentlemen,**

**My name is Harry Ruth and I reside at 230 Heather Drive, Bumpass, Va. I live on Lake Anna and represent the Friends of Lake Anna. In the interest of time, I will forward my written comments to VDEQ and the NRC and tonight will identify the highlights only.**

**1. FRIENDS OF LAKE ANNA.** "The Friends of Lake Anna" is a citizen group representing 2,650 persons whose mission is to protect Lake Anna (both main reservoir and cooling lagoons) and its surrounding landscape, together with any related concerns, within Louisa, Spotsylvania, and Orange Counties for the health, safety and welfare of current residents/users and for future generations. We are not anti-nuclear, nor do we have "not in my backyard" sentiments, but do support a wise and safe use of nuclear energy. Our goal is simply to protect Lake Anna for its 500,000 plus annual users and insure compliance with the law.

We believe that the U.S. should become self-reliant for energy sources and not be dependent on foreign oil, but we do want to promote the wise and safe use of nuclear energy and not have the impact of new nuclear reactors destroy Lake Anna in the process. If the project at the North Anna Plant is accomplished correctly and takes into account our concerns, possibly the new reactors could become a model for the continued growth of nuclear energy throughout the country. If the project is handled poorly, resulting in public and political uproar and bad national press, the entire future of increased nuclear energy within the U.S. could be on hold for many more years.

We are not opposed to the North Anna Project and do support the addition of 3rd and 4th nuclear reactors at the North Anna plant, but want to ensure that all environmental issues are taken care of prior to the issuance of either an NRC Early Site Permit or a VDEQ Federal Consistency Certification.

**2. OVERVIEW:**

We believe that the North Anna project as currently proposed is inconsistent with the Va. Coastal Zone Management Program as approved under the U.S. Coastal Zone management Act.

It is inconsistent with the enforceable policies of the Coastal Zone Management Act related to Fisheries Management and Point Source Pollution Controls. In addition it is inconsistent with the Advisory Policies of the Virginia Coastal Program & the federal U.S. Clean Water Act. VDEQ must also modify the current 316A variance and ensure that future discharge permits are protecting the public. Also one set of the North Anna River Users should not benefit at the expense of another set of users. Possibly other cooling alternatives should be considered. In addition, there are other local environmental items not within the purview of the Coastal Zone Program; however I request that you forward the concerns to the appropriate Virginia state departments for their comment and evaluation prior to making any final determination on either the ESP or Federal Consistency Certification.

**I will now address each of these items.**

## 3. CURRENT ESP PROPOSAL IS INCONSISTENT WITH VA COASTAL ZONE MANAGEMENT PROGRAM.

**a. FISHERIES MANAGEMENT.** – The Department of Game and Inland Fisheries (DGIF) has found that the fish will continue to be adversely affected even after the changes to the 3rd reactor have been made. See comments in the draft environmental impact statement and reference DGIF letter dated July 7, 2006 originated by Raymond Fernald re the ESP.

***Fisheries: Department of Game and Inland Fisheries Assessment.*** DGIF continues to have reservations about the impacts of proposed Unit 3 on the lake and downstream resources. Striped bass and other anadromous fish are native to the York River drainage and the North Anna River, while largemouth bass, bluegill, black crappie, walleye, and channel catfish are not. Nevertheless, all of these species are important to the recreational fishery in the lake.

***North Anna River Fishery Issues.*** According to the DGIF, the downstream impacts to fisheries resources were ignored in the Draft EIS in spite of the increased frequency of low flows that a third water-cooled unit would produce. Currently, (with two units in the regulated "base scenario"), 67 weeks of drought conditions (20 CFS or less) out of a 26-year period would be expected. Given the addition of a third unit using water, the expected drought frequency would increase 7 months of the year. Placing the population of aquatic species under frequent drought stress will shift the community substantially. Recent DGIF surveys of the North Anna River have suggested that the primary sport fish, smallmouth bass, is much less abundant than in other rivers in the region. Using 100% air cooling for Unit 3 would eliminate this concern.

***Downstream Flows and Recreation.*** The North Anna River is a spectacularly scenic and remote canoeing river with excellent fishing, according to the Department of Conservation and Recreation. Accordingly, discharge rates from the Lake Anna Dam should be adequate to meet minimum in-stream flows needed for recreational boating from State Route 601 to U.S. Route 301. The Department of Conservation and Recreation recommends that a minimum in-stream flow recreation study be conducted to determine what this discharge rate should be.

**b. POINT SOURCE POLLUTION CONTROLS** - Two federal regulation programs are affected (1) Section 401 of the Clean Water Act (Water Quality Certification as administered by Virginia Water Protection permit by (VDEQ) and (2) Section 402 – (National Pollution Discharge Elimination System (NPDES) delegated by the U.S. Environmental Protection Agency (EPA) to Virginia Department of Environmental Quality (VDEQ).

**(1) Water Resources, Flows, Drought and Supply.** As stated in VDEQ analysis of the draft Nuclear Regulatory Commission (NRC) Draft Environmental Impact Statement (DEIS), the North Anna watershed is too small to allow large water withdrawals. These would adversely affect the beneficial uses of the North Anna River which flows into the Pamunkey River, which flows into the Chesapeake Bay and then into the Atlantic Ocean. The DGIF &VDEQ analysis clearly indicates that the 3rd unit would increase the drought cycle and cause decreased water flows during March, April; May; June, July, August and October (7 months) of each year.

**Va. Department of Water Resources assessment of water availability.** The Supplemental Draft Environmental Impact Statement (EIS) analyzes water resource and quality impacts considering the addition of the proposed Unit 3 as a closed-cycle, wet-dry cooled unit and Unit 4 as a dry-cooled unit having negligible effects on water supply. VDEQ's Division of Water Resources (DWR) commented previously in regard to its concerns for the adequacy of Lake Anna as a source of cooling water for a third nuclear reactor. Although the new cooling method would use less water, indications are that ***this small watershed cannot sustain any additional water withdrawals.***

**Drought Cycle Increase.** Addition of Unit 3 would increase the drought recurrence interval as well as increase the total weeks of flows that are 20 cubic feet per second (cfs) or lower (currently 67 weeks out of the past 26 years). Virginia State Water Control Board Bulletin #58 reviewed flow statistics for the gauge downstream at Doswell. Prior to dam construction, flows of 25 cfs or lower would occur once every 10 years for about 10 weeks. Addition of Unit 3 would increase the frequency of drought flows downstream, and the duration of those droughts. Significant changes in drought flows have occurred since the plant/reservoir construction.

**Other East Coast Nuclear Reactors:** In its earlier review of the DEIS, VDEQ's Division of Water Resources looked at other nuclear reactors along the East Coast to compare the water resources available to them with the water resources available at North Anna. The conclusions drawn from that research are:

- Most of the intake locations are tidal and have an essentially unlimited water supply;
- Of the remaining locations, the **North Anna location has the least abundant water supply,** based on the average flow of a small watershed (342 square miles) and a medium-sized reservoir; and
- There is a limited number of nuclear power stations located on non-tidal rivers. In these cases, the power plants are on large rivers such as the Connecticut and the Susquehanna.

In fact, the only location remotely similar to North Anna's situation is the Oconee plants on Lake Keowee in South Carolina. However, immediately below Lake Keowee is Hartwell Lake, so the section of non-tidal stream affected by consumptive loss is very short.

***Cumulative Impacts and Downstream Effects.*** Cumulative impacts of the current and future units on downstream hydrology and biology need to be quantitatively evaluated before any determination can be made that effects of the proposed addition of reactors to the site are "small." The starting point for a cumulative impact analysis should be before the existing two reactors were put into operations.

**VDEQ provide independent cumulative impact analysis.** Even though the proposed water withdrawal has decreased with the new cooling methods, yet the withdrawals remain significant with this small watershed. At a minimum VDEQ must provide an independent analysis of the cumulative impact taking into consideration worst-case scenario that includes the 2001-2002 drought.

**(2) Water Act administered by EPA (Water Temperature)** Section 402 of the Clean Water Act is administered by the Environmental Protection Agency (EPA) through NPDES which is administered in Virginia as the VPDES. The water temperature currently exceeds the temperature necessary to protect aquatic resources and the beneficial uses of national waters. Any additional temperature increases (i.e. blowdown discharges of the water cooling towers) would be detrimental to the coastal resources and would affect coastal uses, fisheries, aquatic life, public access and recreation. Further increase in water temperature would only compound the current problems.

**VDEQ must prevent existing VPDES violation.** First VDEQ must prevent the existing violation of its VPDES permit and the Clean Water Act, with just the two existing units which are increasing the temperatures of the entire lake. Recent Lake Anna Civic Association (LACA) water studies have indicated that the North Anna River (3 miles before it enters Lake Anna) is 13 degrees cooler then the central part of the lake above the Rt 208 Bridge. Many areas of the entire lake (both main reservoir and cooling lagoons) have recently experienced temperatures in the low to high ninety's which clearly exceeds the 89.6 degree F temperature limitation in the Clean Water Act as defined in the NPDES. Some residents have reported temperatures as high as 106 degrees F. The entire Lake Anna is being heated as a result of the current power plant.

The Clean Water Act applies to the Lake Anna reservoir and cooling lagoons/cooling ponds. Moreover, cooling ponds are considered navigable waters of the U.S. In addition, the U.S. Army Corps of Engineers (USACE) who administers Section 404 of the Clean Water Act - Dredge and Fill of Navigable Waters of the U.S. requires the issuance of 404 permits for dredge and fill activities in the cooling lagoons. This is predicated on the determination by the USACE that the cooling lagoons are jurisdictional waters of the United States. The definition for Waters of the United States under the 404 implementing regulations at 33 USC Section 328.3 is identical in all necessary respects to that of the NPDES regulations implementing 402 (40 CFR Section 122.2)

VDEQ must fully analyze the impact of any further water temperature increases resulting from the blowdown/discharges of the proposed unit 3 cooling towers or any malfunction of any of the proposed cooling towers or current generating units. The existing units 1 & 2 periodically exceed Clean Water Act limitations and any additional temperature increases by the proposed cooling towers will only exacerbate the situation.

VDEQ must also correct the existing VPDES regulations that exempt cooling lagoons from the definition of surface waters. VDEQ is in conflict with the national program (NPDES – 40 CFR Section 122.2) states that cooling lagoons/cooling ponds which meet the definition of waters of the U.S. are not Waste Treatment systems.

There is no question that the cooling lagoons are waters of the U.S. and as such are subject to three federal regulations:

(1) 404 (Dredge and Fill of Navigable Waters of the U.S.. administered by the U.S. Army Corp of Engineers)
(2) 402 (National Pollution Discharge Elimination System – NPDES)
(3) 401 (Water Quality Certifications as administered by VDEQ)

VDEQ and the Virginia State Water Control Board do not have the authority to de-nationalize national waters and designate the Lake Anna cooling lagoons as a waste heat treatment facility.

**The U.S. Environmental Protection Agency (EPA) must re-evaluate the NPDES authority delegated to the Commonwealth of Virginia** and ensure that the VPDES program is not less stringent then the national program. Federally delegated programs such as VPDES can be more stringent then the national program, but cannot be less.

**The Virginia State Water Control Board cannot arbitrarily exclude U.S. surface waters from its regulatory purview of its delegated national program.**

Monitoring of the VPDES program must begin at the end of the North Anna power plant discharge canal, since the cooling ponds are national waters.

Waters of the Lake Anna cooling ponds/lagoons reached 106 degrees on August 3, 2006 as recorded by local residents. The Lake Anna Civic Association (LACA) Water Quality Team had recorded 104.6 degrees F at the end of the discharge canal on the same day at a different time. LACA has also reported that waters in the North Anna River (3 miles before it enters Lake Anna) are 13 degrees cooler then the central part of the lake above the Rt 208 Bridge.

The current limits of 89.6 F for non-tidal waters established by the U.S. Clean Water Act have been violated many times by Dominion throughout the entire lake. In addition, the U.S. Clean Water Act defines that the effluent discharge into Lake Anna shall not be increased more then 6.3 degrees F above the natural water temperature. Therefore recent LACA studies have shown the current natural North Anna River temperatures to be approximately 72 degrees F, which translated with the U.S. Clean Water Act requirements, indicates that Lake Anna water temperatures should not exceed 78.3 degrees F under current conditions.

**Dominion's current 316(a) variance.** Dominion has a current variance from the VPDES permit under section 316(a) (Thermal Discharges) of the federal Clean Water Act; however this variance is for the vicinity of the Dike 3 discharge and in the shallow reaches near its tributaries. Whenever the current VPDES permit is renewed, it is essential that VDEQ renewal process includes a detailed review of any previous variances granted.

***Variances cannot be granted to a commercial/utility company for life or we could be faced with 150 degree F lake temperatures with the public having no recourse.*** Local conditions change and the VPDES renewal process must be pro-active in soliciting public comments prior to the draft of a new permit to ensure that it is as stringent or more stringent then the EPA delegation to the state of the Clean Water Act administration responsibilities. The VPDES process must examine whether local conditions have changed (i.e. increased use of lake by the public for recreation, heating of the entire lake to 90 degree temperatures creating unhealthy conditions, etc.) prior to any re-issuance of the waiver. The U.S. Clean Water Act 316A variance does not and should not permit the entire Lake Anna to be heated to unhealthy conditions. The clean water act also anticipates that the water discharge would occur in a free flowing river or ocean, so the heat transfer would be carried downstream, not be in an impoundment with little water-flow that heats up throughout.

**U.S. Code Title 33, chapter 26, subchapter III Section 1312 of the Clean Water Act re Water quality related effluent limitations** indicates that effluent limitations should be imposed on those effluents that would not interfere with the attainment of water quality in a specific portion of the waters *to protect public health, shellfish, fish and wildlife and allow recreational activities in and on the water*

**U.S. Code Title 33, chapter 26, subchapter III Section 1313 of the Clean Water Act re Water Quality Standards and Implementation Plans** indicates that water quality standards to *protect the public health and welfare , plus fisheries and wildlife and recreational and other for intrastate waters* ***shall be reviewed at least once each three year period.***

**U.S. Code Title 33, chapter 26 subchapter III Section 1326 of the Clean Water Act re Thermal Discharges** indicates that *more stringent thermal effluent limitations may be imposed* to assure the protection and propagation of shellfish, fish and wildlife in the body of water.

The entire Lake Anna is unique and it is primarily an impoundment where 99% of the water is re-circulated, which in turn causes the entire Lake to heat up, since only about 1% of the water is released over the dam. Since the entire lake is 17 miles long and includes 13,000 acres of water (with depths of 50- 75 feet in many parts), and water temperatures exceed 90 degrees F throughout the lake, *it would seem that Dominion is routinely in violation of the U.S. Clean Water Act and the VPDES variance that they have.* Any additional heat transfer from the proposed 3rd unit water-cooling tower blowdown/discharge will only compound the problem, while the proposed unit 4 dry air cooling tower would have no additional heat transfer impacts to the lake.

The VPDES permit is one of the enforceable policies of the Coastal Program. If the current 316A variance granted by the VPDES is in violation of the Clean Water Act, it follows that any future VPDES permit will also be in violation if immediate changes to protect the public are not made.

**4. Inconsistency with the Advisory Policies of the Coastal Program and the U.S. Clean Water Act.** The Coastal Program promotes recreational uses of coastal waters that include swimming, boating, fishing, etc. The U.S. Congress passed the Clean Water Act to restore and maintain the chemical, physical, and biological integrity of the Nation's waters (33 U.S.C. section 1251(a). The national goal of the Act is to achieve "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" (33 USC section 1251(a)(2).

**5. One set of the North Anna River Users should not benefit at the expense of another set of users.** Whatever, the final solution is for not decreasing the inadequate water supply in the small water shed; the solution should not benefit one set of users at the expense of another set of users.

For example, the lake levels should not be raised which could cause property damage to lake owners to quarantine more water so it could be released later to satisfy the downstream users at different times of the year.

Likewise the consumptive use of water and increased needs for water caused by population growth by downstream users should not cause the lake levels to be dropped so more water flow could be released to downstream users and then create mud flats throughout the lake.

**6. Alternative Cooling Method.** One alternative discussed, but not proposed in the SDEIS is to exclusively use dry Air Cooling for the 3rd unit, which would then negate any further water withdrawals from the small watershed and would also alleviate a major safety problem if the dam breaks or was blown-up by a terrorist attack The dam break would necessitate the dam repair and then also requiring 3 years to refill the lake before you could restart any of the reactors.. ***If the dam break occurred, 1/3 of Virginia could be without power for 3 years.*** The dry-air cooling appears to be a feasible option, since this is same technology that Dominion has proposed for Unit 4 and is used by many overseas countries that do not have a local water source. In addition, many of the recommendations by VDEQ analysis to the NRC requests that the air cooling mode be used with unit 3 for 7 months of the year to reduce lake water drawdown and reduce the risk of a complete unit 3 shutdown. As defined in section 7.3 of the SDEIS dry cooling would eliminate the consumptive water loss associated with unit 3.

In its response to the DEIS, VDEQ's Division of Water Resources (DWR) expressed its preference for the once-through cooling process proposed for Unit 3 be changed to a dry cooling tower because ***the once-through process results in less consumptive use of water than the unit 3 cooling tower proposed.*** Also in it comments on the DEIS, DWR stated that it would have no concerns about this project if both the third and fourth reactors at North Anna were dry air cooled. The SDEIS must fully analyze the consumptive water use for this new cooling method.

**7. Other related concerns:**

To ensure that the proposed construction of a 3rd & 4th reactor will minimize the adverse affect to the quality of life for those that live and use Lake Anna, we also ask that you forward the following concerns to the appropriate Va. State departments for evaluation and comment prior to your making a final decision on the ESP or Federal Consistency Certification.

a. Water temperatures should be limited to no more then 104 degrees F at the end of the discharge canal

b. Point of compliance for all U.S. and water permits should be changed from Dike 3 to the end of the discharge canal to provide all Clean Water Act protections for all cooling lagoon users.

c. Human health problems due to increased water temperatures and increased bacteria from increased water temperatures.

d. Impact to wildlife, fish and endangered species *( DGIF recently identified two new bald eagle nest at Lake Anna)* as a result of increased water temperatures, reduced water flow, increased drought cycles and possible loss of food supply for endangered species due to fish kills as a result of high water temperatures in the cooling lagoons, reduced water flow.

e. Raising of lake level to retain more water for 3rd unit and resulting in destruction of adjoining property and also for retention for downstream users.

f. Lowering lake levels by increased water usage thereby causing increased drought cycles ranging from weeks to months.

g. Need to enforce U.S. Clean Water Act for recreating in and on the water in both the main reservoir and cooling lagoons. Currently the cooling lagoon and main reservoir waters exceed hot tub temperatures on many occasions.

h. Height of dry and wet cooling towers and facility buildings should not exceed tree line to protect the rural esthetic atmosphere of the community as Dominion indicated in Jan 06 stakeholder meeting.

i. Impact of 5,000 – 7,000 new workers (construction, periodic maintenance, professional) employees for 5 years on local roads and schools. This will create the need for new expanded roads before the project begins because of the workers and the three newly approved Louisa County subdivisions for about 1800 new homes in close proximity to the plant. These are possibly in anticipation of the new reactors being built?

New schools and other county infrastructure (police, fire, rescue squads, etc.) will need to be planned and built prior to any new tax dollars coming from Dominion. Louisa is now the 73rd fastest growing county in the U.S. Who is going to pay for all these new requirements? Is the Federal Government (NRC & other departments) going to give grants to Louisa County, similar to the 8 to 10 million dollar grant they gave to Dominion for processing the Early Site Permit?

j. Emergency evacuation on small 2 lane roads. Need for expanded road system to accommodate new workers and subdivisions.

k. Safety - spent nuclear fuel (where stored) & terrorist attack protections for plant, dam, etc)

l. Impact of additional fog and icing from wet cooling towers on local roadways.

m. Noise concerns emitted from 180/230 foot buildings that will travel long distances without having tree barriers to break the sound from giant fans.

**8. Summary**

a. We believe that the North Anna project as currently proposed is inconsistent with the Va. Coastal Zone Management Program as approved under the U.S. Coastal Zone Management Act. We support the concept of a 3rd and 4th reactors, but the above environmental items must be resolved prior to the issuance of any Federal Consistency Certification. **We request that a federal consistency certification not be issued until the above issues are satisfactorily resolved**

b. We request that the U.S. Clean Water Act be enforced so the entire lake is not a hot tub with temperatures throughout the lake periodically in the 90's or greater that we have experienced in recent weeks and the waters at the end of discharge canal be no greater then 104 degrees F. Any previous Clean Water Act variances granted should be immediately revisited to ensure the 500,000 plus annual users/public's health, safety and welfare is protected and all U.S. Clean Water Act and other laws are complied with prior to any new VPDES discharge permit or variances being granted.

c. We also request that the all state and federal agencies stop using the designation, Waste Heat Treatment Facility to describe the cooling lagoons of Lake Anna so it is not viewed and treated similar to a sewage treatment facility by Virginia state departments. This designation affords no public protection for the over 8,000 users of the cooling lagoons on a typical summer weekend day.

d. Further, we request that the VPDES Point of compliance be changed from Dike 3 to the end of the Discharge Canal and the Cooling Lagoons start to be treated by all state agencies as quasi-public waters so the health, welfare and safety of those who use the cooling lagoons is protected.

The quasi-public water designation would recognize that Lake Anna is unique for thermal cooling (unlike other power plants that discharge heated waters into oceans or major free flowing rivers). It would also permit the state to treat the cooling lagoons as public waters and afford them the same protection as other public waters unless there is a nuclear disaster. This would also adhere to the recent Supreme Court Decision (S. D. Warren vs. Maine Board of Environmental Protection) to be adhered to which did not permit the privatization of public waters. If there is a nuclear disaster at the North Anna plant, this designation would be recognized that the cooling lagoons are adjacent to a nuclear power plant and in the event of a nuclear disaster only, nuclear by-products could be discharged into the cooling lagoons and be quarantined

e. We also request that VDEQ provide a cumulative impact analysis of the water withdrawal of the new unit 3 water cooling tower method. The analysis should identify the number of inches that the lake level will be lowered from the current conditions for each month of the year. It should also include the impact to downstream users and fisheries and potential impacts to groundwater users (current & planned) that include landowners, utilities, commercial and farming) surrounding Lake Anna throughout the small watershed. and downstream users.

f. We further request that all items defined above that are not part of the Coastal Zone Program be forwarded to the appropriate state or federal agency for review and comment prior to any Federal Consistency Certification being granted.

Thank you for your time and consideration of the above items,

Sincerely,

Harry Ruth
For the Friends of Lake Anna

CC: U.S. Representative Eric Cantor (7th District) (via email – Lloyd.Lenhart@mail.house.gov)
Senator R. Edward Houck, 17th District of Virginia (via email – ehouck@adelphia.net)
Senator Ryan McDougal, 4th District of Virginia (via email – district04@sov.state.va.us
Senator Charles Colgan, 29th District of Virginia (via email – cjcolgan@aol.com
Senator Russell Potts, 27th District of Virginia (via email – district27@sov.stte.va.us
Delegate Christopher Peace, 97th District of Virginia (via email – delcpeace@house.state.va.us
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Delegate William Janis, 56th District of Virginia (via email – delbjanis@house.state.va.us
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Tony Banks – Dominion ESP Project Manager (via email – tony_banks@dom.com
VDEQ – Ellie Irons – Environmental Impact Review - via email – elirons@deq.virginia.gov
VDEQ – Jeff Steers – No. Va. Regional Director – via email – jasteers@deq.virginia.gov
NRC – Jack Cushing – Environmental Project Mgr – via email –JXC9@nrc.gov
NRC – Public comments - North Anna ESP – via email – North_Anna_Comments@nrc.gov
EPA – Kevin Magerr- NEPA Environmental Engineer – via email – majerr.kevin@epa.gov

**Ellis,Charles**

**From:** Khizar Wasti [Khizar.Wasti@vdh.virginia.gov]
**Sent:** Thursday, November 02, 2006 10:16 AM
**To:** Ellis,Charles
**Subject:** RE: Latest comments on North Anna (DEQ-05-079F)

I do not believe that there were any comments that need a response from VDH. Please advise if I am mistaken.

Thanks.

Khizar
==========

Khizar Wasti, Ph.D.
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Virginia Department of Health
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Email: khizar.wasti@vdh.virginia.gov

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**From:** Ellis,Charles [mailto:chellis@deq.virginia.gov]
**Sent:** Thursday, November 02, 2006 10:11 AM
**To:** Andrew Zadnik; John Kauffman; Robert Munson; Susan Douglas; Khizar.Wasti@vdh.virginia.gov; Faha,Thomas; Hassell,Joseph; Kirchen, Roger; Alice Baird; Rochelle Garwood; llintecum@louisa.org; rwheeler@spotsylvania.va.us; fwharksen@co.hanover.va.us; mineral@louisa.net; planinfo@rrregion.org; bwilson@fampo.state.va.us; Wagner,Terry; Ronald.rice@vsp.virginia.gov; Michael.Cline@dem.virginia.gov; Tony Watkinson; Jeff Madden
**Cc:** Irons,Ellie; Murphy,Michael; Fulcher,Valerie; Ellis,Charles
**Subject:** Latest comments on North Anna (DEQ-05-079F)

I am writing this e-mail to remind you that we are still in need of comments to complete our response to the federal consistency certification for this project. Some of you have not sent final comments on the federal consistency certification. Others have not commented on the public comments we sent around with my July 27 memo, our August 28 and 29 e-mails, and Valerie's October 10 e-mail forwarding the public hearing transcript to some of you. The legal deadline for submission of our comments to the applicant is November 3. We understand that the review process has been stayed until November 16. Please respond ASAP.

Andy (DGIF), John (DGIF) – I need your latest comments, if any, on the North Anna consistency review. I am using your July 7 comments in the draft so far, and also John's discussion in the August 28 and August 31 e-mails. In an e-mail on September 6, subject: "RE: Lake Anna unit differences in consumption modeling," John said that DGIF would be revising its comments. On September 28, in an e-mail, subject: "consistency meeting," John said that he would "work on simplifying our recommendations for dry cooling operation but flows will be similar to that in our July 6 [sic -- July 7] letter."

Joe (DEQ-DWR), Terry (DEQ-DWR), Tom (DEQ-NVRO) – According to Mike, you are still working on your final comments. Please advise of their status ASAP.

Thanks, in any case, to all of you for your help and hard work on this review and the related review of the Supplement to the Draft EIS in recent months.

---

Charlie Ellis
DEQ-OEIR
November 2, 2006

## Ellis,Charles

**From:** Susan Douglas [Susan.Douglas@vdh.virginia.gov]
**Sent:** Wednesday, November 08, 2006 7:37 AM
**To:** Ellis,Charles
**Subject:** Re: Latest comments on North Anna (DEQ-05-079F)

Charlie-
So far no one in the Health Department has any further comments on the proposed permit. I am still waiting to hear from Dr. Wasti, and will forward any comments from him if/when received. I understand that this may not meet the Board's timetable. - Susan

Ellis,Charles wrote:

> I am writing this e-mail to remind you that we are still in need of comments to complete our response to the federal consistency certification for this project. Some of you have not sent final comments on the federal consistency certification. Others have not commented on the public comments we sent around with my July 27 memo, our August 28 and 29 e-mails, and Valerie's October 10 e-mail forwarding the public hearing transcript to some of you. The legal deadline for submission of our comments to the applicant is November 3. We understand that the review process has been stayed until November 16. Please respond ASAP.
>
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> Joe (DEQ-DWR), Terry (DEQ-DWR), Tom (DEQ-NVRO) – According to Mike, you are still working on your final comments. Please advise of their status ASAP.
>
> Thanks, in any case, to all of you for your help and hard work on this review and the related review of the Supplement to the Draft EIS in recent months.
>
> Charlie Ellis
> DEQ-OEIR
> November 2, 2006

## Ellis,Charles

**From:** Ray Fernald [Ray.Fernald@dgif.virginia.gov]
**Sent:** Tuesday, November 21, 2006 10:30 AM
**To:** Murphy,Michael
**Cc:** Ellis,Charles; Weeks,Richard; Andrew Zadnik; David Whitehurst; Frances Greenway; Gary Martel; John Kauffman
**Subject:** RE: Dominion's North Anna ESP Review

**Importance:** High

** High Priority **

Mike;

I spoke to John Kauffman this morning regarding the public comments, and we have no additional comments or responses regarding the materials DEQ sent him to review related to fisheries management. Further, as you requested, the "IFIM" condition as accepted in writing by DGIF, DEQ, Dominion, and NRC fullfills our conditional requirements, and we therefore support conditional concurrence with Dominion's certification of consistency regarding the Fisheries Enforceable Policy of Virginia's Coastal Zone Resources Management Program. We have no additional comments or conditional requirements regarding any of the other policies.

Thanks for your assistance and guidance throughout this process. Please send us a copy of DEQ's final consistency determination (presumably a conditional concurrence) on the ESP.

ray

Ray Fernald, Manager
Nongame and Environmental Programs
Va. Dept. Game & Inland Fisheries
ray.fernald@dgif.virginia.gov
(804) 367-6913

>>> "Murphy,Michael" <mpmurphy@deq.virginia.gov> 11/16/06 9:54 AM >>>
Ray/John,

First, I wanted to let you know that Dominion has agreed to extend the stay until no later than next Tuesday, 11/21.

Also, we wanted to ask if your agency has any final comments regarding the conditional concurrence under consideration and if you have any further responses to any of the comments received during the public comment period related to fisheries management? If yes, please send to Charlie Ellis at your earliest convenience. Specifically, we need to confirm with you, please, that the statement in Col. Massengill's 10/30 letter about inclusion of the IFIM study as a condition in the consistency response and in the ESP (should the NRC later decide to issue this permit) means that your agency has no other condition(s) it wants to have added to this project at this time. The Col's 10/30 letter is attached.

Thanks again for all your help on this review,

Mike

Michael P. Murphy, Director
Division of Environmental Enhancement
Virginia Department of Environmental Quality
629 East Main Street
P.O. Box 1105
Richmond, Virginia 23218
Office: (804) 698-4003
FAX: (804) 698-4319

TDD: (804) 698-4021
email: mpmurphy@deq.virginia.gov
website: www.deq.virginia.gov

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

OFFICE OF THE
GENERAL COUNSEL

**VIA ELECTRONIC AND U.S. MAIL**

November 14, 2006

Eugene S. Grecheck
Vice President – Nuclear Support Services
Dominion Nuclear North Anna, LLC
5000 Dominion Boulevard
Glen Allen, VA 23060

Dear Mr. Grecheck:

The Nuclear Regulatory Commission ("NRC") is in receipt of Dominion Nuclear North Anna, LLC's ("Dominion") November 10, 2006 supplement to its early site permit ("ESP") application for the North Anna ESP site. In that supplement, Dominion adds the following commitment to its ESP application, and requests that it be included as a permit condition:

> Dominion Nuclear North Anna, LLC (Dominion) shall conduct a comprehensive Instream Flow Incremental Methodology (IFIM) study, designed and monitored in cooperation and consultation with the Virginia Department of Game and Inland Fisheries (VDGIF) and the Virginia Department of Environmental Quality (VDEQ), to address potential impacts of the proposed Units 3 and 4 upon the fishes and other aquatic resources of Lake Anna and downstream waters. Development of the Scope-Of-Work for the IFIM study shall begin in 2007, and the IFIM study shall be completed prior to issuance of a combined construction and operating license (COL) for this project. Dominion agrees to consult with VDGIF and VDEQ regarding analysis and interpretation of the results of that study, and to abide by surface water management, release, and instream flow conditions prescribed by VDGIF and VDEQ upon review of the completed IFIM study, and implemented through appropriate state or federal permits or licenses.

The NRC herein agrees to include this proposed condition as an enforceable permit condition, should the agency approve the North Anna ESP application and ultimately issue a permit.

Should you have any further questions on this matter, please contact me at (301) 415-1696.

Sincerely,

Robert M. Weisman

Robert M. Weisman
Counsel for NRC Staff

cc: Michael P. Murphy, VDEQ
J. Carlton Courter III, VDGIF
David Whitehurst, VDGIF (e-mail only)
Tony Banks, Dominion (e-mail only)
David Lewis, Pillsbury Winthrop Shaw Pittman, LLC (e-mail only)

Dominion Nuclear North Anna, LLC
5000 Dominion Boulevard, Glen Allen, VA 23060

Dominion

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DEQ-Office of Environmental Impact Review

November 10, 2006

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 06-1004
ESP/LTB
Docket No. 52-008

**DOMINION NUCLEAR NORTH ANNA, LLC**
**NORTH ANNA EARLY SITE PERMIT APPLICATION**
**REQUEST TO AMEND THE NORTH ANNA ESP APPLICATION TO INCLUDE A COMMITMENT TO CONDUCT AN INSTREAM FLOW INCREMENTAL METHODOLOGY STUDY**

On November 9, 2006, Dominion discussed with the NRC, the Virginia Department of Environmental Quality (VDEQ) and the Virginia Department of Game and Inland Fisheries (VDGIF), a commitment to conduct an Instream Flow Incremental Methodology study, to be completed prior to issuance of a construction and operating license (COL) for a proposed Unit 3. Dominion is adding the following commitment to our ESP application, and requests its inclusion as a permit condition in the Early Site Permit:

> Dominion Nuclear North Anna, LLC (Dominion), shall conduct a comprehensive Instream Flow Incremental Methodology study (IFIM), designed and monitored in cooperation and consultation with the VDGIF and the VDEQ, to address potential impacts of the proposed Units 3 and 4 upon the fishes and other aquatic resources of Lake Anna and downstream waters. Development of the Scope-Of-Work for the IFIM study shall begin in 2007, and the IFIM study shall be completed prior to issuance of a combined construction and operating license (COL) for this project. Dominion agrees to consult with VDGIF and VDEQ regarding analysis and interpretation of the results of that study, and to abide by surface water management, release, and instream flow conditions prescribed by VDGIF and VDEQ upon review of the completed IFIM study, and implemented through appropriate state or federal permits or licenses.

If you have any questions or require additional information, please contact Tony Banks at 804-273-2170 or Joe Hegner at 804-273-2770.

Very truly yours,

Eugene S. Grecheck
Vice President-Nuclear Support Services

Enclosures: None

Commitments made in this letter:

1. Conduct a comprehensive Instream Flow Incremental Methodology study in accordance with the proposed permit condition.

cc: Mr. David Whitehurst
Virginia Department of Game & Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Mr. Ray Fernald
Virginia Department of Game & Inland Fisheries
4010 West Broad Street
Richmond, VA 23230

Mr. Rick Weeks
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

Mr. Mike Murphy
Virginia Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

U. S. Nuclear Regulatory Commission, Region II
Sam Nunn Atlanta Federal Center
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Suite 23T85
Atlanta, GA 30303

Mr. Jack Cushing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. J. T. Reece
NRC Senior Resident Inspector
North Anna Power Station

Mr. Nitin Patel
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Richard Kingston
GE Nuclear Energy
Castle Hayne Rd, PO Box 780
Wilmington, NC 28401

Administrative Judge
Alex S. Karlin, Chair
Atomic Safety and Licensing Board
Mail Stop T-3 F23
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Joseph Hassell
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Richmond, VA 23219

Mr. John Kauffman
Virginia Department of Game & Inland Fisheries
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Administrative Judge
Dr. Richard F. Cole
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Virginia Department of Environmental Quality
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Richmond, VA 23240

Mr. Adrian Heymer
Nuclear Energy Institute
1776 I Street, N.W., Suite 400
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Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Morgan W. Butler, Esq.
Southern Environmental Law Center
201 West Main Street
Charlottesville, VA 22902

Serial No. 06-1004
Docket No. 52-008
Request to NRC to Amend the ESPA with the IFIM Study Condition

COMMONWEALTH OF VIRGINIA

COUNTY OF HENRICO

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Eugene S. Grecheck, who is Vice President, Nuclear Support Services, of Dominion Nuclear North Anna, LLC. He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of Dominion Nuclear North Anna, LLC, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 10th day of November, 2006

My Commission expires: August 31, 2008

Margaret B. Bennett
Notary Public

(SEAL)

Pamela F. Faggert
Vice President and Chief Environmental Officer

Dominion Resources Services, Inc.
5000 Dominion Boulevard, Glen Allen, Virginia 23060
Phone: 804-273-3467

Dominion®

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DEQ-Div. of Environmental Enhancement

November 7, 2006

David Whitehurst
Director of Wildlife Diversity Division
Virginia Department of Game & Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230

Re: North Anna Early Site Permit (ESP) and Coastal Zone Consistency Determination Commitment to Conduct IFIM Study

Dear Mr. Whitehurst:

Dominion has reviewed the October 30, 2006 letter from Col. W. Gerald Massengill, Interim Director of the Virginia Department of Game and Inland Fisheries (VDGIF), to Mr. David Paylor, Director of the Virginia Department of Environmental Quality (VDEQ), that provides a condition to conduct an Instream Flow Incremental Methodology (IFIM) study related to the above project. We are in agreement with the proposed language in the condition.

Also the letter and an e-mail on 11/01/06 from Ray Fernald of VDGIF to VDEQ and Dominion discussed how the Nuclear Regulatory Commission (NRC) should address the above condition as part of the ESP application. We have discussed this with the NRC and have the following mutual understanding of the process. Upon receipt of a letter from DEQ regarding the coastal zone consistency determination for the North Anna's ESP application, Dominion will provide a letter to both DEQ and NRC accepting the condition and committing to perform the study. This letter will also ask the NRC to treat the commitment as part of its application and incorporate the condition into the early site permit.

Dominion appreciates the opportunity to continue to work with VDGIF and VDEQ in moving forward with this project. Please contact Jud White (804-273-2948) or Tony Banks (804-273-2170) if you have any questions.

Sincerely,

Pamela F. Faggert

Pamela F. Faggert

Cc: Raymond Fernald - VDGIF
Rick Weeks - DEQ
Mike Murphy – DEQ
Jack Cushing - NRC

# COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
*Secretary of Natural Resources*

***Department of Game and Inland Fisheries***

Colonel W. Gerald Massengill
*Interim Director*

October 30, 2006

Mr. David K. Paylor, Director
Department of Environmental Quality
629 East Main St., Sixth Floor
Richmond, VA 23219

RE: North Anna Early Site Permit
Coastal Consistency Determination 05-079F
ESSLOG 19290 (20374)

Dear Mr. Paylor:

As discussed today with your staff and with representatives of Dominion Nuclear North Anna, LLC (Dominion), there remain significant unresolved issues regarding protection of aquatic resources at Lake Anna and downstream of the proposed facility that can best be addressed through completion of a comprehensive Instream Flow Incremental Methodology (IFIM) study, and subsequent implementation of appropriate design and operational standards, conditions, and protocols. We offer the following condition as mandatory to our recommendation that issuance of an Early Site Permit for this project would be consistent with the Fisheries Management enforceable policy of the Virginia Coastal Resources Management Program:

> "Dominion Nuclear North Anna, LLC (Dominion), agrees to conduct a comprehensive Instream Flow Incremental Methodology study (IFIM), designed and monitored in cooperation and consultation with the Virginia Department of Game and Inland Fisheries (VDGIF) and the Virginia Department of Environmental Quality (VDEQ), to address potential impacts of the proposed Units 3 and 4 upon the fishes and other aquatic resources of Lake Anna and downstream waters. Development of the Scope-Of-Work for the IFIM study shall begin in 2007, and the IFIM study shall be completed prior to issuance of a combined construction and operating license (COL) for this project. Dominion further agrees to consult with VDGIF and VDEQ regarding analysis and interpretation of the results of that study, and to abide by surface water management, release, and instream flow conditions prescribed by VDGIF and VDEQ upon review of the completed IFIM study, and implemented through appropriate state or federal permits or licenses."

Provided we receive written agreement of the U.S. Nuclear Regulatory Commission (NRC), VDEQ, and Dominion to fully implement this condition, and upon implementation of this

agreement within enforceable provisions of any state or federal permit or consistency determination, we consider this project to be consistent with the Fisheries Management enforceable policy of the Virginia Coastal Resources Management Program.

Thank you for the opportunity to provide comments on this project. Please contact me or David Whitehurst (367-0940) if we can be of further assistance.

Sincerely,

Col. W. Gerald Massengill
Interim Director

# APPENDIX 1

## Alternative Measures

If the conditional concurrence for the referenced project is later treated as an objection, in accordance with 15 CFR Part 930, §930.63 (b), (c), and (d), the Commonwealth would likely propose the alternative measures described below, which if adopted by Dominion, may permit the referenced project to be conducted in a manner consistent with the Enforceable Policies of the Virginia Coastal resources Management Program (VCP). Should the conditional concurrence for the referenced project later become an objection, the VCP may also describe additional alternative measures than those listed below.

**Fisheries Management Enforceable Policy**

DGIF commented on the Draft EIS for this project in February 2005, and expressed concern that the project may result in significant adverse impacts upon fishery resources in Lake Anna and in the North Anna River downstream. These impacts could result from fish impingement and/or entrainment at the intake, and the increased frequency of drought flows downstream. For these reasons, DGIF indicated that the project, as then proposed, would be inconsistent with the fisheries management enforceable policy of the Virginia Coastal Resources Management Program.

In October 2005, Dominion proposed a new cooling method for proposed Unit 3. The proposed unit would now use a combination wet/dry cooling process instead of once-through cooling, in order to reduce the evaporative losses from the proposed unit. The proposed Unit 4 would use a dry cooling method, as before. The proposed Unit 3 circulating water system would operate in one of two modes:

- Energy conservation (EC), in which the dry cooling process would be turned off, with reliance on wet towers for heat removal
- Maximum water conservation (MWC), in which at least 1/3 of the heat would be removed by the dry towers, while the rest would be removed, as required, by the wet towers

DGIF's additional discussion concerns the revised design as it would affect resources under its jurisdiction, and includes recommendations for mitigating potential adverse impacts on the resources. The issues listed below relate to striped bass reservoir habitat, water intake systems for the plant, and hydrologic alterations. These comments are based on DGIF's review of the "Revision 7" document submitted by Dominion in June 2006.

**Striped bass reservoir habitat** According to DGIF, the proposed wet-dry cooling system for proposed Unit 3 would not increase heated water in the Lake, as the heat would be dissipated through the cooling towers with only a minimal amount returned to the Lake. Accordingly, DGIF does not expect the new design to cause changes in striped bass habitat.

**Intake systems** The current intake screen at the plant has a 9.5 mm mesh size and an intake velocity of 0.7 feet per second (fps). The same design is proposed for Unit 3. With the

re-design of Unit 3's cooling process, the expected impingement and entrainment rates are expected to be much lower, as indicated here:

| Cooling Method | Number Impinged | Number Entrained |
|---|---|---|
| Once-through | 240,000 annually | 147 million annually |
| Proposed wet-dry | 5,400 annually | 3.4 million annually |

**Mesh size and intake velocity: Analysis** Earlier DGIF recommendations were for a mesh size of 1 mm and an intake velocity of 0.25 fps. Based upon discussions regarding a lack of sweeping velocity in a reservoir situation, and further literature search, DGIF determined that a 9.5 mm mesh size would only exclude fish larger than 3.4 inches from the intake. A 2 mm screen mesh size will exclude fish larger than 1 inch from the intake.

**Recommendations:** DGIF recommends a 2 mm mesh size and an intake velocity of 0.5 fps for the new Unit 3 and Unit 4. This recommendation differs from DGIF's earlier recommendation and also from the applicant's existing practice and proposed measurements. Here is a comparison of the recommendations:

| | DGIF Earlier Recommendation | DGIF Present Recommendation | Applicant's Proposal (same as for existing units) |
|---|---|---|---|
| Mesh size | 1 mm | 2 mm | 9 mm |
| Intake velocity | 0.25 fps | 0.5 fps | 0.7 fps |

**Hydrologic Alterations: Analysis** The proposed new cooling method for Unit 3 leaves DGIF with some remaining concerns regarding increased evaporation from Lake Anna and subsequent impacts upon downstream hydrology. These concerns can be addressed by changing the proposed operating rules for implementation of the Maximum Water Conservation (MWC) mode cooling process. The concerns are that the increased frequency of flows below 40 cubic feet per second (cfs) will cause the downstream hydrology to change to a drier condition than would occur naturally, resulting in lower flows for downstream resources in the Pamunkey River.

The required release flow of 40 cfs is 11.6% of mean annual flow (MAF). Normal summer flows on a stream this size would be from 70 to 100 cfs or 20-30% of MAF. Reduced flows result in reduced summer habitat for resident species as well as downstream migratory species. An analysis of Dominion's long-term North Anna River monitoring data demonstrated that the fish community requires a diverse flow pattern, with different species doing best in wet years. This is similar to study results from the James River and the North Fork, Shenandoah River.

**Frequency of 20 cfs flows** The normal water elevation of the Lake is 250 feet above mean sea level (msl). Current operating rules for the North Anna Power Station allow flows to be reduced from a required 40 cfs to 20 cfs whenever the lake elevation reaches 248 feet msl. Prior to lake construction, flows were less than 20 cfs 4.2% of the time; currently, flows are decreased to 20 cfs 5.2% of the time. With the proposed Unit 3 wet/dry cooling system, the frequency and duration of these events would increase to 7.3% of the time. This is an improvement over the original proposal (2003-2005), which would have resulted in flows being reduced to 20 cfs 11.7% of the time.

With the existing two units, there are two (2) 20-cfs flow events predicted over 24 years. The proposed Unit 3 would increase that to five (5) such events. The addition of the proposed Unit 3 would also increase the duration of the first two 20-cfs events by an additional 4 to 5 weeks. The three (3) additional events have durations of 2 to 13 weeks.

**Recommendations:** For each additional inch of water stored, an additional 27 days are provided during which flows can be maintained at 40 cfs. By storing 3 inches of water, resulting in a lake elevation of 250.25 feet msl, the five (5) events of 20 cfs would be reduced to three (3) such events, and the duration of the third event would be reduced from 13 weeks to 1 week. The other two events would have the same duration as they previously did. Accordingly, the DGIF recommends that the normal operating elevation be seasonally increased (from April through November) to 250.25 feet msl in order to minimize the impacts of an increased frequency and duration of 20-cfs flows on downstream resources. Rules could be put in place to reduce the pool to 250 feet msl prior to predicted severe storm events such as hurricanes and tropical depressions.

**Altered Flow regime above 40 cfs** The proposed Unit 3 will withdraw a maximum of 49.6 cfs, with an average use of 34.3 cfs. Return water could range from near zero to 49.6 cfs, depending on the operation of the dry cooling unit and ambient air temperature. Under summer conditions, dry tower return rates could be in the range of 25%. Winter returns could be 100% with minimal evaporative loss from the lake. Use of only the wet tower, however, would result in almost 100% evaporative water loss. The table offered by the DGIF ("Table 1," attached to the Department's July 7, 2006 comments, enclosed) summarizes the flows of the North Anna River under four conditions:

- prior to construction of Lake Anna;
- under current conditions;
- with the addition of Unit 3 as proposed; and
- with the MWC mode utilized.

According to DGIF, some discrepancies appear in the table because Unit 3 values were computed using weekly averages instead of daily values (see the spring months during median (50th percentile) and 75th percentile events, when flows with Unit 3 are shown as being higher than existing values.

It is recognized that creation of Lake Anna improved water quality downstream from Contrary Creek, which has benefited several fishery resources. During dry conditions in late summer (10th percentile), some flows now are slightly higher than before (see Table 1). However, for most of the time since creation of the Lake and operation of the power plant, there has been a negative impact on flows: almost all monthly percentile flows are less due to natural and accelerated water evaporation.

In managing an aquatic resource, low, normal, and high flows are important for various species. Naturally variable flows result in a balanced and diverse fish community. Changes in flow of more than 10% can produce habitat changes of 10%. DGIF has highlighted, in Table 1, those instances where:

- Natural flows have been reduced by more than 10% of the pre-Lake flows; and
- Use of the MWC mode would increase post-Unit 3 flows by more than 10%.

Use of the dry cooling system in the summer could also be effective in helping create seasonal variation during wetter years.

**Hydrologic Alterations: Additional Considerations** According to DGIF, some of the most biologically important fishery resources and most critical seasons are as follows:

- **Herring spawning during March** Based upon results on the Rappahannock and James Rivers, herring runs are strongest when flows are near normal. Low flows have resulted in reduced numbers moving upstream.

- **Shad spawning during late March and April** Upstream migration is less during dry years.

- **Smallmouth bass spawning in May and June and juvenile bass development and survival during June.** Statewide, DGIF has documented that juvenile bass survival is highest when June flows are between the median and average values. June flows (Table 1) are currently below median values and would decrease more with the addition of Unit 3, to 43% of pre-Lake values. Water conservation during this period should enhance smallmouth bass juvenile survival.

- **Juvenile shad survival on the Pamunkey River is best during wet summers** The Pamunkey system has the healthiest shad population in Virginia and serves as the brood source for shad re-establishment in the James River system. DGIF has reviewed the impacts of stream flow on American shad juvenile production in the Pamunkey River. These data were presented to Dominion and the Nuclear Regulatory Commission in separate meetings in spring 1006. Shad juvenile year class strength and survival were assessed by evaluating catch-per-unit effort of returning brood stock, ages 4 to 6 years. In summary, the best juvenile shad survival occurred during wetter June-to-August years (those with flows at the 80th percentile). Lake Anna is about 1/3 the drainage area of the Pamunkey River at the gauge station near Hanover, and is an important contributor to that River's flow. Flow losses within Lake Anna due to evaporation can have a significant impact upon downstream shad resources.

**Recommendations.** The Department of Game and Inland Fisheries recommends the following operating rules for implementation of the Maximum Water Conservation (MWC) mode associated with proposed Unit 3:

- **In March and April,** DGIF recommends implementation of the MWC mode when flows are less than 225 cfs. Flows are in the lower quartile, and water conservation savings can result in significant habitat savings and return flows to near-existing conditions. These flows are particularly important for herring, shad, migratory striped bass, and resident sucker and minnow spawning.

- **In May,** DGIF recommends implementation of the MWC mode when flows are less than 175 cfs. These flows are important for smallmouth bass nesting. The addition of Unit 3 would reduce flows by 30% from pre-Lake conditions.

- **In June,** DGIF recommends implementation of the MWC mode when flows are less than 120 cfs. This value is close to the average value and will enhance smallmouth bass spawning success and subsequent catch by anglers.

- **From July through October,** DGIF recommends implementation of the MWC mode when flows are less than 90 cfs. High flows are important for the habitat requirements of resident fish species that do best in wet years. Without water conservation in wet years, those optimal habitat conditions are not achieved. Wet years are also important for producing strong year classes of shad in the Pamunkey River.

Finally, under the current proposal by Dominion, the MWC mode would be implemented after a 7-day waiting period when water surface elevation is below 250 feet msl and releases are 40 cfs. DGIF recommends against the 7-day waiting period before implementing water conservation. DGIF recommends in favor of implementation when downstream flows have a 3-day rolling average at the above triggers (below 250 feet msl, releases of 40 cfs).

**DGIF Comments following later meetings** In an August 28 e-mail (Kauffman to Joseph Hassell (DEQ), Andrew Zadnik (DGIF), and Gary Martel (DGIF), DGIF staff contemplated differences between Dominion's Revision 7 and the SDEIS. The foregoing DGIF comments are based on Revision 7. It appears that Dominion based its analysis on weekly averages using the downstream gauge and historic lake levels. NRC based its analysis, in the SDEIS, on computed daily inflow via a surrogate gauge station on the Little River just downstream of the Lake.

The earlier NRC document, the Draft EIS, predicted lake level would be at an elevation of 248 feet msl 11.8% of the time. The SDEIS predicted that this level would be met 11% of the time, whereas the Revision 7 document predicts that this level would be met 5.2% of the time. These differences can be depicted in a chart, as follows:

| | **NRC DEIS** | **NRC SDEIS** | **Dominion Rev. 7** |
|---|---|---|---|
| Max. water loss | 11,700 gallons per minute (gpm) | 11,532 gpm | |
| Wet cooling water loss | | 16,695 gpm | |
| Lake level at 248 feet msl | 11.8% of time | 11% of time | 5.2% of time |
| Number of low-flow events | | 2 events -> 9 with Unit 3 | 2 events -> 5 with Unit 3 |

DGIF used the Dominion numbers (Revision 7) in its July 7 analysis (above). DEQ's Division of Water Resources staff responded to these reflections by stating that it is incumbent upon Dominion to explain the differences, and recalled that the Dominion-NRC assumption was that air-cooling would be employed whenever lake levels dropped below 250 feet msl. DEQ's Division of Water Resources had previously recommended going to air cooling more often than when the lake level hits 250 feet; if this recommendation prevails, then both Dominion's and NRC's estimates of consumptive use will be high.

**Point Source Pollution Control Enforceable Policy**

The point source program is administered by the State Water Control Board pursuant to § 62.1-44.15 of the *Code of Virginia*. Point source pollution control is accomplished through the

implementation of the National Pollutant Discharge Elimination System permit program established pursuant to Section 402 of the federal Clean Water Act and is administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program.

DEQ's Division of Water Resources stated that its concerns centered on the difference between the Division's recommendations on when to use air cooling for Unit 3 and the proposed regime in the revised Early Site Permit application submitted by Dominion. Dominion propose in its revised application to operate Unit 3 in its water conservation mode (air cooling) whenever the water level in Lake Anna falls below 250 feet above mean sea level ("250 feet msl"). The Division, along with the Department of Game and Inland Fisheries, recommended that in addition to this approach, the water conservation mode be employed for Unit 3 whenever stream flows in the North Anna River immediately below the dam were below certain target seasonal flows, in order to reduce withdrawals required for operation of Unit 3 and to mitigate impacts to stream flows during these periods.

The Division's original concerns have been largely addressed by the changes made by Dominion for cooling Units 3 and 4, and by discussions between program offices in DEQ. The proposal to operate air cooling (maximum water conservation mode) only when the lake level drops below 250 feet msl means that the air cooling would be implemented during times when it is least effective, i.e., during summer through late fall.

**Recommendations:** Notwithstanding the Division's concerns about the effectiveness of this maximum water conservation mode during summer to late fall, the maximum water conservation mode is warranted whenever the lake falls below a full condition. Water savings will accomplish the following:

- Reduce the ultimate lake drawdown
- Benefit lakefront property owners
- Shorten the time between more normal releases
- Reduce the risk of shutdown of the plant

DEQ's Division of Water Resources agrees that Unit 3 should be operated in this fashion at a minimum (see enclosed DEQ memos, Hassell to Ellis, dated July 19, 2006 and Hassell to Ellis, dated October 19, 2006). However, it may not be realistic to require this operating scheme in the context of the federal consistency review, according to the Division.

A future water resources permit (see item 2(c), next) will, according to the Division of Water Resources, include conditions reflective of the Division's July 19 recommendations.

**Water Resources Permitting** The Division of Water Resources was initially concerned by the uncertainty about whether a Virginia Water Protection Permit (VWPP) would be required for water withdrawal impacts. The VWPP is the primary controlling mechanism for regulation of impacts due to surface water withdrawals. However, the VPDES permit may also be used for this purpose. The current VPDES permit for the North Anna Power Station contains minimum flow conditions and would need to be modified if Unit 3 were built. DEQ can require Dominion to abide by combined recommendations of the Division of Water Resources and the Department of Game and Inland Fisheries through a lawfully issued VPDES permit.

**Policy Issues and Questions: Additional Analysis by DEQ's Division of Water Resources and Northern Virginia Regional Office.**

**Cumulative Impacts.** According to DEQ-DWR, the use of air cooling only after lake levels begin to decline has been changed to more reliance on air cooling. This will reduce the time that the lake level will be down more than 2 feet (i.e., at 248 feet msl) from 11% of the time in an earlier proposal to 7% of the time with the present proposed configuration. By operating the third unit to take maximum advantage of air cooling, Dominion can minimize adverse impacts of the third unit on middle-range flows to an acceptable level.

**Foreclosure of Development of Public Water Supplies in the Region.** As discussed further in enclosed comments and in the "Review of Public Comments," below, following is a listing of the status of water supply efforts in neighboring localities:

| **Locality** | **Efforts** | **Impact on Lake Anna/N. Anna River or from Project** |
|---|---|---|
| Caroline County | Pursuing tidal intake from Rappahannock River | No impact on flows in York River basin |
| Hanover County | Purchases from Richmond, water skimmed from high river flows, use of quarry | No indication |
| Town of Orange | Water supply reservoir completed, water from Rapidan River | Net gain to region from inter-basin transfer |
| Spotsylvania County | Spotsylvania did not pursue Lake Anna water | No indication |
| Louisa County | Considering purchase from Fluvanna County, which has water withdrawal permit for water from James River; considering existing reservoir | No effect from Unit 3 |

**Raising Lake Level** DEQ's Division of Water Resources states that raising the lake level 6 to 9 inches is not under consideration. No decision has been made with regard to a 3-inch increase recommended by DGIF; this would allow an additional 27 cubic feet per second (cfs) to be released into the North Anna River for 60 days each year. This proposal would require VPDES approval in the lake level contingency plan or approval under a VWP Permit.

**Blowdown Discharges from Unit 3** According to DEQ's Northern Virginia Regional Office, blowdown discharges from proposed Unit 3 may add heat and chemicals to the "hot side" that may affect water quality. The existing VPDES permit #VA0052451, which applies to Units 1 and 2, would need to be modified to address the cooling tower blowdown discharges attributable to Unit 3. Effluent guidelines specified in federal regulations (40 CFR Part 423) would be used in the permit action, which would also accord with water quality standards. Any added heat would be analyzed to determine whether it warrants a re-evaluation of the existing section 316(a) variance applicable to the North Anna Power Station. Similarly, the VPDES permit action would analyze the use of chemicals to ensure that numeric criteria of state water quality standards are met.

# APPENDIX 2

## Summary of Public Comments Received

### Review of Public Comments

DEQ published a notice of the federal consistency review for the referenced project on its web site, during the first review, from April 15 through May 2, 2005. No public comments were received at that time.

For the restarted review in 2006, DEQ published a notice of the review on its web site from May 15 through June 16, 2006. On June 15, DEQ published notice of an extended review period lasting until September 8. This notice also announced that DEQ would hold a public hearing on August 16. This notice was published on DEQ's web site and in three newspapers as follows:

| | |
|---|---|
| Web site (http://www.deq.virginia.gov): | starting June 15 |
| Richmond Times-Dispatch: | July 2 |
| Lake Anna Observer: | July 15 |
| Fredericksburg Free Lance-Star: | July 30 |

This summary includes responses to comments we received about the referenced project that pertain to the Enforceable Policies of the Virginia Coastal Program (VCP). During the public review process, including the public hearing, we received comments from more than 500 individuals and organizations concerning this review. When more than one individual or organization submitted comments about the same or similar topic, we grouped these comments for the purposes of providing a response.

It should also be noted that throughout the public comment period and at the public hearing, we received a variety of comments that did not pertain either directly to the referenced project or to one or more of the Enforceable Policies of the VCP. For the most part, we determined that many of these comments pertained to approvals and monitoring requirements already in place for the operation of the existing units at the North Anna Power Station and not to the activities that would by authorized by an Early Site Permit, which is the subject of this consistency review. A number of other comments were determined to be related to matters that will considered should Dominion seek approval for a combined license from the U.S. Nuclear Regulatory Commission (NRC) for the construction and operation of new nuclear reactor units at its North Anna Power station.

Examples of the topics included in these unconformable comments are:

- questions about the appropriateness of the U.S. Environmental Protection Agency's approval of the Virginia Pollutant Discharge Elimination System

(VPDES) permitting program, as it is being administered by the Virginia Department of Environmental Quality (DEQ).

- comments about the differences in the manner in which the "warm" and "cold" sides of Lake Anna are currently regulated by DEQ and the Department of Game and Inland Fisheries (DGIF).
- Comments about safety, transportation, certain health concerns, etc., which are not within the specific authorities of the Enforceable Policies of the VCP.

While we did endeavor to route these comments to an appropriate agency for consideration and possible response, we were not able to utilize these unconformable comments, or any responses received to them, for the purposes of determining consistency review of the federal consistency certification submitted by Dominion for the referenced project. It is anticipated that many of the issues and concerns presented in these comments will be the subject of discussion during the upcoming review of the existing VPDES permit for the current operations at the North Anna Power Station.

It is also anticipated that many of the issues and concerns presented in these comments will be considered during the reviews that will be required should Dominion later seek approval for a combined license from the NRC for the construction and operation of new nuclear reactor units at its North Anna Power station. One of these reviews will be of a separate federal consistency certification that Dominion will be required to submit to the VCP prior to when the NRC may finalize its decision with regard to approval and issuance of the combined license. These unconformable comments are listed at the end of this summary.

**Public Comments Received Pertaining to the Enforceable Policies**

The following is a summary of the comments received during the public comment period for the referenced project and any responses received from the agencies that administer the Enforceable Policies of the VCP. The public comment period during which these comments were received, began on May 15, 2006, and ended on September 8, 2006. The summary lists the individuals and organizations that submitted comments related to the Enforceable Policies of the VCP as they pertain to the referenced project. In some cases, when more than individual or organization submitted comments about similar topics, we have compiled any responses received on those topics.

In addition to the separate responses to public comments described below from the agencies which administer the Enforceable Policies of the VCP, an overriding response to many of these comments and concerns is the requirement for an Instream Flow Incremental Methodology study to be completed as a condition of the VCP's concurrence with federal consistency certification for the referenced project. The information obtained through this study will be used to address the issues raised in many of the public comments pertaining to there being insufficient information available presently to appropriately address concerns about lake level, fisheries impacts, flow requirements in the North Anna River, protection of sufficient water for other users downstream, and recreation. As was stated in the VCP November 21, 2006, response

letter, because an additional federal consistency certification submission and review will be required if Dominion seeks approval for a combined construction and operating license, the VCP is not forgoing (by conditionally concurring at this time) its opportunity pursuant to the CZMA to establish any necessary specific requirements related to water quality and quantity pertaining to the referenced project.

As a result, the reply to many of the public comments summarized below is that no separate responses were received on these topics.

**1. Friends of Lake Anna**

DEQ's Office of Environmental Impact Review received a considerable number of comments from the Friends of Lake Anna ("FOLA") concerning the referenced project that concerned either or both the federal consistency certification and the NEPA documents.

We have determined that many of FOLA's comments did not pertain to the authorities provided to the VCP under the provisions of CZMA or to the Enforceable Policies of the VCP. Moreover, we found that the majority of FOLA's comments pertained to concerns about the current operation of the North Anna Power Station, but not directly to the referenced project. Throughout the review process of the federal consistency certication for the referenced project, we did make every effort to explain to FOLA representatives the distinctions among the various federal and Virginia statutes and regulatory programs that pertain to the exiting and proposed operation of facilities at the North Anna Power Station. We wish to recognize and thank FOLA for its diligence in providing its detailed comments and concerns about both existing operations at the North Anna Power Station and the proposals described in the referenced project. We encourage FOLA to stay involved in both the upcoming consideration of the reissuance of the existing VPDES permit for the current operations at North Anna, and the federal and state reviews of the application for a combined construction and operating license of one or both of the proposed new units – should Dominion later apply to the NRC for such a license.

Comments submitted by FOLA that did pertain to both the referenced project and the Enforceable Policies of the VCP are summarized below. Included in each summary are any responses we received from the state agencies which administer the VCP's Enforceable Policies. The other comments we received from FOLA that did not conform to the VCP's authorities under the CZMA or to the referenced project, are summarized in a different section of this appendix.

**FOLA letter dated June 15, 2006** On July 27, DEQ forwarded FOLA comments and questions to a number of agencies and localities to solicit additional comments. These comments and questions were entitled "Partial Concerns #2 with the data contained in Dominion's Application for the North Anna ESP 6 dated April 2006 and the related NRC Safety Report dated September 2005." The issues were discussed in nine categories:

1) Numbers of workers, residential growth, traffic on small local roads
2) Emergency evacuation capabilities
3) Need for new schools
4) Meeting water needs with the Lake and the North Anna River
5) Cooling towers, noise, and fog
6) Lake level raising for drought preparedness
7) Water levels, flows, and temperatures
8) Confusing documentation and processes
9) Safety report

We determined that four of these categories relate directly to the VCP's Enforceable Policies as they pertain to the referenced project:

4) Water needs
5) Cooling towers
6) Lake level
7) Water level

**Responses from DEQ's Division of Water Resources:** DEQ-DWR provided additional comments concerning issues #4, 6, 7, and 8, as follows:

- With regard to water needs (issue #4), DEQ-DWR stated that Louisa and Spotsylvania Counties appear to be focusing on sources of water supply other than the Lake. Spotsylvania has recently permitted water supply projects. Louisa appears to be contemplating water from Bowlers' Mill Reservoir, the James River via Fluvanna County, and the Rapidan River via Orange County.

- With regard to raising the lake level 6 to 12 inches to aid in times of drought (issue #6), DEQ-DWR states that DGIF has suggested surcharging the lake 3 inches in the spring to boost in-stream releases over the summer, an idea that DEQ-DWR would not favor without further study. There is no state consideration of a 6- to 12-inch lake level increase, according to DEQ-DWR.

**FOLA Public Hearing Presentation** A representative of the Friends of Lake Anna spoke at the Public Hearing on August 16, 2006, and provided a written copy of the testimony that was presented. Some highlights of the presentation follow. Where it was clear, we have organized the comments made as they are related to the Enforceable or Advisory Policies of the VCP.

**Fisheries** Under the fisheries management enforceable policy discussion (presentation, page 2), FOLA cites the Department of Game and Inland Fisheries finding that fish will continue to be adversely affected even if the changes to the third reactor have been made. FOLA cites the increase in drought conditions as a major reason for this effect.

**Downstream Recreation** FOLA cites the Department of Conservation and Recreation for the proposition that the North Anna River is a spectacularly scenic and remote canoeing river with excellent fishing, and that a minimum in-stream flow recreation study should be conducted to determine a discharge rate from the Lake Anna Dam that would sustain recreational boating from State Route 601 downstream to U.S. Route 301.

**Drought frequency** Under the Point Source Pollution Control Enforceable Policy of the VCP, FOLA cites the Commonwealth's Comments on the Draft EIS (DEQ-04-216F, comments mailed March 3, 2005) for the proposition that large water withdrawals would adversely affect the beneficial uses of the North Anna River. Specifically, FOLA cites DGIF and DEQ analyses as indicating that the proposed Unit 3 would increase the drought cycle and cause decreased water flows during seven months of each year.

**Water temperature limitations** According to FOLA, the water temperature currently exceeds the temperature necessary to protect aquatic resources. Any additional temperature increases, such as from the blow-down discharges from water cooling towers, would affect fisheries, public access, and recreation.

**Responses Received:** No separate responses were received regarding these comments.

**2. Lake Anna Civic Association/Waterside Property Owners' Association**

On August 28 and 29, 2006, DEQ-OEIR received letters and e-mail correspondence from the Lake Anna Civic Association (LACA) and the Waterside Property Owners' Association (WPOA) covering a number of issues. A summary of these issues was presented in the Commonwealth's comments on the SDEIS and the relevant sections are copied here.

**Quality of Cooling Water Discharges** WPOA indicates its concern with the chemical nature of hot make-up water returning to the Lake from proposed Units 3 and 4, and inquires whether there are criteria for the discharge.

**Bald Eagle Protection** According to WPOA, the Commonwealth requires a 1/4-mile buffer between construction activities and any bald eagle nest, and inquires about how the applicant will protect the closest nest.

**Decision Responsibility on Lake Levels** WPOA indicates its understanding, from the SDEIS, that the determination of lake levels is up to Virginia regulators, and asks which ones. WPOA also asks how residents can be assured that the lake level will remain at 250 feet msl.

**Water Use and Dry Cooling** WPOA states that blowdown and make-up water taken from the reservoir would be 38.7 cfs at Unit 3's 100% power level, while the discharge over the dam is 40 cfs or 20 cfs in a drought. Thus the blowdown and make-up water use

would be as much as the downstream discharge when the lake is at 250 feet or less. WPOA recommends dry cooling for Unit 3 to preserve the water in the watershed.

**VPDES Permit and Temperatures** WPOA quotes the SDEIS as saying that the new plant can operate to a 242-foot msl lake level and an inlet water temperature of 100 degrees F., and states that this is a much greater variance than allowed in the VPDES permit, which allows an inlet temperature of 95 degrees. WPOA urges the Department of Health (VDH) to put limits on the temperature of the water at the exit of the power plant, and states that the situation will get worse with the addition of Unit 3.

**Sprayers for Cooling** WPOA urges that sprayers be used in the discharge canal on hot days, as is done for Units 1 and 2.

**Pre-Lake Water Flows** The SDEIS indicated that historic pre-dam minimum flows were 5 cfs (page 2-10, section 2.6), whereas the Department of Game and Inland Fisheries stated that such flows were 12 cfs (July 7, 2006 letter, Table 1). WPOA states that this discrepancy should be resolved.

**Availability of Dry Cooling** WPOA states that foreign nuclear reactors use air cooling technology, and that Dominion has not stated clearly why it cannot be proposed for Unit 3 as well as Unit 4.

**Duration of 20 cfs flow** WPOA cites the SDEIS for the proposition that the 20-cfs flow will increase from 6% to 11% of the time if Unit 3 operates as proposed; this means an increase from 22 days to 40 days of low flow (SDEIS, page 5-11, section 5.3.2). However, Dominion stated in its Revision 7 that the duration of the 20-cfs discharge would go from 5.2% to 7% of the time. The discrepancy should be resolved.

**Responses from the Department of Health** On September 8, the Department of Health's (VDH) Division of Public Health Toxicology responded that there appeared to be no point for which a VDH response was in order on the comments submitted by LACA and WPOA.

**Responses from DEQ's Northern Virginia Regional Office** On September 7, DEQ-OEIR received comments (e-mailed) from DEQ's Northern Virginia Regional Office responding to four of the issues raised above. With regard to water quality and the chemical discharge, DEQ-NVRO states:

> Chemical usage and effluent discharge concentrations will be evaluated against applicable water quality criteria if and when Dominion applies for a modification of their [sic] VPDES permit for Units 3 and 4. The permit will contain the necessary conditions to assure that the water quality standards are met.

With regard to lake levels, DEQ-NVRO indicates that the existing VPDES permit does not have any requirement for maintaining the lake level at 250 feet above mean sea level, and that the existence of such a requirement is not known to DEQ-NVRO staff.

DEQ-NVRO indicates that lake levels might be addressed by regulatory action of the Department of Conservation and Recreation's Division of Dam Safety.

With respect to the section 316(a) variance and temperature limits in the VPDES permit, DEQ's NVRO states the following:

> The 316(a) variance does not set a maximum temperature level of the effluent or for temperatures in the lake. In accordance with 9 VAC 25-260-90 [state water quality regulations], the temperature criteria in 9 VAC 25-260-50 through 9 VAC 25-260-80 are superseded because Dominion demonstrated in a 316(a) study and through subsequent annual fishery monitoring that the heat rejection limits set forth in the VPDES permit do not impair the fishery of Lake Anna or the North Anna River.

With respect to the sprayers for cooling, DEQ-NVRO stated that in setting effluent limits and permit conditions in VPDES permits, the agency does not dictate the processes or treatment units that permittees must use to comply with effluent limits. Dominion may use sprayers if it believes sprayers will aid in permit compliance.

**Responses Received:** No additional agency responses were received about these comments.

## 3. Southern Environmental Law Center

A representative of the Southern Environmental Law Center (SELC) spoke at the August 16, 2006, Public Hearing. SELC also sent separate correspondence in connection with this review.

**SELC Public Hearing Presentation** SELC stated that its earlier comments of October 2005 voiced concerns regarding the amount of lake water evaporation that the once-through cooling system (proposed in the 2003-2004 federal consistency certification, the Draft EIS, and the initial 2005 federal consistency certification) would have induced, as well as potential downstream impacts from the corresponding reduction in flows in the North Anna and Pamunkey Rivers. Citing earlier DEQ statements, the SELC representative indicated that the Lake Anna watershed is relatively small, so that even slight increases in the consumptive use of water could have significant downstream impacts. Reductions in water releases to the North Anna River could adversely affect the State's management of its coastal fisheries. SELC cited recent correspondence by the Department of Conservation and Recreation, which stated that lower downstream flows could also affect recreational uses of the North Anna and Pamunkey Rivers.

SELC also indicated that a number of counties are considering the North Anna and Pamunkey Rivers as sources for drinking water. For this reason, putting additional strain on these rivers undermines the Commonwealth's policy goal of avoiding coastal resource use conflicts. The change from closed-cycle, once-through cooling to the wet-dry cooling method offers only slight improvement in reducing lake water evaporation.

SELC points out the difference in Dominion's analysis and that of the NRC: Dominion says that the minimum flow of 20 cfs at the dam would be reached about 7.3% of the time, while the SDEIS, by NRC, indicates that this flow level would be reached 11% of the time. The latter is just slightly lower than the percentage of time at 20 cfs with the once-through cooling system, which was 11.7%.

SELC's representative stated that DEQ's Division of Water Resources and the Department of Game and Inland Fisheries based their recommendations on Dominion's analysis and suggested that they should re-evaluate the recommendations in light of the information in the SDEIS. However, if DEQ and the Department of Game and Inland Fisheries decide that their recommended conditions are sufficient to protect coastal resources, then SELC recommends that the Commonwealth object to the federal consistency certification, rather than conditionally concur, and that the objection be maintained until Dominion affirmatively and unquestionably incorporates the agency recommendations into its project design.

**September 8, 2006 Comments** A short summary of the SELC comments follows.

**Downstream flows** While the revised cooling system design for Unit 3 reduces concerns with regard to the discharge of heated water to Lake Anna, concerns regarding reduced flows downstream remain, because evaporation from the cooling towers would equal or possibly surpass that from the Lake surface under the once-through system originally proposed.

Potential impacts of low flows in this relatively small watershed may be significant, and the ability of the Lake and the River to withstand additional consumptive use merits close scrutiny, according to SELC. The mean annual flow at the Dam is approximately 370 cfs. The Virginia Water Protection Permit for the existing reactors requires a minimum discharge of 20 cfs from the Dam to the North Anna River. This is equal to 5.4% of the River's mean annual flow at the Dam. Under the Tennant rating system, which is a stream flow grading technique based on percentages of mean annual flow, a flow of less than 10% of the mean annual flow is rated as "severe degradation." Moreover, with additional evaporative losses caused by the operation of the third reactor, the duration of 20-cfs flows would increase from 5.8% to 7.3% of the time, according to Dominion's analyses, or to 11% of the time according to NRC's initial review in the Draft EIS.

These low flows could have impacts conflicting with the Fisheries Management enforceable policy of the Virginia Coastal Resources Management Program. Specifically, they could:

- Adversely affect anadromous fish habitat.
- Adversely affect early life stages and spawning of fish in the river, because these stages take place during typically drier months of the year (July through October), and they need substantial flows to survive in any abundance.
- Adversely affect downstream boating and fishing recreational uses of the River.

- Encounter or give rise to potential conflicts in uses, in light of the considerations of several counties (one upstream and three downstream of the Lake) of using the North Anna River or the Pamunkey River for local water supplies. This last effect would undermine the Commonwealth's coastal program policy goal of avoiding coastal resource use conflicts.

**Recommendations on flows** SELC recommends that DEQ obtain a commitment by Dominion to use air cooling for both Units 3 and 4 in order to minimize impacts upon coastal resources.

**Objection Recommendation** SELC recommended that DEQ object to the certification.

**Responses Received:** No separate responses were received regarding these comments.

**4. Natural Resources Defense Council** The Natural Resources Defense Council (NRDC), in a letter dated September 8, presented nine major arguments against state concurrence with the federal consistency certification. The statements of these arguments follow, with highlights from the text of each.

**Concurrence now would be premature and not in the interests of ensuring protection of Virginia's coastal zone management area.** NRDC indicated that the ESP process is not a required step in the NRC process. Environmental concerns that the NRC deems "resolved" during the ESP proceeding cannot be raised again at a subsequent stage of NRC's licensing process. Faced with a project whose design is continually evolving, this foreclosing aspect is not in the state's favor. Since the environmental impacts of the evolving proposal are defined by a general "plant parameter envelope" comprised of nominal operating values instead of those pertaining to a site-specific detailed plant design, NRDC saw significant disadvantages for state concurrence.

**Understanding of the long-term and cumulative environmental impacts from operating the proposed Unit 3 "wet-dry" hybrid cooling system is currently insufficient to support a federal consistency determination.** NRDC stated its view that, according to the SDEIS, for times of full power operation and a "hot and humid atmosphere at tower level," (a fairly typical condition for a peak power summer day in central Virginia), the applicant is committing only that "a minimum of one-third of the rejected heat from Unit 3 would actually be removed by the dry tower system. The remaining excess heat would be dissipated by the wet tower system" It appeared to NRDC that this is the only commitment Dominion is making.

**The SDEIS fails to analyze a reasonable range of reasonably foreseeable impacts from operating Unit 3.** In this discussion, NRDC presented three parameters for the original proposal that DEQ found unacceptable, and compared them with the same

parameters estimated in the SDEIS, for the wet-dry, semi-closed loop system. This information is presented in the table below.

| Parameter | Originally proposed | Proposed in SDEIS |
|---|---|---|
| Rate of lake water withdrawal | 1,140,000 gallons per minute | 22,269 gallons per minute in normal "Energy Conservation" mode |
| Induced evaporation rate | 28 cfs | 20 cfs |
| Additional lake level drawdown during drought | 3.4 feet | 1.6 feet |

NRDC asserted that the estimated impacts remain significant, stating, for example, that the induced evaporation rate from operation of the wet-dry cooling system is still 71 percent of the environmentally unacceptable once-through system. The additional lake level drawdown is still nearly half that of the once-through cooling system, and there are uncertainties associated with this calculation that NRC and Dominion have not bounded with a sensitivity analysis.

**The projected lake levels pose environmental and energy security risks that require further detailed analysis before concurrence can be granted.** NRDC pointed out that the analysis of lake levels by NRC looks back to 1978, noticing that from then until 2003, Lake Anna has been under the 250 foot msl target level 62.7 percent of the time, due to the combined effects of reduced inflows and evaporative effects of operating Units 1 and 2. The additional Unit 3 wet-dry system would, if added in 1978, have increased the figure slightly, to 66.4 percent of the time, while reducing the total time the Lake was at or above 250 feet by 3.7%. Similarly, the frequency of lake levels below 248 feet (and the reduction of downstream flows from 40 cfs to 20) would have been higher with the addition of Unit 3. Looking backward, the addition of Unit 3 would have reduced downstream flows. NRDC pointed out that NEPA calls for an analysis of "reasonably foreseeable" impacts; and there was no analysis of the anticipated hydrological conditions in the next 40 to 60 years (life expectancy of the new unit), as affected by population increases, climate, water tables and recharge rates, competing uses, or evaporation rates. Moreover, there was no analysis of potential negative feedback loops -- for example, in which increased natural heating of cooling intake water increases the evaporation rate of both types of cooling systems (wet-dry and existing once-through), leading to higher discharge temperatures and/or increase net withdrawals from the lake. This would lead to reduced lake volume, further heating of the reduced volume of lake water, and the cycle would repeat itself. NRDC stated that no one knows how vulnerable the proposed setup is to such a negative feedback loop scenario, but regulators might, in such case, be faced with decisions whether to shut down or reduce power or incur serious ecological damage.

**The status quo is not an acceptable baseline for NEPA analysis.** According to NRDC, the NRC analysis in the SDEIS assumes that the current environmental impacts of Units 1 and 2 are acceptable as a baseline. However, these operations have resulted in excessive temperatures in the main body of the Lake (i.e., well outside of the cooling

lagoons) and produced many days of reduced flows into the lower reaches of the North Anna River. NRDC proposed that a more credible baseline for analysis, and for estimating cumulative impacts, would be the temperatures, flows, and fauna in the River before it was impounded to form the Lake. For example, prior to dam construction, flows of 25 cfs or less would occur for about 10 weeks once every 10 years. One can calculate from NRC's modeling data that operation of Units 1 and 2 has increased that frequency to 30 weeks every ten years.

**The SDEIS unreasonably discards dry-cooling (air cooling) for Unit 3 as an alternative meriting detailed analysis, but DEQ should not.** NRDC cited earlier analysis by DEQ's Division of Water Resources which compared North Anna with other nuclear reactors along the East Coast to compare water resources available to them with those at North Anna. Dominion has proposed a dry-cooling system for proposed Unit 4, and recognized that Lake Anna would not support once-through wet cooling, or even a combination wet and dry system, for Unit 4. NRDC stated that the dry-cooling of Unit 3 is mentioned only briefly in the SDEIS, but that the SDEIS indicates that the dry cooling system for Unit 3 would "largely eliminate the [unit's] impact on aquatic biota in Lake Anna and the North Anna River downstream." However, the SDEIS fails to identify the dry-cooling option as an "environmentally preferable alternative" deserving further analysis. NRDC argued that the difference in electrical output between a unit with dry cooling and that with wet-dry cooling is too small to "make or break the economics of a project of this magnitude" or lead NRC to summarily dismiss the dry-cooling option as being environmentally inferior.

NRDC further believed that the lack of these analyses in the Draft EIS and the SDEIS is another substantive reason to object to the federal consistency certification.

**Responses Received:** No separate responses were received about these comments.

**5. Blue Ridge Environmental Defense League.** In a letter to DEQ dated August 16, the Blue Ridge Environmental Defense League ("League") stated that the basic consistency issue is whether Dominion had provided enough information to allow DEQ to assess whether the proposed project would be consistent with the Coastal Resources Management Program; the League answered the question in the negative.

The League stated that even if the plant parameter envelope is bounded by the thermal power benchmark (Dominion plans to add 9000 MWth of new power generating capacity, according to the League), the Commonwealth has no assurance that water usage for more than the two existing units will not exceed safe levels. The NRC's SDEIS provides details on the plant parameter envelope, indicating that seven possible reactor designs are under consideration. The SDEIS indicates where the approximately 1,800-acre footprint for the reactors would be, but the plant parameter envelope review is based on educated guesswork, according to the League, because Dominion apparently cannot provide NRC with the necessary data. As the SDEIS indicates:

> In some cases, the design-specific information called for in the ESRP [Environmental Standard Review Plan, NUREG-1555, Volume 1, a source of guidance for NRC review of early site permit applications] were [sic] not provided in the Dominion ESP application because it did not exist or was not available. Therefore, the NRC staff could not apply the ESRP guidance in those review areas.... Because the Dominion PPE [plant parameter envelope] values do not reflect a specific design, *they were not reviewed by the NRC staff for correctness* [emphasis added by the League].

The League quotes the SDEIS as stating that the standard used by NRC for its environmental review was that PPE values were "not unreasonable." The League thought that this "not-unreasonable" standard is not supportable or acceptable for use as a basis for a consistency determination by DEQ. It referred to additional prose in the SDEIS, to the effect that at the combined construction and operating license ("COL") stage, Dominion will need to show that its design falls within design parameters specified in the Early Site Permit. If proposed reactor characteristics do not fall within the PPE, NRC staff will then consider whether the difference between the characteristics and the PPE value is significant. According to the League, this means that DEQ's assessment of consistency with the Coastal Resources Management Program must include potential coastal resources impacts from both construction and operation of two or more actual reactors. The League cites the Coastal Zone Management Act (section 307(c)(2)) for the proposition that a federal agency undertaking a development project must ensure that the project is, to the maximum extent practicable, consistent with enforceable policies.

**Responses Received:** No separate responses were received to these comments.

## 6. Other Public Comments

**General Comments** Several citizens submitted comments concerning the issues of water evaporation and reduced downstream flows in the North Anna River, neither of which they believed would be addressed by the proposed modified cooling method for Unit 3. On August 8, DEQ-OEIR sent an example comment to VDH (Office of Drinking Water and Division of Public Health Toxicology, inviting VDH to address the question of water supply and downstream flows in light of Spotsylvania County's objection on the basis that diminished flows downstream would be harmful to the County.

**Responses**: No additional responses were received from VDH to these comments.

**Christian and Barton, on behalf of Bear Island Paper Company.** In a letter dated September 8, 2006, Christian and Barton provided Bear Island Paper Company's comments (hereinafter attributed to "Bear Island"). Bear Island believes that the proposed expansion of North Anna (i.e., addition of Units 3 and 4) would give rise to substantial increases in the number and severity of low-flow conditions in the North Anna River. Bear Island relies on the River at points below the Dam for intake of water

and for discharge of treated industrial wastewater and stormwater associated with its Doswell facility. These additional periods of low flows can be expected to materially and adversely affect the operations of Bear Island by restricting its ability to withdraw water from the River, as needed and as permitted, as well as putting at increased risk the ability of the combined wastewater flows from Bear Island and Hanover County to meet current permit requirements and water quality standards.

In this connection, Bear Island refers to Hanover County's comments on the federal consistency certification and the concerns about negative impacts on downstream flows raised by DEQ in its March 3, 2005, comments on the Draft EIS for the Early Site Permit. Bear Island does not believe that the modification of the plans for the additional units since March 2005 fully addresses these concerns, and requests that DEQ object to the federal consistency certification or at least require further evaluation of downstream effects, alternative designs, and potential mitigation.

**Responses Received:** We did not receive any separate responses to these comments.

## Unconformable Comments Received

The comments summarized in this section were all determined to be not related to the VCP's authorities pursuant to the CZMA as they pertain to the referenced project. These comments do not pertain to either directly to the referenced project or to one or more of the Enforceable Policies of the VCP. For the most part, we determined that many of these comments pertained to approvals and monitoring requirements already in place for the operation of the existing units at the North Anna Power Station, and not to the activities that would by authorized by an Early Site Permit, which is the subject of this consistency review. A number of other comments were determined to be related to matters that will considered if and when Dominion seeks approval for a combined license from the U.S. Nuclear Regulatory Commission (NRC) for the construction and operation of new nuclear reactor units at its North Anna Power station.

Attached to this Appendix are copies of correspondence we received from the U.S. EPA and two of the DEQ programs that administer the Point Source Pollution Control and Wetlands Enforceable Policies of the VCP. This correspondence explains why these comments do not conform to the VCP's authorities pursuant to the CZMA as they pertain to the referenced project. As a result, the reply to many of the public comments summarized below is that no separate responses were received on these topics.

### 1. Friends of Lake Anna

**FOLA June 14, 2006 Letter** DEQ's Office of Environmental Impact Review received a June 14, 2006, letter from the Friends of Lake Anna ("FOLA") entitled "Lake Anna Cooling Lagoon concerns with the North Anna ESP." This letter raised several questions about the cooling lagoon ("hot side") of Lake Anna, and the regulation of its discharge point and discharge temperature under the Clean Water Act. DEQ forwarded this letter to the Department of Game and Inland Fisheries, DEQ's Division of Water Resources, DEQ's Northern Virginia Regional Office, and the Department of Health and requested comments by July 17 on:

- Provisions of law or regulation exempting the "hot side" of the lake from regulatory purview.
- Monitoring responsibilities and any differences in how they are carried out in different parts of the Lake.
- Whether FOLA's characterizations of agency responsibilities were correct.
- Any temperature limits in permits that apply to the "hot side" of the lake.

**Responses from the Department of Game and Inland Fisheries:** DGIF responded to this inquiry (e-mail dated June 21) by stating that fishing licenses are required for anglers in the "hot side" of the Lake, since that side is corporately owned. However, fisheries on that side are not actively managed (i.e., sampling, habitat work) because there is no public access. Game wardens enforce boating laws and promote safety, however, in connection with fishing and boating.

**Responses from DEQ's Division of Water Resources:** DEQ-DWR responded to this inquiry (e-mail dated June 16), stating that the Friends of Lake Anna appear concerned with the operation of the two existing units, and that Dominion, DEQ, or NRC all do not contemplate any additional thermal load to the Lake from either new proposed unit.

**Responses from Department of Health:** VDH responded (enclosed letter, Stroube to Irons, dated July 14), stating that the issues in the e-mail and in the FOLA comments pertain to the regulation and monitoring of water temperature in the cooling lagoon or "Waste Heat Treatment Facility," and that such regulation and monitoring are not under the regulatory or statutory authority of VDH. VDH routinely provides consultation and recommendations to agencies and citizens regarding adverse human health impacts from exposure to chemical, biological, and radiological agents, according to the letter. Reference was made to an earlier VDH letter assessing potential risks and recommending ways to minimize such risks (September 15, 2005 letter, Stroube to Burnley, enclosed.)

**FOLA June 15, 2006 Letter** On July 27, DEQ passed additional FOLA comments and questions to a number of agencies and localities and requested responses. These comments and questions were in a letter dated June 15, entitled "Partial Concerns #2 with the data contained in Dominion's Application for the North Anna ESP 6 dated April 2006 and the related NRC Safety Report dated September 2005." The issues were discussed in nine categories:

1) Numbers of workers, residential growth, traffic on small local roads
2) Emergency evacuation capabilities
3) Need for new schools
4) Meeting water needs with the Lake and the North Anna River
5) Cooling towers, noise, and fog
6) Lake level raising for drought preparedness
7) Water levels, flows, and temperatures
8) Confusing documentation and processes
9) Safety report.

Because a number of these issues fall outside the purview of the framework of coastal zone management program consistency, as well as the environmental issues under consideration as we reviewed the Supplemental Draft EIS, under NEPA, DEQ requested the review of issues as follows (here we repeat the above listing, indicating agencies to address each item):

1) Workers' numbers
2) Evacuation
3) Schools
8) Documentation, processes
9) Safety report

**Responses from DEQ's Division of Water Resources**: DEQ-DWR provided additional comments concerning issues #9, as follows:

> With regard to the safety report, DEQ-DWR's purview extends only to making sure that there is enough water to cool the reactors. The water for this purpose is sufficient, according to DEQ-DWR.

**Responses from Department of Transportation:** VDOT responded to these comments from citizens (as indicated in the Commonwealth's Comments on the SDEIS):

> VDOT indicated that it would work with Dominion to ensure that the roads in the vicinity of the North Anna Power Station are maintained and that necessary improvements are in place prior to any major activities at the project site. VDOT has requested a traffic impact analysis from Dominion; this would compare the future background traffic in the area with future traffic including construction traffic ("total traffic"), and would identify areas of impacts. The impacts -- some of which would be temporary, from construction, and some of which would be permanent -- are the responsibility of Dominion. The traffic impact analysis should also provide mitigation measures to reduce the impacts. According to VDOT, an evacuation plan was not included in the SDEIS and therefore cannot be addressed.

**FOLA July 24, 2006, E-Mail** DEQ received correspondence dated July 24, 2006, via e-mail from FOLA, and entitled "Partial Concerns #3 with the Data contained in Dominion's application for the North Anna ESP 6 dated April 2006." The comments related to Dominion's Revision 6 and the NRC Safety Report dated September 2005. DEQ forwarded this correspondence to the following agencies for any additional comments:

> U.S. Environmental Protection Agency (EPA)
> DEQ's Division of Water Resources (DEQ-DWR)
> DEQ's Northern Virginia Regional Office (DEQ-NVRO)
> Department of Game and Inland Fisheries (DGIF)
> Department of Conservation and Recreation's Division of Natural Heritage (DCR-DNH)
> Department of Conservation and Recreation's Division of Planning and Recreation Resources (DCR-DPRR)
> Department of Health (VDH)
> Army Corps of Engineers (ACOE), Norfolk District

**Responses Received:** We received no separate responses directed to these issues.

**FOLA Public Hearing Presentation** A representative of the Friends of Lake Anna spoke at the Public Hearing on August 16, 2006, and provided a written copy of the testimony that was presented.

**Model project** FOLA favors the addition of the third and fourth units at the North Anna Power Station and believes that, if its environmental concerns are taken into account, the new reactor units could become a model for continued growth of nuclear energy throughout the country.

**Responses Received:** No additional response was received on this matter.

**FOLA September 5 Letter** In a letter dated September 5, 2006, the Friends of Lake Anna (FOLA) asked that a number of additional concerns, relating to the conduct of the public hearing process and the extent of public involvement with the Safety Report, be considered in the NEPA and CZMA review processes.

**Dominion's Attempt to Influence Public Hearings** According to FOLA, more than 50% of the speakers at the NRC public meeting on August 15, and the DEQ Public Hearing on federal consistency on August 16, were Dominion employees, retirees, or contractors. Whenever a Dominion person spoke, a busload of approximately 60 of Dominion's retirees would clap loudly and voice approval of the comments. Before the end of the DEQ hearing, an announcement was made by one of the retirees that the Vepco/Dominion bus was leaving for Richmond; about 60 people got up and left the hearing.

FOLA stated its belief that, in an auditorium with a capacity of about 300 people, the numbers of employees, retirees, and contractors for the applicant made a mockery of the public hearing process. FOLA cited the federal government's NEPA obligation:

> "It is the continuing responsibility of the Federal Government to use all practicable means consistent with other essential consideration of national policy to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may *[in part]* (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and esthetically and culturally pleasant surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; ..."

FOLA then asks how this domination of the hearing process can be prevented in future public hearings.

**Response from DEQ's Policy Division:** These hearings are for the public and DEQ does not control or limit who may participate on either side of an issue. It is not, however, a process that leads to conclusions based upon what appears to be majority or minority opinion, but rather based upon the substantive merits of the information provided.

**Safety Report and Public Involvement** FOLA made reference to the March 1979 Three-Mile Island nuclear plant incident in Pennsylvania, stating that the absence of water in the steam generators meant that no heat could be removed from the reactor. The result was a partial melt-down of fuel in the reactor. FOLA's representative at the NRC public meeting asked a number of questions relating to the safety of the North Anna Power Station and the North Anna Dam. He stated that the Lake, which provides cooling water for the plant, would empty out in the event of an attack on the dam, and that re-filling the Lake would take three years. The FOLA letter urged that the air cooling method for the proposed Unit 4 could be used, as well, for Unit 3, and that this makes more sense than water-cooling for Unit 3 in a small watershed such as that of Lake Anna.

> **Conclusions** FOLA stated that the public needs to be involved in reviewing the Safety Report, and to be given time for it in light of the voluminous documentation that has been provided over the review period, and the continuing changes that the documentation reflects. FOLA requested an extension of the public comment period for review of all of this material.

**Responses Received:** No additional responses were received regarding these matters.

## 2. Lake Anna Civic Association/Waterside Property Owners' Association

On August 28 and 29, 2006, DEQ-OEIR received letters and e-mail correspondence from the Lake Anna Civic Association (LACA) and the Waterside Property Owners' Association (WPOA) covering a number of issues. A summary of these issues was presented in the Commonwealth's comments on the SDEIS and the relevant sections are copied here.

**Transportation** According to WPOA, the NRC staff deems the road network in the vicinity of the project site to be "well developed." WPOA seeks a construction traffic management plan, worked out with members of the public, and improvements including a traffic light to the intersection of State Routes 652 and 700.

**Responses received from the Department of Transportation:** In a September 5 e-mail, VDOT indicated that its August 16 comments for the SDEIS sufficiently address this issue. In the August 16 comments, VDOT stated:

> Currently, VDOT does not have any plan for improving the road network in this area. There are some developments that are proposing road improvements in this area of the County, the largest being the Cutalong Club development. This development is proposing to move the Route 208 connection with Route 652 to eliminate the skewed intersection and add the required turning lanes at the intersection. The plans are under design and are proposed to be built within the next several years.

**Cost Savings: Reduced Intake Size and Cooling Towers** Dominion says that adding cooling towers will add $200 million to the $2.5 billion cost of each unit. However, the intake for the proposed Unit 3 will be much smaller than the original intake, which also required dredging and shoreline alteration. Dominion did not address this potential cost saving.

**Responses:** No additional agency comments were received on this matter.

**3. Southern Environmental Law Center**

A representative of the Southern Environmental Law Center (SELC) spoke at the August 16, 2006, Public Hearing. SELC also sent separate correspondence in connection with this review.

**September 8, 2006 Comments** A short summary of the SELC comments follows.

> **"Hot side" jurisdiction** SELC stated that Dominion neglects potential thermal impacts on the "hot side" of Lake Anna by insisting that under state law, it may treat this part of the lake as its private property. SELC stated its belief that, regardless of the ownership of land under or surrounding the Lake, the "hot side" inundated numerous existing streams and remains "waters of the United States," and thus subject to the Clean Water Act and the Coastal Zone Management Act. SELC urged DEQ to reduce existing thermal impacts in the "hot side" of the lake by requiring compliance with water quality standards to be measured at the point of discharge from the plant. While this issue relates to the renewal of Dominion's NPDES permit, it should be analyzed thoroughly, in the view of SELC, before a consistency decision is taken.

**Responses Received:** No separate responses were received to this comment.

**4. Louisa County Public Schools** The Louisa County School Board indicated its neutrality on whether the additional reactors should be built, but expressed its disagreement with the findings of the SDEIS that impacts on demography, housing, and education would be "small" and that "mitigation is not warranted." The School Board stated that additional tax revenues to the County from the new reactors would accrue only after schools had already been affected by as many as 200 new students (compared to a system of 4,400 students now, operating at capacity). There are three new subdivisions approved, comprising approximately 1,800 new houses, that are likely to be built in the vicinity of the project in the next few years.

Apart from the large (proportional) increase in student population, the School Board is also concerned about teacher retention due to the difficulty in finding affordable housing in the County. With an influx of construction workers, this competition for housing will get more difficult.

Accordingly, the Louisa County School Board notes that the federal government has shown its keen interest in nuclear energy by funding 50% of the impact study (approximately $8-10 million), and requests DEQ and the Nuclear Regulatory Commission to assist the County in obtaining a federal grant to offset or minimize the negative impact of the large nuclear construction project in the rural county.

**Responses:** No responses were received on these comments.

**5. Natural Resources Defense Council** The Natural Resources Defense Council (NRDC), in a letter dated September 8, presented nine major arguments against state concurrence with the federal consistency certification. The statements of these arguments follow, with highlights from the texts of each.

**Before concurring that the environmental impacts of activities in the ESP are consistent with the enforceable policies of the Coastal Zone Management Program, DEQ has a duty to resolve outstanding issues surrounding the existing VPDES permit for the North Anna Power Station.** In this portion of its letter, NRDC referred to Public Hearing comments by the Friends of Lake Anna, restating its own view that the VPDES permit is an Enforceable Policy of the VCP. NRDC stated that irrespective of the legal merits of the claim that the State has erred in continuing to designate the cooling lagoons as a "waste heat treatment facility," Dominion cannot plausibly claim that the waters are indeed private, but then evade strict monitoring of Clean Water Act compliance at the Dike 3 discharge point.

**NRC's ESP review process is defective and hinders meaningful participation by the public.** In this discussion, NRDC cited the Friends of Lake Anna's view, and the views of others reflected in these Comments, that NRC accepts changes to the proposed project without adding opportunity for public comments or to make revisions in the Draft EIS under review. NRDC recommended that DEQ should treat the date of the last revision as the starting date for federal consistency certification.

**The NRC's site comparison methodology is flawed and obscures important environmental advantages of alternative sites.** NRDC was not persuaded by the NRC staff determination that another site is not "obviously superior" to North Anna on environmental grounds, and that it fails to indicate whether any other site would be "superior." The imprecise language -- impacts are described as "small," "moderate," or "large" -- apparently allows NRC staff to recommend any site Dominion prefers short of causing an obvious catastrophe. NRC stated its belief that the ESP process raises three sets of legal issues:

- possible violation of citizens' due process rights under NEPA, the Administrative Procedures Act, and the NEPA regulations;
- the tailored analysis of alternatives may have unreasonably failed to identify one of Dominion's alternative sites, such as the Surry Plant, as "obviously superior" when the impacts of heat dissipation and also those of water withdrawal at Surry are clearly less than they are at Lake Anna; and

- the questionable analysis of the vulnerability of the North Anna site to both climate change and terrorist threats.

**Responses Received:** No separate responses were received about these comments.

## 6. Other Public Comments

**Delegate W. R. "Bill" Janis** In a letter to NRC dated August 14, 2006, (enclosed), Delegate Janis, who represents Louisa and Goochland Counties and the northwestern part of Henrico County, expressed his concurrence with the NRC staff's conclusion that the Early Site Permit should be issued. Delegate Janis indicated that Dominion's North Anna and Surry plants provide 34 percent of the electricity used in Virginia.

With regard to the once-through cooling method of the existing reactors, Delegate Janis states that Dominion has agreed to spend $200 million on a cooling tower system for the third reactor, obviating any need for lake water for cooling. He indicates that there is no scientific evidence of adverse public health or environmental impact of the existing "waste heat treatment facility."

**Responses Received:** No separate responses were received about these comments.

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION III**
**1650 Arch Street**
**Philadelphia, Pennsylvania 19103-2029**

NOV 0 9 2006

Ms. Ellie L. Irons, Program Manager
Office of Environmental Impact Review
Virginia Department of Environmental Quality
Room 631
629 East Main Street
Richmond, Virginia 23219

Re: October 2, 2006 letter on "National Pollutant Discharge Elimination System (NPDES) Permit jurisdiction Under the Clean Water Act: North Anna Power Station, Louisa County, Virginia: Proposed New Units 3 and 4. DEQ-05-079f"

Dear Ms. Irons:

On behalf of the U.S. Environmental Protection Agency (EPA) EPA Region III, I am responding to the above-referenced letter to Brian Trulear of my staff. Your letter raises several questions regarding Clean Water Act requirements relating to the thermal discharge from the North Anna power plant of Dominion Nuclear North Anna LLC (Dominion).

As you state, these questions have arisen in public hearings before the Virginia Department of Environmental Quality (VaDEQ) in a "federal consistency" review relating to Dominion's "Early Site Permit" application to the Nuclear Regulatory Commission (NRC). Dominion has applied to the NRC for an "Early Site Permit" (ESP) for the siting of new nuclear reactor units at the North Anna plant. Because the permitted facility is located in Virginia's federally-approved coastal management zone, VaDEQ is conducting the "federal consistency" review required by the Coastal Zone Management Act (CZMA).

Your letter raises important issues concerning the applicability of Clean Water Act requirements to the North Anna plant, particularly concerning: (a) VaDEQ's longstanding determination that the so-called "hot side" of the lake is a "waste heat treatment facility" and not a "water of the United States" (or "surface water" under 9 VAC 25-31-10); and (b) the granting of a thermal discharge variance pursuant to Section 316(a) of the Clean Water Act.

EPA is certainly willing to consult with VaDEQ on the issues raised in your letter. However, the NRC, and not EPA, is the federal permitting agency for the Early Site Permit presently under consideration. Thus, EPA does not have a formal role under the CZMA or its implementing regulations to review or consult on this federal consistency certification. See 15 C.F.R. 930.57. For this reason, we believe that the CZMA proceeding is not a forum in which

EPA may make formal Clean Water Act (CWA) applicability determinations relating the Lake Anna plant. That said, EPA has an opportunity to review these issues in two contexts pertinent to the thermal discharge from Lake Anna plant. First, under the National Environmental Policy Act and Section 309 of the Clean Air Act, EPA has the authority to review the Environmental Impact Statements (EIS) required for federal activities, permits and licenses. In August 28, 2006 comments to NRC on Supplement 1 of the Draft EIS for the North Anna ESP Site (attached), EPA has already commented on the subject of thermal discharge effects, as well as other environmental issues related to the ESP.

Second, under Section 402 of the Clean Water Act and the Memorandum of Agreement for the delegation of the program, EPA has the authority to review selected Virginia Pollutant Discharge Elimination System (VPDES) permits issued by VaDEQ. Prior VPDES permits for the North Anna plant, as well as the draft permit VaDEQ submitted to EPA on February 24, 2006, have included a CWA 316(a) variance for thermal discharges at Outfall 001. This outfall is located at the Dike 3 discharge from the cooling lagoons into Lake Anna, rather than the canal discharging cooling water from the North Anna plant. In prior VPDES permits issued for the North Anna facility, as well as the February 2006 draft-permit, VaDEQ has applied the "waste treatment system" exception in the Virginia regulations, 9 VAC 25-31-10, to exempt the so-called "hot side" of the lake from the definition of "surface waters."

As noted in your letter, EPA did not object to VaDEQ's February 24, 2006 draft permit for the North Anna plant. However, at the time of EPA's review, and to date, VaDEQ has not commenced the public comment period for the North Anna draft VPDES permit. The agreement between EPA and Virginia governing the delegated VPDES program provides for VaDEQ to resubmit proposed permits to EPA for additional review if (a) the draft permit is subject to significant adverse comments during the public comment period, or (b) if VaDEQ's proposed final permit differs from the draft permit previously reviewed by EPA. If significant adverse comments are submitted in the upcoming public comment period for the North Anna draft VPDES permit, EPA expects that VaDEQ, as the delegated State Permitting Authority, would review and respond to such comments. In such a case, the proposed permit would be resubmitted to EPA for review in accordance with the VPDES delegation agreement.

Please do not hesitate to contact me, or Mr. Mark Smith of my staff at (215) 814-3105, if you have further questions or comments on this matter.

Sincerely,

Jon M. Capacasa, Director
Water Protection Division

Enclosure

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION III**
**1650 Arch Street**
**Philadelphia, Pennsylvania 19103-2029**

August 28, 2006

Mr. Jack Cushing
OWFN 11 F-1
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

RE: Comments to Supplement 1 of the Draft Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site – NUREG-1811 (North Anna ESP project), CEQ # 20060290.

Dear Mr. Cushing:

In accordance with the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act, and the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR 1500-1508), the U. S. Environmental Protection Agency (EPA) has reviewed the Supplement 1 of the Draft Environmental Impact Statement (SDEIS) for the above referenced project. As you are aware Supplement 1 is due to changes made by the project sponsor, Dominion North Anna, LLC. Those changes included modifying Unit 3 cooling system from a once-through system to a closed cycle, combined wet and dry system and to raise the power level in both Units 3 and 4 from 4300 Megawatts-thermal (MWt) to 4500 MWt. Due to the limited information provided as well as limited time available to conduct a comprehensive review, we are unable to provide an inclusive set of comments.

Under EPA's system for rating Environmental Impact Statements, we are rating the environmental impacts associated with the North Anna ESP project as Environmental Concerns 2 (EC-2). An EC rating means the review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. The numeric rating assesses the adequacy of the Environmental Impact Statement. The 2 rating indicates that the SDEIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment. The basis for these ratings is reflective in the following comments. A copy of our rating system is attached, and can also be found at: http://www.epa.gov/Compliance/nepa/comments/ratings.html.

If you any questions regarding this issue please feel free to contact Kevin Magerr at (215) 814-5724.

Sincerely,

William Arguto,
NEPA Team Leader

Attachments: Comments, EPA Rating System Criteria

**COMMENTS FOR THE NORTH ANNA PROJECT**

1. The Purpose and Need provision of SDEIS does not include an assessment of the energy needs that the addition of two nuclear power units at the North Anna facility would be intended to satisfy. The focus of the Purpose and Need was restricted to simply the suitability of siting two nuclear power units at the facility without any assessment of the need for the two additional units. EPA believes an energy needs assessment should be included in the NRC's NEPA review at a point in the process when such an assessment--including an assessment of options other than construction of additional units --would be meaningful. This is especially a concern because the NRC apparently has not yet resolved issues related to the interface of the ESP with the combined construction and operating license, combined license (COL) process. See **http://www.nrc.gov/reactors/new-licensing/esp/generic-esp-issues.html**. It is unclear whether the energy needs analysis will be included under the NRC's Construction Permit/operating license EIS.

2. The SDEIS only evaluates alternative sitings for nuclear power plants and does not evaluate alternative energy sources. As stated above, EPA believes an assessment of alternative energy sources should be included the NRC's NEPA review at a point in the process when such an assessment would be meaningful. This is especially a concern because the NRC apparently has not yet resolved issues related to the interface of the ESP with the COL process. See **http://www.nrc.gov/reactors/new-licensing/esp/generic-esp-issues.html**. It is unclear whether alternative energy sources will be included under the NRC's Construction Permit/operating license EIS.

3. The SDEIS should include further discussion into the thermal variance issued under the existing NPDES permit for Units 1 and 2. As discussed in the SDEIS the most significant surface water quality concern with the existing units is the localized elevated temperatures. Elevated temperatures can place stresses on the aquatic communities due to reduction in dissolved oxygen. This condition has been compounded in Lake Anna by the tributaries being impaired by low dissolved oxygen (DO) levels. The DO impairment to the tributaries is significant enough for the Commonwealth of Virginia to designate them under Section 303(d) of the Clean Water Act. EPA has concern that the proposed project may not be accounted for under the existing thermal variance for units 1 and 2.

4. The SDEIS should investigate the existing and potential impacts of the proposed project to the trophic condition of Lake Anna. High temperature and low DO along with high nutrients can cause algal blooms in the lake. Algal blooms are known to accelerate lake eutrophication and can cause human and animal health effects.

5. EPA has concern that the twenty year horizon allotted under the SDEIS does not have any protective assurance that unforeseen population growth and/or additional stressors on the Air or Water resources will be accounted for. Typically an action that has not occurred within three years of an EIS requires at a minimum a supplemental EIS.

6. The SDEIS does not provide information on the delineation (in acres) or the type of wetlands impacted by the construction and operation of the proposed facility, nor does it include any mitigation for the loss of wetlands.

7. The SDEIS does not provide information on the linear feet of streams impacted by the construction and operation of the proposed facility, nor does it include any mitigation for the loss.

8. The Virginia Department of Environmental Quality – Game and Inland Fisheries (appendix F-50) have raised issues related to fish impingement and entrainment as well as increase water temperature and circulation flow patterns associated with the water demand of the proposed units during SDEIS application review. It is unclear under the SDEIS what was modeled, what the results of the modeling were and what was the mitigation, if any being proposed.

9. Information regarding the demographic make up of the communities in close proximity to the areas of potential impact is not well defined. The document does not contained detailed information regarding the exact demographics of the areas that would be most impacted by site activities. Community characterization at the small community level would be most helpful. What is the make up of the areas closest to the site? Are there areas close to the site where multiple site activities might take place? What would the cumulative impacts be on such a community?

10. What is the rationale of using national averages for the assessment of minority and low-income populations? The comparison of community data to national averages alone seems unreasonable. With the vast disparities among the make up of communities across the country, and the Regional differences we see in community make up, it seems inappropriate that a national benchmark would be applied in the assessment. It is much more appropriate from a statistical point of view to use state and county level benchmarks. That is, state and county averages for minority and low-income populations should be used for identifying the areas of concern. In view of the fact that the poverty level differs from one state to another, it would seem more reasonable that the assessment would use state level data.

11. The data used in the determination of populations of Environmental Justice concern is out dated. The assessment needs to be redone using the most recently available census information (2000 Census data).

12. The Environmental Justice assessment provided in the document is vague. Little information of use is provided, and no documentation is presented to support conclusions. It is difficult to determine if the conclusions drawn in this document are valid based upon the scarce information provided related to potential impacts and target populations.

13. The listing of groups and organizations contacts lacks representative groups from

the Environmental Justice and grassroots community. While a number of tribes were listed in the contacts list, the listing lacked local community-based organizations, local churches and other groups traditionally associated with the Environmental Justice movement. Failure to conduct adequate and appropriate outreach and communication can be most problematic. It also represents a major problem from the Environmental Justice point of view. It is strongly suggested that a more comprehensive outreach and community involvement plan be instituted. Please consult "The Model Plan for Public Participation", developed by the Public Participation and Accountability Subcommittee of the National Environmental Justice Advisory Council (please see http://www.epa.gov/compliance/resources/publications/ej/nejac/model-public-part-plan.pdf).

14. It is not clear as to the methods used to determine the level or degree of impact anticipated. What are the criteria upon which the conclusions are based?

15. The document is too broad in its consideration of potential plant designs. The document intends to allow for the citing of 7 potential designs for nuclear units. While adequate design information exists for a few of the designs, by the admission of the NRC there is inadequate design information available for some of the proposed units from which to make accurate environmental assessments of the impacts. The document should limit its scope to those nuclear plant designs for which reasonable data existed for assessing environmental impacts. If the NRC continues to consider those reactor units as viable it should develop a supplemental EIS or an additional EIS when environmental information becomes available. Based on a review of the SDEIS, the document should be limited to the following units: ACR-700, Advanced Boiling Water Reactor, Advanced Pressurized Water Reactor (Surrogate AP1000), and the Economic Simplified Boiling Water Reactor.

16. Chapter 1, Pg 1-3 line 22 - The document states that a detailed design of the reactor or reactors is not needed at this time. However, there should be enough design information or data available on any reactor design to accurately bound the environmental impact. For several of the desired plant designs, this information is either not available or not provided as part of the SDEIS in order to substantiate Plant Parameter Envelope information.

17. Chapter 3, Section 3.2 - The approach to develop a plant parameter envelope, while valid, is much more useful for developing a generic environmental impact statement. The approach proves less useful when referring to a specific action at a site. This approach is less credible when used to encompass reactor designs for which no accurate design parameters exist (the gas cooled reactors, and the IRIS next generation pressurized water reactors).

18. Chapter 3, Section 3.2.1.2 - If unit 4 will be a dry cooling tower, then it will require some combination of water treatments, which should be relatively straightforward based on the draft designs. There should exist enough information for this analysis to be included in the SDEIS.

19. Chapter 3, Pg 3-14, Line 14 - Please explain why radioactive waste management systems have not been identified. The description of the high level waste storage facility, security of this facility and the monitoring (frequency and type) are not addressed.

20. Chapter 3, Pg 3-14, Line 20 - If adequate design information is only available to accurately estimate liquid and gaseous effluents for 4 reactors, then this SDEIS should only apply to those reactors. The usefulness of the information included in this SDEIS is limited to those plants used as a design basis for the Plant Parameter Envelope (PPE). Otherwise, problems will arise when a PPE has been established, but a new design must be "shoe-horned" into the parameters established by the PPE (which were based on other reactor designs).

21. Chapter 3, Section 3.2.4 - The SDEIS should state all the Federal and State regulations that apply.

22. Chapter 6, Pg 6-13, Line 5 - Note that the impacts of gas-cooled reactors would need to be assessed at the construction permit (CP) or COL stage, when more data is available on the design.

23. Chapter 6, Pg 6-16, Line 16 - Note that the document states that there exists significant uncertainty in the final design of any gas-cooled reactors. Thus, the SDEIS should be limited to exclude the design of these reactors until specifics on the design are known. Same comment for Pg 6-30, Line 19.

24. Chapter 7, Section 7.8 - The statement that the impact of operating the new units is "well below the estimated effects from natural radiation" misses the point. The public has no control over natural radiation, but the point of this SDEIS is to evaluate the impacts of siting 2 new nuclear units so that an informed decision can be made as to its merit.

**Policy for Surface Water Withdrawals**

Issue: Cumulative Impacts are too large and will have adverse impacts on Lake Levels and the North Anna River.

Response: The design of the project has changed from the original plan for two water cooled reactors; to one water cooled and one air cooled reactor; to one water and air cooled reactor plus another air cooled reactor. DEQ believes that if the requirement for air cooling is properly managed, it is possible to protect recreational lake levels and the instream flows necessary to allow the propagation and growth of an indigenous population of aquatic life in the North Anna River.

The impacts on lake levels are documented in the ESP application and are based upon Dominion using air cooling only once lake levels begin to decline. The change to more reliance on air cooling has reduced the time that the lake will be more than 2 feet down from 11% of the time in an earlier proposal to 7% of the time with the present proposed configuration. It is important to note that as Lake Anna is a multipurpose water resource, the generation of electricity is considered a beneficial use of water resources that can take place simultaneously with the recreational use of the Lake.

The cumulative impacts of the existing two units have been mitigated by the creation of the Lake and the ability of the lake to maintain a minimum flow. The extreme low flows that the North Anna River experienced prior to the construction of the Lake are no longer present due to this minimum release. The impact of the units on high flows is not a concern. The reduction of the middle flows in the overall hydrologic regime is a concern to DEQ and to DGIF. However by operating the third unit to take maximum advantage of air cooling during important times both DEQ and DGIF believe that the adverse impact of the third unit on middle range flows can be acceptably minimized.

Issue: Finality - DEQ should object now or the State will lose its ability to control the water resources issues.

Issuance of the Coastal Zone concurrence does not affect DEQ's independent authority to set conditions for minimum flows and protection of beneficial uses under the Virginia Pollution Discharge Elimination or Virginia Water Protection Permit Programs. These conditions can be more precisely addressed at the time of application for the final design of the project, to apply to conditions being experienced at that time. We are reasonably certain that the consumptive use of unit three can be managed via the applicable permit programs to comply with the state law and protect the environment. We also believe it is more appropriate to defer the specifics of any future instream flow protection conditions until after the completion of the IFIM study requested by DGIF.

Issue: Unit 3 will foreclose the ability of other localities to develop public water supplies in the region.

Based on what we know today we do not think that is the case. Water supply plans for all localities are not due until 2011. Water is a reusable resource and DEQ does not foresee any locality not being able to develop an adequate water supply because of Unit 3.

Caroline County is actively pursuing a freshwater tidal intake from the Rappahannock River. This source will have no impact on instream flows in the York River basin.

Hanover County currently has a contract with the City of Richmond to purchase up to 20 million gallons per day. Hanover abandoned the Crump Creek Reservoir project in the Pamunkey basin was abandoned in the early 1980's due to massive wetland impacts. Hanover studied the idea of a side hill reservoir built from berms on the flood plain of the Pamunkey River. The latest Hanover Water Supply Plan envisioned purchases from Richmond and use of the Verdun Quarry augmented with water skimmed from high flows in the North Anna, South Anna, Pamunkey or Little Rivers all of which are in close proximity to the Quarry.

The Town of Orange recently completed a water supply reservoir that ensured the reliability of its supply from the Rapidan River. This water source also helps supply Gordonsville and represents a net gain to the basin due to an interbasin transfer.

Spotsylvania County once considered and then rejected using Lake Anna as a water supply in the 1980's. Spotsylvania did not pursue the alternative due to expected opposition from Dominion, the negative public perception of drinking water from a reservoir used to cool a nuclear power plant and because the development of large off stream reservoirs using the Rappahannock River as the primary water supply source was about to be permitted.

Louisa County is currently considering a plan to purchase water from Fluvanna County. Fluvanna County just received a permit to withdraw water from the James River. If this water purchase plan proceeds then there will actually be an interbasin transfer into the York River Basin. Louisa County is also considering using an existing reservoir, Bowlers Mill. Unit 3 should not affect the viability of either alternative.

DEQ does not know what each locality is going to do in the future but based on our present knowledge, we do not foresee the third reactor as a threat to the ability of the surrounding localities to developing adequate future water supplies. The third reactor would probably preclude Lake Anna from serving as a source of water for Spotsylvania County, however this idea was previously considered and rejected by Spotsylvania County in the previous planning cycle for institutional and socio economic reasons.

Issue: Dominion will raise the lake level and damage lakefront improvements.

The Department of Game and inland Fisheries has recommended consideration of a three inch spring time rise in the lake level. The extra 3 inches of water is enough to release an additional 27 cubic feet per second into the North Anna River for 60 days. The extra storage, if it were to be approved would require either VPDES approval in the lake level

contingency plan or approval under a Virginia Water Protection Permit. A 6 to 9 inch increase which was widely cited in public comments is not under consideration. The smaller increase probably would not do damage to water front improvements and if managed seasonally would not adversely impact fringe wetlands. No decision has been made on raising the lake level. If any decision were to be made to proceed with this plan, it would be the subject of further study and a permit action taken after a full public interest review.

**Memorandum**

To: Charles Ellis

From: Thomas A. Faha, Water Permit Manager, NRO

Date: November 9, 2006

Subject: NRO VPDES Program comments on Coastal Zone Program Consistency Determination for North Anna Power Station Early Site Permit

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We have reviewed Dominion's proposal for the addition of Units 3 and 4 and potential impacts to the water quality standards as they are governed by the VPDES permit program.

The proposed activity will require a modification of VPDES permit VA0052451. We do not see any overt conflict the proposal has with current regulations that would cause us to recommend denial of the modification of the permit. However, this should not be construed to guarantee that the permit will be modified as proposed by Dominion.

Only when Dominion makes a request for the permit modification can staff begin the process of evaluating the proposal and prepare a permit that will protect the water quality standards. The effects of discharges associated with the new units will ultimately be determined through the permit modification process. It is not possible at this time to predetermine what future permit conditions will be since it is likely that the water quality standards for Lake Anna, along with other waters of the state, will change in the coming years. While it is uncertain what conditions future permits will require, it is certain that they must assure protection of the criteria and standards. A modified permit that addresses the proposed units will be reviewed by other offices in DEQ, EPA, other state agencies, and the public; the modification will undergo a public participation process. The decision on whether or not the modification is approved and under what conditions will be decided by the State Water Control Board.

The above is our recommendation as far as the VPDES program is concerned for the proposed units.

Your office received numerous comments concerning the discharges of waters associated with the proposed Units. Nearly all of the comments were linked to the conditions for Units 1 and 2 as regulated through the existing VPDES permit; the status of the WHTF and related comments about effluent and ambient water temperatures. These comments pertain to the existing facility and can be addressed through the reissuance of the VPDES permit for the North Anna Power Plant which we are currently engaged.

The following is a consolidation and summary of comments concerning water discharges.

1. Regulatory Status of the WHTF

Many comments were received stating that the Waste Heat Treatment Facility (WHTF), or cooling lagoons, should be considered waters of the United States and therefore subject to the Water Quality Standard regulations and protection thereof as provided through the VPDES permit regulation. With this comment were many related comments such as:

- point of compliance should be moved from Dike 3 to the discharge canal;
- temperature limits should apply at the end of the discharge canal;
- derivation of current heat rejection limits;
- effluent limits and protection of human health within the WHTF;

- water quality monitoring within the WHTF;
- use of sprayers to assist in cooling water in the WHTF;
- requiring a new 316(a) variance study.

Staff acknowledges that the WHTF is an anomaly and not something that would be created under current laws and regulations. Its creation occurred prior to the Clean Water Act and NPDES permit regulations. Since 1968 the state has considered the WHTF as a treatment facility and not subject to water quality standards. The definition of *surface waters* in the VPDES permit regulation exempts treatment facilities.

The State Water Control Board issued Certificate 1912 in June 1968 approving the creation of Lake Anna and the WHTF. When the Board issued the certificate the intention was for the WHTF to be separated from the lake by a series of dikes so that it could serve as a treatment facility and thereby protect the water quality standards of the lake. This intent was reaffirmed in subsequent 401 Certificates issued by the SWCB in 1972 and 1973.

In 1969 the State Corporation Commission issued a license to Virginia Power for the creation of the lake and lagoons. This action too made clear the intent to distinguish the purpose of both bodies of water and the special function of the lagoons to treat the power plants cooling waters.

Dominion Power owns all of the land under both Lake Anna and the WHTF and up to the 255msl elevation around both water bodies. Landowners adjacent to Dominion have deeds with Dominion specifying the terms of use for the water bodies. There are two different deeds, one for those who live on the Lake and one for those who are adjacent to the WHTF. The deed for the latter states that the cooling lagoons are not public bodies of water and that they are a private water treatment facility that serve as cooling lagoons.

For these reasons the SWCB and DEQ have continued the practice of not considering the WHTF as subject to the water quality standards even though the law and regulations have changed. As such, the VPDES permit(s) for the North Anna Power Plant have not contained any conditions requiring the WHTF to meet water quality standards or treatment requirements.

Staff recognizes the public's comments and concerns and will work with them and Dominion when reissuing the VPDES permit.

2. <u>Permit violations, lake temperatures, and 316(a) variance</u>

Citizen monitoring in Lake Anna has shown that temperatures in the Lake have exceeded the temperature criteria in the water quality standards. Statements were subsequently made that Dominion's effluent has caused and contributed to these elevated levels and therefore they violated the permit.

The VPDES permit does not set an ambient water temperature criterion that Dominion must abide by and therefore Dominion has not violated its permit. The permit specifies the maximum amount of heat Dominion is authorized to discharge and they have complied with that requirement.

It is common for water bodies to exceed the water quality criteria because of solar radiation. In Lake Anna this is likely to occur in the shallow reaches near its tributaries. While Dominion's effluent from the WHTF does add to the temperatures in the Lake, and perhaps above the criterion, there has been no violation of the permit or water quality consequence.

Dominion has been granted a variance by the State Water Control Board in accordance with part 316(a) of the Clean Water Act and Virginia's Water Quality Standards, 9VAC25-260-90 and -140.E. The variance must be reevaluated by DEQ and renewed, if so decided, by the SWCB when the permit is reissued every five years.

The variance in essence states that the amount of heat discharged by the power plant is sufficient to assure the protection and propagation of aquatic life and wildlife in Lake Anna and the North Anna River downstream of the dam. The amount of heat may contribute to water temperatures exceeding the criteria but the exceedance will not have any detrimental impact.

The original study was conducted in the mid 1980s and approved by the SWCB in 1986. Each year subsequent to that Dominion has conducted fish surveys in the Lake and North Anna River. The surveys have indicated the fishery is healthy, that the intent of the temperature criteria has been met, and the validity of the variance.

3. Blowdown discharges from Unit 3

The blowdown discharges from Unit 3 will add additional heat and chemicals to the WHTF and may affect the water quality of the lake.

Should Dominion proceed with Unit 3 as proposed, as stated above, they must first ask for the VPDES permit to be modified. Should the permit be modified, it will address the cooling tower blowdown discharges through effluent guidelines specified in 40CFR Part 423 and in accordance with the water quality standards. The addition of heat will be analyzed to determine if it is significant and if it warrants a reevaluation of the 316(a) variance. The use of chemicals will be analyzed to assure the numeric criteria of the water quality standards are protected.

4. Comments on the draft VPDES permit for Units 1 and 2

Several comments were received about the draft permit for the current facility. The draft is not yet ready for public comments as it will undergo further internal review before comments are solicited from the public.

Please let me know if you have any questions.