

# **North Anna 3<sup>rd</sup> Reactor Combined Construction and Operation License Environmental Impact Statement (EIS)**

**Representatives of the US Nuclear Regulatory Commission;  
Ladies and Gentlemen,**

## **Significant New Information**

1. Now that the Economically Simplified Boiling Water Reactor (ESBWR) has been selected by Dominion, the issue of cooling this 3<sup>rd</sup> reactor can be carefully reviewed. The “once pass through cooling” had been rejected due to high temperatures imparted to the lake water in the EIS ESP. The current proposed cooling is a “combination dry and wet cooling tower” which introduces significant evaporation of water in the Lake Anna reservoir (up to 16.6MGD water in the Maximum Water Conservation Mode). State agencies DGIF, VDEQ (Division of Water Resources), DCR, and many public sources such as the Lake Level Task Force Committee which is a group of many lake associations, LACA, FOLA, LABARA and many businesses around the lake have objected to this high evaporation cooling method. A new fresh look at cooling technologies needs to be performed. Specifically the hybrid cooling proposed will only remove up to 1/3 of the heat of the entire system during the hot humid days. The other 2/3 will be done by the wet cooling with large evaporation (16.6MGD). In contrast dry cooling technology would consume only about 5-10% of that amount. Despite this enormous water savings, most of the cooling for new power plants primarily uses wet cooling. This is because on hot days, dry cooling can lead to increased turbine back pressure that prevents a plant from generating at its full rated capacity. The problem is compounded because hot days are precisely when the electricity demand is the highest. This hot-day performance problem with dry-cooled units can be alleviated by using small water supplemental cooling as needed. One such method recommended PIER Energy-Related Environmental Research [http://www.energy.ca.gov/reports/2004-03-09\\_500-03-109.PDF](http://www.energy.ca.gov/reports/2004-03-09_500-03-109.PDF) is to

introduce a small amount of water spray into the cooling tower inlet air stream, where it evaporates and cools the air. Studies have shown that reducing inlet air temperature by even a few degrees can maintain much of the plant's output during hot hours. This is one of many dry cooling examples which are currently being used in the USA and worldwide. No such studies of dry cooling were performed in the EIS-ESP because the PPE did not define a specific reactor design. This dry cooling needs to be studied more carefully.

2. Plant #3 was considered in a stand alone condition and no consideration was made for the alternative of installing additional water conservation measures on the existing nuclear power reactors Units 1 and 2, to compensate or mitigate against the significant and adverse incremental impacts that will be caused by unit 3. Judge Karlin (ALSBP) stated that some of the once-through cooling water from unit 1 and 2 could be diverted to the cooling tower used for unit 3. While this diversion would be small, it would offset some of the impacts of unit 3. He rejected the NRC staff's position that such an offset is per se unreasonable under NEPA. He stated "There is no dispute that the NEPA alternative analysis {is the heart of the environmental impact statement}". When a company operates an existing facility that emits pollution and/or has adverse environmental impacts, it is common for a regulator to at least consider, and sometimes impose, additional environmental controls on the existing units as trade-off for obtaining approval to construct additional units. Judge Karlin stated "It seems to me that creative nuclear engineers and environmental scientist, if properly motivated, might very well propose realistic offsets or mitigation measures that could be applied to the pre-existing reactors on the same site". This is significant new information that needs to be addressed.

3. The NRC's "Report on the North Anna Early Site Permit Water Budget Model (Lake WBT) for Lake Anna" by Cook ET all January 2005 is insufficient and significant new information can come from an updated water budget model. This study was performed before the change in cooling technique to wet-dry hybrid system and only looked at "once pass through" and "totally wet" cooling. This study should be redone and include a hybrid and totally dry cooling systems. Once again the study indicated that travel

time for the water to circulate from the discharge back to the input of the plant was not available. This is critical information and it should be collected at least in the WHTF so that accurate predictions can be made. The study does not address temperature. In response to a question by the NRC, Dominion stated “On a **long term basis** the average temperature of the cooling lake due to the reduced lake level from Unit 3 has been estimated to be less than 0.1 degrees F. The so called “long term” effect is not where the problem exists. The hot summer months needs to be evaluated for temperature change. No calculations were provided by Dominion. It was only estimated. The calculations for the summer time periods should be performed by Dominion and independent calculations done by NRC. Units 1 and 2 will heat the “less water” faster and return time for recycling will be shortened during the problematic hot summer months. This temperature needs to be investigated more carefully.

4. Dominion has proposed a new Waste Treatment Facility for unit 3. This is new and significant information. The effluent would be discharged into the WHTF of Lake Anna. The current waste treatment facility for unit 1 and 2 already discharges in the lake and we would oppose a new discharge. Why can't the current treatment plant support the new unit 3? Is it up to capacity? Is the size of the proposed WTF plant larger than needed or would it replace the unit 1 and 2 treatment plant? Why can't innovative techniques be used to use the effluent and not put into the lake?

Ken Remmers  
Waterside Property Owners Association  
Water Quality Chairman. LACA  
13130 Westbrook Dr.  
Fairfax, VA 22030  
Phone 703-968-2430