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From: Diane D'Arrigo [dianed@nirs.org]
Sent: Friday, April 25, 2008 12:07 PM
To: BellefonteCOLEIS Resource
Cc: Michael Mariotte
Subject: TVA Bellefonte Scoping Comments from NIRS
Attachments: NIRS BELLEFONT SCOPING COMMENTS.doc

April 25, 2008

Dear Joe Sebrosky and US NRC Bellefonte Docket Manager

Attached are NIRS comments on EIS Scoping for the proposed new nuclear reactors, Bellefonte 3 and 4, TVA Bellefonte Scoping Comments

Sincerely,

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Add = M. Hood (mgh2)

Nuclear Information & Resource Service
EIS Scoping Comments on Bellefonte 3 & 4

April 25, 2008

TO:
US NUCLEAR REGULATORY COMMISSION
Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, Mailstop T-6D59, U.S. NRC, Washington, DC 20555-0001

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From:
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Diane D'Arrigo, Radioactive Waste Project Director
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Re: Nuclear Information and Resource Service Comments on EIS Scoping for Bellefonte 3 and 4. These EIS Scoping comments in addition the verbal comments made at both public EIS Scoping meetings in Scottsboro, AL April 3, 2008.

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, TVA'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 TVA certainly will have to disclose these estimates at some point in other forums: whether to the Securities & Exchange Commission, the Federal Energy Regulatory Commission, Congressional oversight hearings of TVA or to the TVA Board. 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 prepare or reviewed and the EIS would be an illegal document of no value and would only serve to undermine public credibility of both TVA 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 nuclear reactors at Bellefonte, including but not limited to:
*use of renewable energy to meet electricity demand and/or equivalent output of Bellefonte nuclear reactors
*use of energy efficiency to reduce electricity demand to equivalent output of Bellefonte reactors, 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 Bellefonte nuclear reactors

*the "no action" alternative.

Radioactive Waste

The EIS should fully consider the effects of radioactive waste on Alabama and the watershed, 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 river. There is currently no permanent storage facility for high-level radioactive waste. Even if the proposed Yucca Mountain site opens during the operating lifetime of Bellefonte reactors, these reactors will, by law, not be eligible to have their 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 these units, and the EIS must fully address how and where all of the high-level radioactive waste generated by Bellefonte 3 and 4 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 river and the watershed, on people, on flora and fauna in the region) of a serious accident in the irradiated fuel pool at Bellefonte, and in other potential high-level radioactive waste storage facilities. The EIS must address possible consequences to the Bellefonte reactors and irradiated fuel pools and storage areas of an accident in the Unit 3 or 4 and/or at their potential dry cask storage units.

*The EIS must address the possible effects of Bellefonte on the potential dry cask irradiated fuel storage units at the site, including their potential degradation over time as well as the potential impacts of extended storage of high-level radioactive waste.

*The EIS must address the possible effects of transportation of radioactive waste generated at Bellefonte; in the unlikely event a waste repository ever will be built. This should include road, rail and barge transportation on the in the region. An accident or attack that sinks a barge carrying high-level radioactive waste would spell unprecedented catastrophe. If barges are not used, then trucks or trains would be.

"Low-Level" Radioactive Waste

*The EIS must address how and where all of the so-called "low-level" radioactive waste Bellefonte-3 and 4 can be expected to generate during their operational and decommissioning years will be stored. Alabama nuclear waste generators' access to the Barnwell, South Carolina "low-level" radioactive waste facility will end after June 2008. There are no current plans in the Southeast (of which Alabama is a member) to build a new facility to dispose of or isolate "low-level" radioactive waste generated in Alabama. Although processors in TN "process" radioactive waste, there is no disposal site licensed

in that state or anywhere in the SE Compact. In addition, there is NO disposal facility in the US licensed to accept all the so-called "low-level" radioactive waste that would be generated by the Bellefonte reactors. 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 Bellefonte 3 and 4 will be stored on-site for the licensed lifetime of the reactors and beyond. It should identify strategies that might result in creation of higher volumes of Class A waste (less concentrated than B and C but with all the same radionuclides and possibly additional ones).The EIS should describe how all of the radioactive waste and material will remain isolated from the environment in perpetuity. Further, the EIS should report the amount of "low-level" nuclear waste, in volume and isotope-specific radioactivity, which Bellefonte operators plan to treat as if not radioactive. That is, how much nuclear waste of what kind of nuclear waste will be redefined as not radioactive or cleared and sent 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. The recipients should be identified and the radiological impacts and risks identified. The EIS should identify the amount and type of waste that could go to facilities such as the hazardous waste site at Emelle, AL. 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 Tennessee River caused by Bellefonte's planned release of hundreds of thousands of gallons per year of radioactive waste in routine effluent emissions.

* The EIS should evaluate the impact on the river and watershed of radioactive releases when water volumes are reduced due to climate changes; the impact of reduced water on management of waste in the fuel pool; the impact of increased water levels on the storage of high and so-called "low-level" radioactive waste onsite and/or near site.

Safety Issues

*The EIS should address the potential consequences of a jumbo jet assault on Bellefonte 3 and/or 4, 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 Tennessee River from Bellefonte 3 & 4, given existing and additional proposed nuclear reactors are already releasing radiation into waters, air, biosystems and the region.

Emergency Planning

* The EIS should examine what the result would be of entire communities frantically attempting to exit the emergency planning 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, if they exist, to distribute protective Potassium Iodide pills to people living within 20 miles of Bellefonte.
*The EIS should describe Bellefonte's plans for 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 Bellefonte 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 Bellefonte reactors would be licensed to operate until at least mid-century; if they operated successfully for that long, a license extension could allow them 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 Bellefonte 3 and 4 facilities, including the possibility of severe weather-induced accidents. For example, tornados are occurring with greater frequency. The EIS should consider the effect of stronger and more frequent tornados hitting the reactors and waste storage areas of the site directly. Hurricanes should also be considered. The EIS should address the effects of larger and more frequent hurricanes directly hitting the Bellefonte site.
Various studies have suggested extraordinary but variable impacts on water due to climate change—ranging from severe 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 Tennessee River, the aquifers and the water supply for Bellefonte and the region.

Security

*The EIS should address the potential adverse environmental impacts from a successful malevolent act involving a significant release of radiation from Bellefonte.

Seismic Risks

The risk of potentially damaging earthquake-induced ground accelerations requires assessment for all proposed structures, especially nuclear reactors.
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 Bellefonte region or elsewhere is difficult but needs to be done. Establishing whether they are potentially active (could rupture again during the operation of the reactor or storage period for the waste) is even harder but necessary. How close do potential faults come to the proposed reactor site? The proximity of potential faults to the proposed reactor could indicate that ground-shaking could be relatively intense, if a sizeable rupture were to occur during the lifetime of the reactor or the period in which radioactive waste is stored.