CallawayCEm Resource

From: Kay Drey [tritium3@sbcglobal.net]
Sent: Wednesday, March 25, 2009 12:47 AM
To: CallawayCOLEIS Resource
Subject: Federal Register. Jan.23, 2009. pp.4257-8
Attachments: Callaway-2 -- EIS comments -- March 24.09.doc

To: Chief, Rulemaking, Directives and Editing Branch
Division of Administrative Services --- Office of Administration
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U.S. Nuclear Regulatory Commission
Washington DC 20555-0001 March 24, 2009

Federal Register. Jan. 23, 2009 -- pages 4257-8

Attached please find comments regarding the proposed construction and operation of a second reactor at the Callaway Nuclear Power Plant in Missouri.

Sincerely, Kay Drey -- 515 West Point Ave. -- University City, MO 63130

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These comments and questions are being submitted to request that the NRC Staff include the following topics in its environmental impact statement regarding the second reactor that AmerenUE is once again seeking to build and operate in Callaway County, Missouri.

I sometimes refer to Callaway 2 as Missouri's phoenix reactor, because it is seeking to rise from the ashes (the defeat) of our electric utility's earlier effort in 1976, to make its ratepayers pay for the cost of building Callaway Units 1 and 2 during the plant's construction --- that is, before the customers were to receive any electricity in return. Union Electric cancelled the construction of Unit 2 in Feb. 1977, just a few months after the voters banned Construction Work in Progress by a 2-to-1 statewide vote.

The basic document from which I have gained information about the proposed Callaway-2 (Call-2) is the Combined Construction Permit and Operating License Application (COLA) or the "Combined License Application," Rev. 0, published in July 2008.

A. The COLA includes a discussion of the energy intensive processes required for the uranium fuel cycle --- particularly for the enrichment stage. (pp. 5-100 to -103) I hope the Callaway-2 EIS will include an evaluation of the impacts the depletion of richer bodies of uranium ore will have on the generation of global warming gases --- over the projected 60-year operating life of the reactor (until the year 2080, as per p.5-54).

B. It seems likely that the proposal to build a deep geologic repository at Yucca Mountain may be permanently abandoned and that the repository will therefore not become available for the disposal of Callaway's irradiated fuel. It also seems possible, as an alternative, that reprocessing of commercial fuel rods could again be allowed in the United States.

It is expected that carbon-14 would be produced by neutron reactions with the oxygen-17 in the oxide fuel and the moderator-coolant, and with nitrogen-14 impurities in the fuel. Because of its long half-life (5700 years) and its long-recognized radiotoxicity, carbon-14 is one of the radioactive byproducts of nuclear reactors that is of greatest concern.

1. How many curies of carbon-14 does the NRC estimate would be released from the Call-2 irradiated fuel rods annually during reprocessing? And from the current Callaway Unit-One rods?

2. What amount of radioactive carbon dioxide does the NRC estimate would be released annually into the atmosphere from the Callaway fuel rods during reprocessing?

3. How many curies of carbon-14 do you estimate would be released as hydrocarbons in the liquid effluents emitted annually from Unit 2, during its routine operation? And from Unit 1?

C. Inspired and informed by the "Dirty Dozen" environmental scoping questions and comments submitted to the NRC on Feb. 8, 2009, by Michigan natives concerned about the

proposed Fermi 3 reactor in Michigan, I am submitting the following similar requests for information about the proposed Callaway-2 reactor**:**

1. Radioactive waste: Please include the following information in the Call-2 EIS about Ameren's proposals for the storage on site of the radioactive waste that would be generated during the reactor's proposed 60-year operation.

a. High-level waste: Yucca Mountain, the volcanic mountain in Nevada, was chosen by Congress to serve as the first national repository for irradiated fuel rods from commercial reactors.

(1) If no safe alternative site is ever found, what actions would the NRC mandate in order to keep Call-2's lethal fuel rods isolated from the human biosphere for the requisite millennia? And what about the Call-1 rods? If outdoor dry storage casks would be used, how would the fuel rods be moved to new casks as the casks deteriorate over time, or if they were attacked by terrorists?

(2) The reprocessing of irradiated fuel was banned by Presidents Gerald Ford and Jimmy Carter because of their concern that terrorists could steal the plutonium and enriched uranium extracted from the fuel, for use in the manufacture of nuclear weapons. Also, reprocessing is not economically viable and is environmentally disastrous. (One of its major emissions is radioactive carbon dioxide, the notorious global warming gas.)

(3) What plans does the federal government have if no commercial corporate board volunteers or is willing to be conscripted to build and operate a reprocessing plant, and no state, nation or planet agrees to harbor such a facility and its permanent wastes?

(4) Regarding transport: Assuming a site were to be located for the Call-2 high- and low-level wastes, would federal taxpayers have to pay for the transport of the wastes? Would federal taxpayers have to provide armed escorts for the transport of the irradiated rods? What if no dedicated hospital space is available in which to isolate radioactively contaminated patients, in the event of an accident or terrorist attack?

b. Low-level waste: Since the State of South Carolina, as of July 1, 2008, shut the Barnwell SC disposal site to the hottest "low-level" wastes from Missouri and 35 other states (that is, B and C and Greater-than-C wastes), what alternative requirements would the NRC require of AmerenUE to guarantee the isolation of these Call-2 wastes on site --- perhaps in perpetuity?

Some of the banned wastes have to be handled by remote-control equipment, such as the replaced filters that are saturated with leakage from defective fuel rods --- that is, with high-level waste. Much of the low-level waste is long-lived, such as technetium-99, with a half-life of 211,000 years. (We have to remember to multiply the half-life by ten to estimate the isotope's hazardous life.)

c. What follows is a quotation, not a question. But I think it is relevant. Here is what a 1970 Nobel Laureate in Physics, Hannes Alfven from Sweden, said about radioactive waste:

> The fission reactor produces both energy and radioactive waste**;** we want to use the energy now and leave the radioactive waste for our children and grandchildren to take care of. This is against the ecological imperative**:** Thou shalt not leave a polluted and poisoned world to future generations.

2. Accidents:

a. Another quote. As a former chairman of a local university physics department said to me, back in 1975 or so**:** "I don't know why you're working so hard fighting nuclear power. We're going to have nuclear power until there's a major catastrophe, and that's just a matter of time."

Please include information about the likelihood of a catastrophic accident at Call-2, the resulting contamination, and the technologies and costs of possible remediation.

b. What if Congress decides to abandon the Price Anderson Act that currently provides federal taxpayer subsidies for a catastrophic accident? What if local electric ratepayers could not afford the cleanup and damage costs?

c. AmerenUE is committed to France's Areva reactor design-in-progress. To quote from the Fermi "Dirty Dozen" litany, cited above**:** "untested new reactors with undetected technical glitches are at significantly increased risk of suffering a major accident." Please consider including a response to that comment in the EIS.

d. Please include an analysis of the effects of aging on significant structures and components during the extended operation of the reactor that could include the large list cited in the Code of Federal Regulations, Title 10, Part 54.21, for which an "integrated plant assessment" will be required. For example**:** "the reactor vessel, the reactor coolant system pressure boundary, steam generators, the pressurizer, piping, pump casings, valve bodies, the core shroud **. . . .**"

e. Please include a description of the expected release of fission products in the event of a postulated accident, and the actions that will be required to ameliorate the contamination within the nearby low population zone.

3. The threat of radiological sabotage: Please include non-safeguards information about the actions that would be required to remedy a terrorist attack from within or without the plant --- including actions required to provide an alternative source of drinking water to dependent communities downstream along the Missouri River. Please also include procedures to isolate farmland following the dispersal of gaseous emissions and the resulting fallout.

4. Unworkable emergency evacuation plans**:** Please describe plans for a mass exodus of the population in the event of a major accident or attack at the plant site, or along routes used to transport radioactive plant materials. Would the licensee be required to provide equipment and training to emergency responders?

5. The release of radioactive liquids and gases during the reactor's routine operation**:** Because no economically feasible technology exists to filter tritium (radioactive hydrogen) and dissolved radioactive noble gases (xenon and krypton) from a reactor's releases to the air and water, the licensee would not be required to filter them. Planned releases and unplanned leaks of radioactive wastes occur at every stage of the uranium fuel cycle --- mining, milling, chemical conversion, enrichment, fuel fabrication, the reactor, reprocessing, and, someday/somewhere, the disposal and permanent isolation of the reactor fuel and other radioactive wastes.

a. Please describe the impact of these routine releases on the natural environment --- on terrestrial fauna and flora, including aquatic life.

b. How would the expected radioactive and thermal releases impact upon the groundwater, surface water, and arable land?

6. The increased incidence of cancer and other diseases among residents living near the Callaway plant site**:** -- and among current and former workers. The need exists for an epidemiologic study of workers exposed to radioactivity within the plant site and to people who live nearby. To what extent would the operation of Call-2 be expected to increase the risk and incidence of such radiation-induced impacts on health as damage to tissues, cells, DNA and other pivotal molecules --- potentially causing genetic mutations, birth defects, and reproductive, immune, cardiovascular and endocrine system disorders?

7. The release of chemical toxins into the Missouri River. And other nearby surface streams and groundwater, and the impacts on their ecosystems.

8. Thermal pollution: Please describe how dams and other diversion projects upstream on the Missouri River cold affect the volume and quality of the river at and below the Callaway Units 1 and 2 discharge structure.

9. Potential impacts on commercial and recreational fishing in the Missouri River. Into the future.

10. The fact that the environmental impacts of the proposed Areva reactor are to be analyzed before the reactor design has been finalized and NRC-certified. Does the NRC include an assessment of the radioactive waste treatment systems in its certification process?

11. Ameren's questionable ability to finance the reactor's construction. Could the necessity to procure the underwriting of the power plant's construction costs by federal taxpayers and electric ratepayers before a power plant is providing service affect the quality of the construction and the plant's components? That is, would the requisite funding for the purchase of complex, expensive, safety-related equipment depend upon the ongoing availability of adequate federal subsidies and loan guarantees, plus electric rate increases during construction?

a. The underwriting of new reactor construction by private financial institutions was not provided for any reactors ordered after 1973, and was cancelled for many reactors ordered before then. Can Congress justify the subsidizing of new reactor construction during the nation's current economic crisis? Is it appropriate to transfer the risk of construction onto the taxpayers and ratepayers instead of keeping it with the electric utility's shareholders who will own and perhaps realize profit from the new reactor?

b. Could the federal and state funds being used to evaluate new reactor designs and their impacts on the environment provide solutions to global warming more quickly and effectively by investing instead in alternative energy research and development?

12. Safer, cheaper, and cleaner energy alternatives to nuclear power are available. If Ameren can demonstrate a need for more power, would the alternatives of wind, solar, geothermal, hydro, and energy efficiency generate more energy more quickly? And more jobs? At the very least, the alternative energy sources would not generate homeless, long-lasting, radioactive wastes.

Sincerely,

Kay Drey
Board Member of Beyond Nuclear, in Takoma Park MD

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