



April 14, 2008

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: Comments on EIS scoping for Calvert Cliffs Unit 3

The Chesapeake Safe Energy Coalition submits the following comments on the EIS scoping for the proposed Calvert Cliffs Unit 3 reactor on behalf of our member organizations: Beyond Nuclear, Clean Water Action, Green Party of Maryland, Maryland Public Interest Research Group, Maryland Sierra Club, Nuclear Information and Resource Service and Public Citizen.

Please contact Michael Mariotte, Executive Director, Nuclear Information and Resource Service, if you have comments or questions about these comments. NIRS, 6930 Carroll Avenue, Suite 340, Takoma Park, MD 20712; 301-270-6477, nirsnet@nirs.org.

Cost/Benefit Analysis

If the perceived benefits of a proposed project outweigh the potential damage and costs the project would reasonably be foreseen to cause, then the project is likely to obtain approval from regulatory authorities, and gain general public support as well. On the other hand, if the project's costs are perceived as greater than any foreseeable benefits, then the project likely will be rejected by both the public and regulatory agencies.

To have credibility with the public and state and local governments and legislatures, this cost/benefit analysis must be as complete and transparent as possible. A primary purpose

of an Environmental Impact Statement (EIS) is to provide this clear, reasoned, transparent cost/benefit analysis of a proposed project.

An EIS done properly, with full consideration of all factors and all alternatives, and with complete transparency of both conclusions and documentation of how those conclusions were reached, is a valuable document that can well serve the public. An EIS done without sufficient consideration of relevant factors, or without full transparency, instead undermines public trust in both the applicant and the regulatory agency. In such a case, the lack of public trust and confidence often can result in a final outcome counter to the applicant's desire even if a temporary victory, i.e. granting of an initial license, is gained.

In this case, Unistar/Constellation Energy's Environmental Report lacks credibility and appears more intended at deflecting and deterring public involvement in the EIS than contributing to careful and transparent analysis. Specifically, the applicant's assertion (and the NRC's apparent acceptance of that assertion) that all financial information, including basic estimates of construction cost, are to remain proprietary makes any discussion of cost/benefit analysis impossible, and thus irrelevant, and leaves the EIS unable to fulfill one of its most basic obligations.

This is glaringly so because Unistar/Constellation certainly will have to disclose these estimates at some point in other forums: whether to the Securities & Exchange Commission, the Maryland Public Service Commission, its own investors, or wherever. Thus, the only possible rationale for withholding these figures is to prevent exactly the type of analysis, and public discussion of that analysis, that the EIS is intended to accomplish.

Even if the NRC staff has access to this allegedly proprietary information, and prepares a cost/benefit analysis based upon its access, the public still would not have the ability to assess this information, add a public perspective the NRC staff may be lacking, and comment upon this information—legal requirements of the EIS.

We will acknowledge that some financial information not essential to making a cost/benefit determination may be withheld as proprietary (though we question the validity of this, since all of this information will be revealed in other forums), it is simply not possible to conduct a cost/benefit analysis with one side of the equation—cost—missing entirely.

Thus, absent fundamental information on the cost of this project, no cost/benefit analysis can be prepared or reviewed and the EIS would be an illegal document of no value and would only serve to undermine public credibility of both Unistar/Constellation and the NRC.

The NRC must avoid this outcome by including in the EIS information on the estimated costs of this project. Moreover, given the wide range of cost estimates already reported by other U.S. utility projects (for example, Florida Power & Light testimony before the Florida Public Service Commission estimates construction costs for a single new nuclear

unit running from \$6 to \$12 billion—a huge range), the EIS should not limit itself to a single cost figure, but rather must conduct its cost/benefit analysis on a range of foreseeable construction costs.

Alternatives

The EIS should fully and transparently consider alternatives to Calvert Cliffs-3, including but not limited to:

- *use of renewable energy to meet electricity demand and/or equivalent output of Calvert Cliff-3
- *use of energy efficiency to reduce electricity demand to equivalent output of Calvert Cliffs-3, including various and aggressive energy efficiency program scenarios
- *use of a combination of renewable energy and energy efficiency to meet electricity demand and obtain an equivalent output of Calvert Cliffs-3
- *the “no action” alternative.

Radioactive Waste

The EIS should fully consider the effects of radioactive waste on Maryland and the Chesapeake Bay, including but not limited to:

High-Level Radioactive Waste

*The EIS must fully address the potential consequences of permanent storage of high-level radioactive waste adjacent to the Chesapeake Bay. There is no currently no permanent storage facility for high-level radioactive waste. Even if the proposed Yucca Mountain site opens during the operating lifetime of Calvert Cliffs-3, this reactor will, by law, not be eligible to have its high-level waste stored there. Thus, the EIS must assume that there will be no available high-level radioactive waste repository for the full operating lifetime (plus possible license extension) of this unit, and the EIS must fully address how and where all of the high-level radioactive waste generated by Calvert Cliffs-3 will be stored on-site, and what measures will be taken to ensure that the radioactivity from this waste remains permanently isolated from the environment.

*The EIS must address potential consequences (on the Bay, on people, on flora and fauna in the region) of a serious accident in the irradiated fuel pool at Calvert Cliffs-3, and in other potential high-level radioactive waste storage facilities. The EIS must address possible consequences to Unit-3 of an accident at the Units 1 & 2 fuel pools and/or at their dry cask storage units.

*The EIS must address the possible effects of Calvert Cliffs-3 on the existing dry cask irradiated fuel storage units at the Calvert Cliffs site, including their potential degradation over time as well as the potential impacts of a large expansion of the dry cask units to store high-level radioactive waste from Calvert Cliffs-3.

*The EIS must address the possible effects of transportation of radioactive waste generated at Calvert Cliffs, in the unlikely event a waste repository ever will be built. This should include road, rail and barge transportation on the Chesapeake Bay into the Port of Baltimore. An accident or attack that sinks a barge carrying high-level radioactive

waste would spell unprecedented catastrophe for the Bay. If barges are not used, then trucks or trains would be. The Baltimore train tunnel fire of 2001 could have killed thousands if high-level radioactive waste had been on board, and that route has been targeted by the Dept. of Energy in the past. DOE truck shipment routes criss-cross the State of Maryland.

“Low-Level” Radioactive Waste

*The EIS must address how and where all of the “low-level” radioactive waste Calvert Cliffs-3 can be expected to generate during its lifetime will be stored. Maryland nuclear waste generators’ access to the Barnwell, South Carolina “low-level” radioactive waste facility will end in June 2008. There are no current plans in the Appalachian Compact (of which Maryland is a member) to build a new facility to handle radioactive waste generated in Maryland. According to testimony before the Maryland Public Service Commission from Constellation Energy official George Vanderheyden, the utility is “seeking” licenses from the States of Tennessee and Utah for access to “low-level” radioactive waste facilities in those states. However, no facilities in those states are licensed to accept all “low-level” radioactive waste that would be generated by Calvert Cliff-3 (specifically, there are no facilities to accept Class B, Class C, or Class C+). Thus the EIS should assume that all Class B and above “low-level” radioactive waste generated by Calvert Cliffs-3 will be stored on-site for its licensed lifetime and describe how this material will remain isolated from the environment in perpetuity. Further, the EIS should report the amount of “low-level” nuclear waste, in volume and radioactivity, that Calvert Cliffs’ operators plan to treat as if not radioactive—that is, plan to send to facilities without specific licenses for nuclear waste. These include solid and hazardous treatment, processing and disposal facilities as well as recyclers whose materials are released for restricted or unrestricted use, and should be identified and the radiological impacts and risks identified. Since radioactive waste could remain onsite forever, the site should be evaluated under 10 CFR 61, which include NRC’s regulations for the disposal of radioactive waste.

*The EIS must fully address the impact on flora and fauna in the Chesapeake Bay caused by Calvert Cliffs-3’s planned release of 525,000 gallons per year of radioactive waste into the Bay, as indicated by Constellation Energy’s Response to Question 1-13 of the Maryland Public Service Commission.

Safety Issues

*The EIS should describe and address the potential consequences of a beyond design basis accident at Calvert Cliffs-3 and should address potential additional risks of its First-of-a-Kind reactor design.

Because the scoping period of this EIS is occurring well in advance—literally, years in advance—of certification of the EPR design chosen for this reactor site, we have to defer additional comments on the safety issues related to this project. However, we fail to understand how the EIS can possibly address the fundamental issue of the environmental consequences of a severe accident without knowing the specific vulnerabilities of the chosen reactor design. It appears that the NRC is attempting to meet the applicant’s

arbitrary schedule, rather than operate on a schedule that makes sense for the application process and the public.

The Draft and Final EIS—as well as public hearings--must await certification of the EPR reactor design. Otherwise the NRC, the applicants and the public will be awash in late-filed contentions, late-filed comments, irrelevant prematurely-filed documents such as an inadequate EIS, etc.

An EIS, even a Draft EIS, prepared on the basis of incomplete documentation and thus open to challenge based on the entirely foreseeable probability of new and relevant information, is not an EIS at all. It's simply a placeholder for an applicant that doesn't seem to want to engage in a reasoned, transparent process. The NRC must not play along with this type of phony process. The end result can only be a perverted licensing process, additional uncertainty for the applicant and unnecessary costly litigation for all sides—exactly the kinds of problems the NRC's revamped licensing process was supposed to correct.

*The EIS should address the potential consequences of a jumbo jet assault on Calvert Cliffs-3, taking into consideration the leaked Electricite de France report indicating the EPR design is vulnerable to aircraft crashes (see Large and Associates, May 18, 2006, http://www10.antenna.nl/wise/news/R3150_aircraft_impact.pdf).

*The EIS should address the additional cumulative effects of routine radiation releases on nearby populations and on aquatic life in and around the Chesapeake Bay from Calvert Cliffs-3, given 11 nuclear reactors (Susquehanna 1 & 2, Three Mile Island 1, Peach Bottom 2& 3, Calvert Cliffs-1 & 2, North Anna 1& 2, Surry 1& 2) already releasing radiation into the Bay.

*The EIS should address the potential adverse environmental impacts of an accident involving a significant release of radiation from at Units 1 & 2 on the safe operation of the new co-located unit.

Emergency Planning

*The main conduits out of the zone are route 2/4 and the Thomas Johnson Bridge. Local residents have been quick to point out that traffic on 2/4 and the Johnson Bridge are slow on a good day. The EIS should examine what the result would be of entire communities frantically attempting to exit the zone simultaneously.

*The EIS should address the impact of a simultaneous and spontaneous evacuation of communities well beyond the ten mile emergency planning zone on the orderly and timely evacuation of the current ten mile planning zone.

*The EIS should address the plans—and current lack of plans—to distribute protective Potassium Iodide pills to people living within 20 miles of Calvert Cliffs per Section 127 of Public Law 107- 188 as entitled “The Public Health Security and Bioterrorism Preparedness Act” passed in 2002.

*The EIS should describe Calvert Cliff-3's backup power systems for emergency public notification sirens and address how the utility will ensure compliance with the requirement that it can reliably and promptly notify members of the public in the event of an accident and concurrent loss of onsite/offsite power without overburdening other first responders with time consuming mobile route alerting duties. Local police and fire departments are likely to already be tasked with traffic control, security or firefighting duties.

*The EIS should describe how the emergency plan for Calvert Cliffs has or has not incorporated the likelihood of role delay and/or role abandonment by critical emergency plan personnel as the result of an attrition of an uncertain percentage of first responders due to their attending to personal and family responsibilities first. This significant and predictable human behavior was identified following the Three Mile Island nuclear power plant accident in 1979 and documented in numerous expert studies and polls following the nuclear accident which have been proved to the Nuclear Regulatory Commission Nuclear Security Incident Response division. This human behavior has been documented to include school teachers and bus drivers assigned to evacuating school children within the emergency planning zone, emergency room physicians, nurses and other medical personnel, police, National Guard and even nuclear power plant workers.

Potential Effects of Climate Change

If built, the proposed Calvert Cliffs-3 reactor would be licensed to operate until at least mid-century; if it operated successfully for that long, a license extension could allow it to operate until nearly the end of this century. The scientific community is in agreement that we are entering a period of climate change (a period, by the way, that this reactor would make worse since it would divert resources that could be used for genuinely carbon-free technologies like solar and wind power and increased energy efficiency). Indeed, there is substantial indication that we already have begun experiencing the early effects of climate change. Future effects are unknown, but are likely to include more frequent and stronger storms, changes in water use and availability, etc.

The EIS should fully examine the potential effects of climate change on the Calvert Cliffs 3 facility, including the possibility of severe weather-induced accidents. For example, tornados are occurring with greater frequency in the region and a strong tornado nearly hit the Calvert Cliffs site just a few years ago, whereas 30 years ago tornados were a rarity in the mid-Atlantic region. The EIS should consider the effect of stronger and more frequent tornados hitting the Calvert Cliffs site directly.

Similarly, a major hurricane hit Maryland and the Washington, DC area in September 2003, causing widespread damage. Hurricanes also have previously been a rarity in the region. The EIS should address the effects of larger and more frequent hurricanes directly hitting the Calvert Cliffs site.

Various studies have suggested extraordinary but variable impacts on water due to climate change—ranging from severe coastal flooding in some areas to a drying up of

water supplies in other areas. The EIS should address the possible impacts of climate change on the Chesapeake Bay and the water supply for Calvert Cliffs-3.

Security

*Without revealing actual safeguards information, the EIS should address the procedures and safeguards Constellation/Unistar intends to use to ensure that personnel working on the Calvert Cliffs-3 reactor do not have access to restricted areas at the operating Calvert Cliffs 1 and 2 reactors.

*The EIS should address the potential adverse environmental impacts from a successful malevolent act involving a significant release of radiation from Units 1 & 2 on the safe operation of the new co-located unit.

Seismic Risks

The risk of potentially damaging earthquake-induced ground accelerations requires assessment for all proposed structures, especially nuclear reactors. The Calvert Cliffs Nuclear Power plant site is located on the Maryland Coastal Plain, located in the middle of the North American tectonic plate. Because the region is distant from active plate boundaries, earthquakes, including those caused by ruptures which actually displace rocks near the earth's surface, are relatively infrequent. However, most of the interior of the North America plate, including the proposed reactor site, is approximately under northwest-southeast horizontal compression, and as stress and strain build up, year after year, strengths are exceeded and earth materials fail along surfaces called 'faults'. Often, ancient faults are 'reactivated' because they are still zones of weakness.

The probability that a large or even major earthquake could occur within a given part of the plate interior within a given period of time is poorly known. This is due to the relatively low recurrence rate for such events—a problem similar to that for major hurricanes. Examples of major historical earthquakes elsewhere in the interior of the North American plate include the Charleston, SC event (1886, magnitude 7.3) and the three shocks (1811-12) near New Madrid, Missouri (7.8-8.1), which were felt as far away as Washington, DC. Much of the city of Charleston was destroyed in the 1886 event. These earthquakes were all bigger than the 17 October 1989 M 6.7 San Francisco earthquake, which collapsed some freeway overpasses. The "Magnitude" of an earthquake, on the so-called "Richter" scale, is a measure of the energy released by rupture along a fault, not the shaking at any particular site. The shaking—usually measured on the Modified Mercalli scale- and possible damage is a function of distance from the epicenter and the properties of the geologic formations below the reactor.

In order to evaluate the shaking risk to a potential new reactor, the EIS needs to be based on 1) an up-to-date study of historical seismicity in the reactor region, and 2) a geologic assessment of potentially active earthquake faults in the vicinity. At any place on earth, the weaker the shock, the more frequent it will be. Since it is large-magnitude earthquakes relatively close to the site that are relevant to potential damage, the EIS needs to establish the likelihood of a given level of ground shaking being exceeded

within the expected lifetime of the reactor (say, 60 years). Earthquake seismology has advanced so greatly in recent years that the EIS should not rely on dated analyses.

Mapping deeply buried faults in the Calvert Cliffs region or elsewhere is difficult, and establishing whether they are potentially active (could rupture again during the lifetime of the reactor) is even harder. However, it is certainly possible to search for faults that offset geologically young sediment layers—such faults (for example the Stafford Fault in Virginia) are obviously candidates for renewed failure, and earthquake generation. Careful mapping of the Miocene-aged sediment layers outcropping along the Calvert Cliffs has been done and published subsequent to the construction of the existing power plant in the mid-1970s. This new mapping shows—more accurately than was known before-- the layers to be gently dipping (tilted) down to the southeast, and not disrupted by faults—except at one site, located about 1 mile south of the Calvert Cliffs Nuclear Power Plant, just north of Rocky Point. At this place along the cliffs, the layers appear to be offset a couple meters—that is, the layers are not continuous. The offset is such that the layers to the south are higher than those on the north. Detailed geological examination is needed to prove that the offset is not due to mapping errors—unlikely--, and, if a fault is indicated, boreholes will be needed to establish its strike (trend) and dip. How close does this potential fault come to the proposed reactor site? The proximity of this potential fault to the proposed reactor indicates that ground-shaking could be relatively intense, if a sizeable rupture were to occur during the lifetime of the reactor.