Environmental Scoping
Summary Report

Browns Ferry, Units 1, 2, and 3

Limestone County, Alabama

June 2004

Docket Nos. 50-259, 50-260, and 50-296

U.S. Nuclear Regulatory Commission
Rockville, Maryland

Introduction

On January 6, 2004, the U.S. Nuclear Regulatory Commission (NRC) received, by letter, an application from the Tennessee Valley Authority (TVA), filed pursuant to Section 104b of the Atomic Energy Act of 1954, as amended, and 10 CFR part 54, which would authorize the applicant to operate Browns Ferry Nuclear Plant Units 1, 2, and 3 for an additional 20-year period. The current operating license for Browns Ferry Nuclear Plant Unit 1 expires on December 20, 2013, the current operating license for Browns Ferry Nuclear Plant Unit 2 expires on June 28, 2014, and the current operating license for Browns Ferry Nuclear Plant Unit 3 expires on July 2, 2016. Browns Ferry Units 1, 2, and 3 are boiling water reactors designed by General Electric Company and are located in Limestone County, Alabama. As part of the application, TVA submitted an environmental report (ER) prepared in accordance with the requirements of 10 CFR Part 51. 10 CFR Part 51 contains the NRC requirements for implementing the National Environmental Policy Act (NEPA) of 1969 and the implementing regulations promulgated by the Council on Environmental Quality (CEQ). Section 51.53 outlines requirements for preparation and submittal of environmental reports to the NRC.

Section 51.53(c)(3) was based upon the findings documented in NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants," (GEIS). The GEIS, in which the staff identified and evaluated the environmental impacts associated with license renewal, was issued for public comment. The staff received input from Federal and State agencies, public organizations, and private citizens. As a result of the assessments in the GEIS, a number of impacts were determined to be generic to all nuclear power plants. These were designated as Category 1 impacts. An applicant for license renewal may adopt the conclusions contained in the GEIS for Category 1 impacts in the absence of new and significant information that may cause the conclusions to fall outside those of the GEIS. Category 2 impacts are those impacts that have been determined to be plant-specific and are required to be addressed in the applicant's ER.

The Commission determined that the NRC does not have a role in energy planning decision-making for existing plants, which should be left to State regulators and utility officials. Therefore, an applicant for license renewal need not provide an analysis of the need for power, or the economic costs and economic benefits of the proposed action. Additionally, the Commission determined that the ER should not include a discussion of any aspect of storage of spent fuel for the facility. This determination was based on the Nuclear Waste Policy Act of 1982 and the Commission's Waste Confidence Rule, 10 CFR 51.23.

On March 10, 2004, the NRC published a Notice of Intent in the *Federal Register* (69 FR 11462), to notify the public of the NRC's intent to prepare a plant-specific supplement to the GEIS to support the review of the license renewal application for the Browns Ferry, Units 1, 2, and 3 operating licenses. The plant-specific supplement to the GEIS will be prepared in accordance with NEPA, CEQ guidelines, and 10 CFR Part 51. As outlined by NEPA, the NRC initiated the scoping process with the issuance of the *Federal Register* Notice. The NRC invited the applicant; Federal, Tribal, State, and local government agencies; local organizations; and individuals to participate in the scoping process by providing oral comments at the scheduled public meetings and/or submitting written suggestions and comments no later than May 10, 2004. The deadline for filing comments was subsequently extended to June 4, 2004 (69 FR

30338). The scoping process included two public scoping meetings, which were held at the Athens State University, Student Center Cafeteria in Athens, Alabama on April 1, 2004. The NRC announced the meetings in local newspapers (Huntsville Times, Decatur Daily, News Courier, Florence Times Daily) and issued press releases. Approximately 40 people attended each meeting, including the NRC environmental review team, members of the public, representatives from TVA, State and local governments, and the press. Both sessions began with NRC staff members providing a brief overview of the license renewal process and the NEPA process. Following the NRC's prepared statements, the meetings were open for public comments. Seven (7) commenters provided either oral comments or written statements that were recorded and transcribed by a certified court reporter. One commenter made comments in both the afternoon and evening meetings. In addition to the comments provided during the public meetings, the NRC received six comment letters. The afternoon and evening meeting transcripts (accession numbers ML041350407 and ML041350459) and comment letters are available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agency-wide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm.htm (the Public Electronic Reading Room).

The scoping process provides an opportunity for public participation to identify issues to be addressed in the plant-specific supplement to the GEIS and highlight public concerns and issues. The Notice of Intent identified the following objectives of the scoping process:

- Define the proposed action
- Determine the scope of the supplement to the GEIS and identify significant issues to be analyzed in depth
- Identify and eliminate peripheral issues
- Identify any environmental assessments and other environmental impact statements being prepared that are related to the supplement to the GEIS
- Identify other environmental review and consultation requirements
- Indicate the schedule for preparation of the supplement to the GEIS
- Identify any cooperating agencies
- Describe how the supplement to the GEIS will be prepared

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At the conclusion of the scoping period, the NRC staff and its contractor reviewed the transcripts and all written material received, and identified individual comments. All comments and suggestions received orally during the scoping meetings or in writing were considered. Each set of comments from a given commenter was given a unique alpha identifier (Commenter ID letter), allowing each set of comments from a commenter to be traced back to the transcript, letter, or email in which the comments were submitted. Table 1 identifies the individuals providing comments and the Commenter ID letter associated with each person's

set(s) of comments. The individuals are listed in the order in which they spoke at the public meeting, and random order for the comments received by letter or email.

Comments were consolidated and categorized according to the topic within the proposed supplement to the GEIS or according to the general topic if outside the scope of the GEIS. Comments with similar specific objectives were combined to capture the common essential issues that had been raised in the source comments. Once comments were grouped according to subject area, the staff and contractor determined the appropriate action for the comment. The staff made a determination on each comment that it was one of the following:

- a comment that was either related to support or opposition of license renewal in general (or specifically to Browns Ferry) or that makes a general statement about the licensing renewal process. It may make only a general statement regarding Category 1 and/or Category 2 issues. In addition, it provides no new information and does not pertain to 10 CFR Part 54.

- A comment about a Category 1 issue that
  - Provided new information that required evaluation during the review, or
  - Provided no new information

- A comment about a Category 2 issue that
  - Provided information that required evaluation during the review, or
  - Provided no such information

- A comment that raised an environmental issue that was not addressed in the GEIS, or

- A comment regarding Alternatives to the proposed action

- A comment regarding safety issues within the scope of 10 CFR Part 54, but out of the scope of 10 CFR Part 51

- A comment outside the scope of license renewal (not related to 10 CFR Parts 51 or 54), which include
  - A comment regarding emergency response and planning
  - A comment regarding the need for power
  - A comment regarding operational safety issues
  - A comment regarding safeguards and security
  - A comment regarding aging management
  - A comment regarding MOX fuel
  - A comment regarding decommissioning
  - A comment regarding restart of Browns Ferry Unit 1
  - A comment regarding cost-benefit analysis

- A comment that was actually a question and introduces no new information.

Each comment is summarized in the following pages. For reference, the unique identifier for each comment (Commenter ID letter listed in Table 1 plus the comment number) is provided.

In those cases where no new information was provided by the commenter, no further evaluation will be performed.

The preparation of the plant-specific supplement to the GEIS (which is the SEIS) will take into account all the relevant issues raised during the scoping process. The SEIS will address both Category 1 and 2 issues, along with any new information identified as a result of scoping. The SEIS will rely on conclusions supported by information in the GEIS for Category 1 issues, and will include the analysis of Category 2 issues and any new and significant information. The draft plant-specific supplement to the GEIS will be available for public comment. The comment period will offer the next opportunity for the applicant, interested Federal, Tribal, State, and local government agencies; local organizations; and members of the public to provide input to the NRC's environmental review process. The comments received on the draft SEIS will be considered in the preparation of the final SEIS. The final SEIS, along with the staff's Safety Evaluation Report (SER), will provide much of the basis for the NRC's decision on the Browns Ferry license renewal.

TABLE 1 - Individuals Providing Comments During Scoping Comment Period

Commenter ID	Commenter	Affiliation (If Stated)	Comment Source and Accession Number:
BF-A	Stewart Horn		Afternoon Scoping Meeting - ML041350407
BF-B	Dr. Lane Price		Afternoon Scoping Meeting
BF-C	Ann Harris	We the People, Inc	Afternoon Scoping Meeting
BF-D	Stewart Ward		Afternoon Scoping Meeting
BF-E	Chuck Wilson	Tennessee Valley Authority	Afternoon Scoping Meeting
BF-F	Nancy Muse		Evening Scoping Meeting - ML041350459
BF-G	Jeff North		Evening Scoping Meeting
BF-H	Chuck Wilson	Tennessee Valley Authority	Evening Scoping Meeting
BF-I	Zola		Comment Letter - ML041250405
BF-J	Michael Bolt	Eastern Band of Cherokee Indians	Comment Letter
BF-K	Michelle Hamilton	Eastern Band of Cherokee Indians	Comment Letter - ML041490083
BF-L	Sara Barczak and David Ritter	Southern Alliance for Clean Air and Public Citizen's Critical Mass Energy and Environmental Program	Comment Letter - ML041340245
BF-M	Anoatubby	Chickasaw Nation	Comment Letter - ML041410044
BF-N	Frances Lamberts	Tennesee League of Women Voters	Comment Letter -

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Browns Ferry Nuclear Power Plant, Units 1, 2, 3
Public Scoping Meeting and Written Input
Comments and Responses

The following pages summarize the comments and suggestions received as part of the scoping process, and discuss their disposition. Parenthetical numbers after each comment refer to the Commenter ID letter and the comment number. Comments can be tracked to the commenter and the source document through the ID letter and comment number listed in Table 1. Comments are grouped by category. The categories are as follows:

1. Comments Regarding License Renewal and its Processes
2. Comments in Support of License Renewal at Browns Ferry Nuclear Power Plant
3. Comments in Opposition to License Renewal at Browns Ferry Nuclear Power Plant
4. Comments Concerning Aquatic Ecology Issues
5. Comments Concerning Threatened and Endangered Species
6. Comments Concerning Air Quality Issues
7. Comments Concerning Human Health Issues
8. Comments Concerning Cultural Resources Issues
9. Comments Concerning Alternative Energy Sources
10. Comments Concerning Surface Water Quality, Hydrology and Use
11. Comments Concerning Postulated Accidents
12. Comments Concerning Uranium Fuel Cycle
13. Comments Concerning Issues Outside the Scope of License Renewal: Emergency Response and Preparedness, Need for Power, Operational Safety, and Safeguards and Security, Aging Management, Decommissioning, Restart of Browns Ferry, Unit 1, Cost-Benefit Analysis
14. Request for Information

1. Comments Regarding License Renewal and its Processes

Comment: We appreciate this opportunity to comment during this scoping process, and trust that our comments will be taken seriously. (BF-L-31)

Comment: I appreciate the process that allows the public to comment. (BF-A-5)

Comment: No comments at this time. (BF-M-1)

Response: *The comments are in regard to license renewal and its processes in general. The Commission has established a process, by rule, for the environmental and safety reviews to be conducted to review a license renewal application. This process includes a review of public comments received during scoping. The comments did not provide significant, new information; therefore, they will not be evaluated further.*

Comment: I was talking with the TVA gentleman before the formal meeting started. I asked why a 20 year extension? And they said that's easy, that's what the law provides for us, not 10, not 30. [MR. CAMERON: First question, why 20?] (BF-G-1)

Response: *The license renewal period is for up to 20 years. In revising the regulations that address license renewal in 10 CFR 54, NRC determined that 20 years is appropriate to demonstrate an adequate licensing basis. This time period offers reasonable assurance of adequate protection assuming the current licensing basis is modified to account for age-related safety issues to manage to adverse effects on systems, structures and components. The comment did not provide significant, new information; therefore, will not be evaluated further.*

Comment: Somewhat related to the above, we urge a comprehensive Environmental Impact Statement before Unit 1 re-start and license extension decisions for Units 2 and 3. (BF-N-20) -

Response: *The comment is in regard to license renewal and its processes in general. The Commission has established a process, by rule, for the environmental and safety reviews to be conducted to review a license renewal application. This process includes preparation of a comprehensive supplement to the GEIS for license renewal. The comment did not provide significant, new information; therefore, they will not be evaluated further.*

2. Comments in Support of License Renewal at Browns Ferry Nuclear Power Plant

Comment: For the Browns Ferry license renewal supplemental EIS, TVA concluded the following: there were no significant environmental impacts, and restarting Unit 1, and continuing operation of all three units allows power production without green house gases. Which is consistent with TVA's clean air initiatives. (BF-E-1) (BF-H-1)

Comment: Plus, it maximizes use of existing assets and avoids the impacts of new site construction, which is very important financially to the ratepayers and consumers of the valley. (BF-E-2) (BF-H-2)

Response: *The comments were supportive of license renewal at Browns Ferry and are general in nature. The comments did not provide significant, new information; therefore, they will not be evaluated further.*

3. Comments in Opposition to License Renewal at Browns Ferry Nuclear Power Plant

Comment: Now that you are supporting TVA in this endeavor of licensing extension, I must assume that you will provide them with the 20 years as requested. So much for public input, so much for regulatory oversight. (BF-C-8)

Comment: I know that this meeting is being to held to check off the next box on your list of happenings for TVA to receive this extension. I don't believe for a minute that you will hinder or take this process seriously. (BF-C-14)

Response: *The NRC makes the decision to grant or deny a license renewal, based on whether the applicant has demonstrated that the environmental and safety requirements in the NRC's regulations can be met during the renewal period. If the applicant meets the requirements given in the regulations, then the NRC can be expected to approve renewal of the license. The NRC can deny an applicant's request to renew a license, however, the process to renew a license is a reiterative process, such that if the licensee did not provide appropriate or adequate information in their initial application, the NRC would identify the deficiencies and the licensee would be allowed to resubmit the application. This process could, and has, continued until the NRC concludes that the application is sufficient to complete the review. Furthermore, if it appeared to the applicant that the NRC may deny the request for license renewal, the applicant would likely withdraw the request in advance of the formal denial. The comments oppose license renewal at Browns Ferry, and are general in nature. The comments do not provide new information; therefore, they will not be evaluated further.*

Comment: Why should I or other TVA ratepayer's trust you NRC to stand up to bullies such as these? NRC you have never said no to the industry, so I must admit that my statement is an act of futility and is simply playing into your hands to show someone somewhere that you have met the requirements of public input. (BF-C-17)

Comment: And you boys are supporting this plant to go forth and spread its venom on helpless communities, simply because you do not have the nerve to say no to TVA. (BF-C-9)

Response: *To date, at the conclusion of the review, the NRC has approved all of the applications for license renewal. The NRC can deny an applicant's request to renew a license, however, the process to renew a license is a reiterative process, such that if the licensee did not provide appropriate or adequate information in their initial application, the NRC would identify the deficiencies and the licensee would be allowed to resubmit the application. This process could, and has, continued until the NRC concludes that the application is sufficient to complete the review. Furthermore, if it appeared to the applicant that the NRC may deny the request for license renewal, the applicant would likely withdraw the request in advance of the formal denial.*

The NRC has clearly defined the requirements for license renewal and the nuclear industry has the experience of over a dozen successful license renewal requests. Because of the cost and the commitment associated with an application it is unlikely that an applicant would intentionally submit an application for license renewal that was so flawed that the NRC staff would issue a denial. Finally, if problems with systems, structures or components of the facility were identified during the review, the applicant would likely be able to make the required modifications or put in place a mitigation plan that would be acceptable to the NRC. Identified problems with active structures, systems, or components would be addressed immediately, and any necessary changes made under the current operating license rather than waiting for the period of extended operation. The comments oppose license renewal at Browns Ferry, and are general in nature. The comments do not provide new information; therefore, they will not be evaluated further.

Comment: With absence of substantive efforts toward this end by the TVA, the granting of licenses to simply extend (or even expand) this provider's nuclear energy capacity for almost a generation's lifetime seems to us inappropriate. (BF-N-4)

Comment: In this context, we object to the proposed twenty-year license extension for reactor Unit 1, whose current operating license will expire on December 20, 2013 but which has been on (legally undefined "administrative hold") in-operational status since more than a decade and a-half ago. (BF-N-8)

Comment: We so urge the Nuclear Regulatory Commission, i.e. against expansion and long-term license renewal, at this time. (BF-N-29)

Response: *The comments oppose license renewal at Browns Ferry, and are general in nature. The comments do not provide new information; therefore, they will not be evaluated further.*

4. Comments Concerning Aquatic Ecology Issues

As stated in 10 CFR Part 51, Table B-1, Category 1 and 2 aquatic ecology issues include:

Category 1

- Accumulation of contaminants in sediments or biota
- Entrainment of phytoplankton and zooplankton
- Cold shock
- Thermal plume barrier to migrating fish
- Distribution of aquatic organisms
- Premature emergence of aquatic insects
- Gas supersaturation (gas bubble disease)
- Low dissolved oxygen in the discharge
- Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses
- Stimulation of nuisance organisms

Category 2

- Entrainment of fish and shellfish in early life stages
- Impingement of fish and shellfish
- Heat shock

Comment: I don't understand the terminology impingement and entrainment. I don't know how to comment on that without understanding what it is. (BF-F-6)

Comment: Through impingement and entrainment, and through thermal alteration of returned water they cause damage to aquatic life, including great fishery and related recreational losses along river systems on which they are located. (BF-N-15)

Response: *Impingement occurs when a fish or shellfish are pulled onto the intake screens that are part of the cooling water systems associated with nuclear power plants. Entrainment occurs when fish, shellfish, or larva that are too small to be impinged on the screen are entrained in the*

flow through the plant, traversing the plant cooling system. Impingement and entrainment as well as other aquatic ecology issues will be discussed in Chapter 2 and Chapter 4 of the SEIS.

Comment: The EIS should include (3) analysis of aquatic wildlife and terrestrial species impacts, with extensive involvement of the federal and state agencies charged with natural resource protection. (BF-N-23)

Response: *Impacts to aquatic and terrestrial species will be discussed in Chapter 4 of the SEIS.*

5. Comments Concerning Threatened and Endangered Species

Comment: New data on the status of federally and state-listed endangered or threatened terrestrial animal, aquatic, and plant species should be required and studied as to the impacts of an additional 20 years of operations per reactor. (BF-L-13)

Comment: Proper notification to, along with creation of working relationships with, state agencies, Fish and Wildlife Service, and National Marine Fisheries Service should occur. (BF-L-14)

Response: *During the analysis and preparation of the draft SEIS for license renewal, the NRC staff consults with appropriate Federal agencies. The NRC usually contacts directly the U.S. Fish and Wildlife Service (Department of the Interior) and the National Marine Fisheries Service (Department of Commerce) for environmental issues related to the impact on any threatened or endangered species that may be in the vicinity of the plant or to any critical habitat. If other agencies have actions or jurisdiction over areas directly related to the review, they would also be contacted directly by the NRC.*

In addition to NRC coordinated consultation, after a draft EIS is published, it is also reviewed by various Federal agencies at their discretion. For example, at the Federal level, the draft SEISs for license renewal are most commonly reviewed by the Environmental Protection Agency and the Department of the Interior. The comments from these agencies are considered and included in the Final SEIS as appropriate.

Potential impacts of renewing the operating licenses for Browns Ferry Units 1, 2, and 3 on threatened or endangered species will be evaluated in Chapter 2 and Chapter 4 of the SEIS.

6. Comments Concerning Air Quality Issues

Comment: We note that Limestone County is not evaluated as having bad air quality and that the annual quantity of emissions released into the atmosphere is normal for a nuclear plant. In an ideal situation it would not be necessary for us to make comment on air quality, however the air quality situation is far from ideal in the Great Smoky Mountains. Because air flows from Alabama frequently move towards our mountains we would like to encourage the exploration of reducing emissions at Browns Ferry. (BF-J-1)

Response: *Air quality impacts from plant operations were evaluated in the GEIS and found to be minimal. Air emissions are regulated through the U.S. Environmental Protection Agency and the State of Alabama. Air quality will be discussed in Chapter 2 of the SEIS for Browns Ferry license renewal.*

7. Comments Concerning Human Health Issues

As stated in 10 CFR Part 51, Table B-1, Category 1 and 2 human health issues include:

Category 1

- Microbiological organisms (occupational health)
- Noise
- Radiation exposures to public (license renewal)
- Occupational radiation exposures (license renewal)

Category 2

- Microbiological organisms (public health)(plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river)
- Electromagnetic fields, acute effects (electric shock)

Comment: I'm also concerned about the level of radioactive substances that are effluent. If and what they are, and where can we get that information? Is that on the web site of the NRC? Radio activity that is released into the environment in any way. (BF-F-7)

Comment: Could you specifically address the effluent from Browns Ferry. What do you all actually put into the river, itself?(BF-B-1)

Comment: I want to know whether the millirem is per what or per person. What it meant when you gave that answer, when you said equal to a dose of ... Is that what a person can get by being in the water at the point of the -- at the pipes? (BF-D-1)

Response: *NRC is a regulatory agency charged with assuring the public health and safety. NRC does this by providing the industry with regulations as well as conducting plant inspections. The licensee is allowed to release gaseous and liquid effluents to the environment, but the releases must be monitored and meet the requirements of 10 CFR Part 20, Appendix B, Table 2; therefore, contaminants may be present and detectable offsite. However, the release limits have been designed and proven to be protective of the health and safety of the public and environment. The NRC sets limits on radiological effluents, requires monitoring of effluents and foodstuffs to assure those limits are met, and has set dose limits to regulate the release of radioactive material from nuclear power facilities. The regulations are intentionally conservative and provide adequate protection for the public including the most radiosensitive members of the population. TVA monitors its effluent and calculates an offsite annual dose caused by radioactive*

liquid and gaseous effluents. These calculations are performed to demonstrate the licensee's compliance with its technical specifications and NRC regulations.

The NRC publishs two annual reports for Browns Ferry regarding environmental monitoring and environmental effluents. The "Annual Radiological Environmental Operating Report (AREOR)" and the "Annual Radiological Effluent Release (ARER) Report" are available to the public through the NRC's Public Document Room in Rockville, Maryland or from the NRC's Electronic Reading Room available online at http://www.nrc.gov/reading-rm.html. The comments provide no new information, therefore, they will not be evaluated further.

8. Comments Concerning Cultural Resources

Comment: According to the information you provided, the EBCI's THPO has determined that the proposed activities will not have an effect on any known cultural resources significant to our Tribe. (BF-K-1)

Comment: We have also determined the undertaking will not have an affect on known cultural resources listed on or eligible for the National Register of Historic Places provided that archaeological site 1Li535 is avoided as stated in the BFN License Renewal Final Supplemental EIS. (BF-K-2)

Response: *The comments refer to Historic and Archaeological resources near Browns Ferry. These issues will be addressed in Chapter 2 and Chapter 4 of the SEIS*.

9. Comments Concerning Alternative Energy Sources

Comment: In our experience, the relicensing process has generally provided an inadequate analysis of energy alternatives. (BF-L-15)

Comment: In addition, other electricity generating technologies, such as solar, wind, and biomass should be investigated. (BF-L-17)

Comment: The League believes that an emphasis on conserving energy and using energy-efficient technologies is by far the wisest and safest course of action for our nation and state. (BF-N-3)

Comment: The League also believes that predominant reliance should be placed on production of energy from renewable sources. (BF-N-5)

Comment: We have applauded and strongly support the TVA's initiation of a Green Power Switch program whose wind, solar, and methane gas installations now produce electric power for more than seven thousand residential and business users. At this time, however, TVA's generational capacity under this program makes up less than one percent of its capacity from the two, now operating Browns Ferry units. For ecological and other reasons, the strongest market trends in the energy field, around the world favor energy production from renewable sources and weight of public opinion is

on the side of expansion of these sources, at least within the Tennessee part of the Agency service area. (BF-N-6)

Response: *The GEIS included an extensive discussion of alternative energy sources. Environmental impacts associated with various reasonable alternatives to renewal of the operating licenses for Browns Ferry will be discussed in Chapter 8 of the SEIS. The comments did not provide significant, new information; therefore, they will not be evaluated further.*

Comment: It should thoroughly assess and clearly delineate (2) the alternative options and their economic, environmental and social benefits and costs. Delineation of alternatives should include optimization of energy efficiency technologies, energy conservation, and Green-Power-Switch program maximization. (BF-N-22)

Comment: It should also include comprehensive assessment and comparison of normal (4) safety-related costs for nuclear plants relative to alternative, renewable-source generation options, (BF-N-24)

Comment: The NRC must review in every respect these safety implications and costs of nuclear-power sources as against the societal and environmental advantages which renewable and substantially risk-free generation sources offer. (BF-N-27)

Response: *The Commission determined that an applicant for license renewal need not provide an analysis of the economic costs or economic benefits of the proposed or alterative actions. The comments did not provide significant, new information; therefore, they will not be evaluated further.*

10. Comments Concerning Surface Water Quality, Hydrology and Use

Comment: I will only focus on the high discharge temperature that will occur when all three units are operating at 3952 Mega-watts Thermal. The existing five cooling towers are unable to cool the water at peak summer conditions without derating an operating unit. (BF-I-1)

Comment: There is no concerted effort to built back cooling tower #4 or build additional cooling towers to allow operation at 100% of Extended Power Uprate (EPU) without derating all three units or having to take one off-line. Studies have been conducted by TVA's Norris labs to validate this assertion. (BF-I-2)

Comment: I believe there is a planned effort to allow Unit 1 to continue in it's effort to restart with paying for the adequate cooling to meet the discharge limits. This is being driven by a fervent desire to hold the restart costs down and not impact schedule dates. (BF-I-3)

Response: *These comments refer surface water quality issues. These issues will be addressed in Chapters 2 and 4 of the SEIS.*

Comment: The Nuclear Regulatory Commission should evaluate the impacts of extended generation from a regional perspective and should investigate state-level political concerns that

may affect that ability to dedicate large water resources for extremely long periods of time. (BF-L-9)

Comment: The NRC should require updated water use information for the region on current water needs, as in what industries and municipalities are currently using and are projected to use in the future as population centers continue to grow. (BF-L-12)

Comment: Since construction of the Brown's Ferry plant some four decades ago, Tennessee and the region have experienced enormous growth in population, with corresponding demands on water--our most important and life-necessary natural resource. (BF-N-16)

Comment: Since Unit 1 has not operated since 1985, and all of the reactors came on-line for a time in the mid-to-late 1970s, thorough water withdrawal and water consumption analyses, along with fish and vegetation studies, must be done using updated data (not referring back to original operating license information). (BF-L-10)

Comment: Further, the impact of the water withdrawn and its effect on the flow of the Tennessee River should be evaluated not during just "normal" conditions but in times of drought, which have impacted the region when Browns Ferry Unit 1 was not even operating. (BF-L-11)

Comment: We have strong concerns regarding nuclear power plant impacts on the region's water resources. Reactors like those at Browns Ferry consume through evaporation about 20,000 gallons per minute; their flow-through rate exceeds 600,000 gallons per minute and their direct and indirect cost to the water resource exceeds 50 gallons per each kilowatt hour of electricity they generate. (BF-N-14)

Comment: Given their huge withdrawal demands, it is imperative that the NRC consider the water impacts from the Browns Ferry reactors in a comprehensive way and from the perspective of all human and wildlife needs and all competing uses over the longer-term future. (BF-N-17)

Comment: We believe, therefore, that committing to electricity generation such large water withdrawals as are needed for safe operation of the Browns Ferry reactors, for more than three decades hence, may not be wise when generation options which have no or minimal impacts, e.g. from renewable sources, are available. (BF-N-19)

Response: *These comments refer to water use and water use conflicts. These issues will be addressed in Chapter 4 of the SEIS.*

Comment: Possible threats to water security in the region under various climate-change scenarios must also be considered in this context. (BF-N-18)

Response:

13. Comments Concerning Postulated Accidents

Comment: Directly relevant to Browns Ferry Unit 1 concerns about restart and the subsequent operating extension are the accident projections from the Brookhaven National Laboratory Study in 1997 for a closed BWR for an area within 50 miles of the plant: population dose of 38 million rem, 15, 300 latent fatalities, 140 square miles of condemned land, and a cost of $48 billion (NUREG/CR-6451, April 1997). (BF-L-4)

Comment: I believe that the people of the Tennessee Valley may be in real danger from a major nuclear accident if these concerns prove to be accurate. (BF-A-4)

Response: *The effects of accidents are considered in both environmental and safety reviews for license renewal. Postulated accidents, including design based and severe accidents, will be addressed in Section 5.0 of the SEIS.*

12. Comments Concerning Uranium Fuel Cycle

Comment: Further, spent fuel casks, both for onsite storage and for transportation, have not undergone adequate testing to demonstrate thorough safety and containment of radiation, both during normal usage and during various accident scenarios. (BF-L-22)

Comment: Again, the industry's inclination to take every opportunity to cut costs (in attempting to make nuclear energy appear remotely viable, economically) creates a disturbing tension here, with nuclear utilities gravitating towards the casks that are cheapest and the least tested. (BF-L-23)

Response: *The NRC is committed to preventing detrimental health impacts to the public. NRC has regulations covering the long-term storage of spent fuel onsite as well as packaging and transport of radioactive material. These regulations regarding packaging and transport of radioactive material are found at 10 CFR Part 71. NRC regulations related to exposure to the public are found at 10 CFR Part 20. In addition, the U.S. Department of Transportation and the U.S. Environmental Protection Agency have regulations to protect the public from health effects associated with radiation. U.S. Department of Transportation regulations related to transportation of radioactive material are found at 49 CFR Part 173, and the Environmental Protection Agency regulations related to radiation are found at 40 CFR Parts 190 through 194.*

The safety and environmental effects of long-term storage of spent fuel onsite has been evaluated by the NRC, and, as set forth in the Waste Confidence Rule, the NRC generically determined that such storage can be accomplished without significant environmental impact. In the Waste Confidence Rule, the Commission determined that spent fuel can be stored onsite for at least 30 years beyond the licensed operating life, which may include the term of a renewed license. The NRC has a certification process for casks, regulated by 10 CFR Part 72. Such wastes are under continual licensing control. The comments did not provide significant, new information; therefore, they will not be evaluated further.

13. Comments Concerning Issues Outside the Scope of License Renewal: Emergency Response and Preparedness, Need for Power, Operational Safety, and Safeguards and Security, Aging Management, MOX fuel, Decommissioning, Restart of Browns Ferry, Unit 1, Cost-Benefit Analysis

Emergency Response and Preparedness

Comment: NRC and TVA, both of you know that there is not one evacuation plan at any nuclear facility in America that meets NRC standards and cannot be carried out for that accident that will only happen at 2:00 AM in the morning while the children are home asleep. (BF-C-16)

Response: *Emergency preparedness is an ongoing process at all plants, including Browns Ferry. Each nuclear plant must have an approved emergency plan, as required by 10 CFR Part 50, that is revised periodically and required to be up to date. Emergency planning is part of the current operating license and is outside the scope of the environmental analysis for license renewal. The comment did not provide significant, new information and it does not pertain to the scope of license renewal as set in 10 CFR Part 51 and Part 54, therefore, it will not be evaluated further.*

Need for Power

Comment: The NRC should investigate TVA's projected energy needs as they have a history of overestimating their power output (i.e. TVA projected in the 1970s that they would need to build 17 reactors). For instance, TVA has not produced an Integrated Resource Plan in the past five years that would document a need for this action to take place. TVA should be required to explore energy efficiency and conservation measures that could be implemented in within their service territory to offset the needs of license extension. (BF-L-16)

Comment: TVA has projected to run Browns Ferry at a 93% capacity factor even though no other utilities or nuclear plants are achieving these factors with BWR designs (BWRs are averaging capacity factors in the low to mid 80% range). Further, Unit 1 has not operated since 1985 and when it did operate, it had a low capacity factor. The NRC should research realistically achievable capacity factors and require TVA to address the "gap" in capacity factor that will result, inevitably affecting the costs of electricity generated by the plant. (BF-L-6)

Comment: In general, the League of Women Voters supports energy policies that work to reduce growth rates. This is of especial note for TVA in whose service area per capita electricity consumption ranks highest in the nation and which has failed to engage in significant efforts at managing the demand side of electric energy. (BF-N-2)

Comment: The EIS should critically examine (l) the need for the proposed license actions, especially in light of absence of a current Integrated Resource Plan by the TVA. (BF-N-21)

Response: *The need for power is specifically directed to be outside the scope of license renewal (10 CFR 51.95 (c)(2)). The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and where authorized, Federal (other than NRC) decision makers. The comments did not provide significant, new information and it does not pertain to the scope of license renewal as set in 10 CFR Part 51 and Part 54; therefore, it will not be evaluated further.*

Operational Safety

Comment: I'm also concerned about the workers. I don't know if this still occurs but that workers at Browns Ferry have low level radioactive waste on the clothing that they wear at the plant. I don't know how that's being handled now. I'm concerned about that. Do they still have to throw away their boots every time they wear them or do they wear them home? That was a few years ago in the '80's that the subject that was discussed and I haven't heard that issue discussed lately. (BF-F-5)

Response: *Workers are required to monitor their clothing, shoes and body before leaving the plant. The radiation monitors are set to detect very low levels of radiation. If the monitors detect any radiation on the worker or their clothing, the worker is stopped and the contaminated clothing removed. The worker is then given new clothes to wear home.*

Radiation exposure to the public and workers was evaluated in the GEIS and determined to be a Category 1 issue. The NRC's regulatory limits for radiological protection are set to protect workers and the public from the harmful health effects of radiation on humans. The limits were based on the recommendations of standards-setting organizations. Radiation standards reflect extensive scientific study by national and international organizations (International Commission on Radiological Protection (ICRP], National Council on Radiation Protection and Measurements, and National Academy of Sciences) and are conservative to ensure that the public and workers at nuclear power plants are protected. The radiation exposure standards are presented in 10 CFR Part 20, "Standards for Protection Against Radiation," and are based on the recommendations in ICRP 26 and 30.

Numerous scientifically designed, peer-reviewed studies of personnel exposed to occupational levels of radiation (versus life-threatening accident doses or medical therapeutic levels) have shown minimal effect on human health, and any effect was from exposures well above the exposure levels of the typical member of the public from normal operation of a nuclear power plant.

The comment provides no new information, and does not pertain to the scope of license renewal as set forth in 10 CFR Parts 51 and 54. Therefore, it will not be evaluated further.

Comment: Where typically are these workers exposed to the radiation? Where would be some of the most radioactive sources of their contamination in the plant? (BF-F-8)

Response: *Radioactive sources are in controlled systems. Exposure to radiation occurs when there is a breach in one of the systems, such as a leaky pipe. Worker safety is important to NRC. Regulations require that workers wear personal protective equipment, appropriate dosimetry, and practice ALARA when working in areas where they maybe potentially exposed to radiation contamination.* ***The comment provides no new information, and does not pertain to the scope of license renewal as set forth in 10 CFR Parts 51 and 54. Therefore, it will not be evaluated further.***

Comment: The other event of major significance was the fire at Browns Ferry in 1975 during which there were periods of time when the operators had no control of the reactors and could

not even determine what the conditions of operation were (including the critical water level in the reactors). During this fire, the facility came very close to entering into a meltdown situation. (BF-A-13**)**

Comment: Yes, I know that TVA says it has the best safety record in the industry. Who says so? INPO and McGraw Hill. INPO is a secret nuclear industry society that will not share the good nor the bad with the public, so we have trust you boys to give us the party line each year they come for inspection visits. And McGraw Hill is a TVA contractor and will say whatever they are paid to say. So much for independence. So much for TVA's great safety records. (BF-C-7)

Comment: Recurrent, safety-related difficulties had been observed at this Unit at least since the 1975 fire which destroyed its safety equipment for core and plant cool down, avoiding "by sheer luck"--as reported-- a potentially catastrophic external release of radiation. (BF-N-9)

Response: *Operational safety is outside the scope of the environmental review. An NRC safety review for the license renewal period is conducted separately. Although a topic may not be within the scope of review for license renewal, the NRC is always concerned with protecting health and safety. Any matter potentially effecting safety can be addressed under processes currently available for existing operating license absent a license renewal application. The comments did not provide significant, new information and do not pertain to the scope of the license renewal as set in 10 CFR Part 51; therefore, they will not be evaluated further.*

Safeguards and Security

Comment: (5) the safety related costs arising from today's national-security needs. (BF-N-25)

Comment: In the post 9/11 national reality, nuclear installations have become known to be priority targets for international terrorism. This new reality, beyond all other factors demands a re-thinking of the way our energy future should be shaped and of the role of inherently dangerous technologies such as nuclear power, in this future. (BF-N-26)

Comment: In our view, the immense new security threats which nuclear plants--especially of design and age such as at Browns Ferry--pose to our region argue against expansion through re-opening/re-licensing of Unit 1 and against 20-year extension beyond the next decade, for the other units. (BF-N-28)

Comment: These licenses should not be renewed, but to do so without mandating stringent and thorough requirements for massive safety and security upgrades would also be reckless and irresponsible. (BF-L-27)

Comment: The Browns Ferry nuclear plant is a BWR-Mark I GE-4 design which has numerous inherent safety flaws: the spent-fuel pool is elevated above ground level and is vulnerable from above; the reactor itself is located above ground level; and it lacks a traditional "containment dome" and instead has a thin steel shell. (BF-L-2)

Comment: In light of terrorism concerns, which are essentially ignored in the relicensing process, the BWR facility is also vulnerable to attacks such as those posed by shoulder-launched missiles. Though the NRC will inevitably disregard these concerns, we believe that they are relevant to be reviewed during this process. (BF-L-3)

Comment: The NRC conceded soon after 9/11 that the design basis threat for which nuclear power plants are constructed to be able to withstand does NOT include impacts from jetliners of the type used on 9/11. Considering that nuclear power plants would be a prime target for terrorists, the perennial tension between the industry's desire to cut costs in order to appear economically viable and the significant expense of thorough, effective security is now all the more salient after we have witnessed a massive terrorist attack within our nation's borders. (BF-L-18)

Comment: The challenges involved in making Browns Ferry absolutely secure against a terrorist attack from outside the plant perimeter would be enormous, both financially and logistically, and only further highlight the hopeless nature of attempting to provide complete safeguarding and security of this inherently dangerous technology. For instance, to place anti-aircraft weaponry at a nuclear plant would involve developing protocols for determining when/how an aircraft is presenting a clear threat, who would be authorized to operate the weapon, and who would decide when to fire on an aircraft. Additionally, any weaponry onsite at a nuclear facility must also be secured such that it could not be used by saboteurs or intruders that successfully gain onsite access. Further consideration must be made of the considerable hazard that residents would face in the event of an accidental firing of the weapon, or the consequences that would result from an engaged target being missed. Clearly, the mere presence of such weaponry would only add to the risks already faced by the communities surrounding the plant, and is ultimately an untenable security solution. (BF-L-19)

Comment: Security of the "spent"/irradiated nuclear fuel pools at Browns Ferry is also another issue that must be seriously addressed in evaluating TVA's application for license renewals for the three reactors. Currently, the highly radioactive "spent" fuel from the Browns Ferry reactors is stored in fuel pools that are located in buildings which could hardly be described as robust. The pools are also situated several stories above ground-level. The vulnerability of these pools to a 9/11-style terrorist attack is real, and it is substantial. (BF-L-20)

Comment: Neither the opening of Yucca Mountain nor the creation of an independent spent fuel storage installation (ISFSI) onsite will reduce the dangerous vulnerability of the fuel pools at Browns Ferry. Despite its ultimate destination, all nuclear fuel that is removed from the reactor core must be moved, at least temporarily, to the fuel pools, to allow for cooling. This cooling of the fuel takes several years. With or without the existence of an operating Yucca Mountain or an ISFSI at Browns Ferry, there would always be a need for a spent fuel pool at the facility. And without massive reinforcement and hardening these fuel pools are extremely vulnerable to attack or sabotage. (BF-L-21)

Comment: In all likelihood, license renewal at Browns Ferry reactors would exacerbate existing space issues regarding onsite spent fuel, and create 20 years' worth of additional, dangerous high-level waste, with no practicable or thorough means of securing it. (BF-L-24)

Comment: It should also be noted the less robust nature of the control room buildings, where a successful attack could jeopardize proper operation and cooling of the reactor, and risk meltdown. As long as these reactors are operating, this is yet another system that needs extensive hardening and fortification, and added security overall. (BF-L-25)

Comment: The cost of such massive security measures would need to be covered fully by the nuclear utilities, and not the ratepayers or taxpayers. It would be utterly irresponsible to renew the licenses for Browns Ferry 1, 2 or 3 and force the costs of such safety and security upgrades on the endangered public, especially if the upgrades themselves are inadequate or further endanger the public. (BF-L-26)

Comment: Some folks, a long time ago suspected that nuclear plants and their materials would be primary targets of terrorist. I'm wondering how is that being handled now? How is this transportation issue going to be addressed in the new age that we're living in?(BF-F-4)

Response: *NRC and other Federal agencies have heightened vigilance and implemented initiatives to evaluate and respond to possible threats posed by terrorists, including the use of aircraft against commercial nuclear power plants and independent spent fuel storage installations (ISFSIs). Malevolent acts remain speculative and beyond the scope of a NEPA review. NRC routinely assesses threats and other information provided to them by other Federal agencies and sources. The NRC also ensures that licensees meet appropriate security levels. The NRC will continue to focus on prevention of terrorist acts for all nuclear facilities and will not focus on site-specific evaluations of speculative environmental impacts. While these are legitimate matters of concern, they should continue to be addressed through the ongoing regulatory process as a current and generic regulatory issue that affects all nuclear facilities and many activities conducted at nuclear facilities. The NRC has taken a number of actions to respond to the events of September 11, 2001, and plans to take additional measures. However, the issue of security and risk from malevolent acts at nuclear power plants is not unique to facilities that have requested a renewal to their license and, therefore, will not be addressed within the scope of this Supplement. The comments did not provide significant, new information and they do not pertain to the scope of license renewals set forth in 10 CFR Part 51 and Part 54, therefore they will not be evaluated further.*

Aging Management

Comment: I don't know tonight, if you're going to explain the technology that would enable these plants to be considered safe for an additional 20 years. Of course, I don't claim that I would understand everything about the technology, but I wondered are we going to have an overview, to see why we should believe it's okay for them to be extended another 20 years. (BF-F-2)

Response: *The license renewal period is for up to 20 years. In revising the regulations that address license renewal in 10 CFR 54, NRC determined that 20 years is appropriate to demonstrate an adequate licensing basis. This time period offers reasonable assurance of adequate protection assuming the current licensing basis is modified to account for age-related safety issues to manage to adverse effects on systems, structures and components. The*

comment did not provide significant, new information and does pertain to the scope of license renewals set forth in 10 CFR Part 51 and Part 54, therefore will not be evaluated further.

Comments: I made a few comments that these facilities were designed for a certain lifetime. Now you're talking about increasing that 50 percent. (BF-A-11)

Comment: Not only does TVA propose to restart Unit 1, but also to increase its generating capacity, despite its lack of actual operating experience. This decision is troubling given that aging concerns of the nuclear power plant, including degradation, deterioration, and embrittlement, are commonplace. (BF-L-5)

Comment: All of the reactors at Browns Ferry had an early history of many Reportable Occurrences and SCRAMS that may have prematurely aged the structures of the containment vessels of all three Browns Ferry Reactors...Large number of automatic shutdowns that occurred on these reactors may have weakened the structures due to repeated thermal shocking of the containment vessels. (BF-A-3)

Comment: The poor operating safety record of the Browns Ferry facility over the last 25 years, and what the consequences of that may be to reducing the useful life of the reactors. (BF-A-6)

Comment: The potential for damaged structural integrity to one or all of the Browns Ferry reactor containment vessels as a result of the large number of automatic reactor shutdowns which may have occurred over the 25 (and eventually 40) year operating time. (BF-A-7)

Comment: This rapid cool-down of the hot reactor thermally shocks the reactor containment structure as a result of the short time period over which the temperature of the whole structure radically changes. These events cause stresses, strains, etc. to the reactor structure which reportedly prematurely 'ages' the reactor structure, reducing its strength and potentially reducing its safe operating life. The reactor containment structure is what contains the nuclear reaction This is violated and function and 'meltdown' might occur. This wouldn't be such a significant issue if the plant had a history or very few SCRAMS and a good operational safety record. I found some of the data that I had recorded in 1980 about 'Reportable Occurrences' at Browns Ferry during that time and I have included the data below. This covers a period from 8-11 to 11-30 in 1988. It's almost four months. There were 23 of these occurrences in Reactor One, 21 in Reactor Two, and 22 in Reactor Three. I don't know how many of these 'Reportable Occurrences' were SCRAMS, but what my vague memory recalls is that many of these were SCRAMS. The data shows that 66 reportable events occurred in less than four months, averaging about 16 per month or one every other day. This is not a good safety record for a nuclear operating facility. If any significant percentage of these events were SCRAMS, this would indicated that all reactors have experienced many SCRAMS over their 40 year life. BF-A-8

Comment: I asked them to do a lot of things but at least to report on the -- they should investigate and report to the public about a detailed study of the SCRAMS, Reportable Occurrences and/or safety violations which have happened to each reactor individually including significance of these events relative to safe operating lifetime. (BF-A-9)

Comment: The difficulties are known to involve dangerous risk factors such as cracks in

emergency cooling systems, inappropriate cable wiring, and reactor-vessel embrittlement and cracking. It seems quite inappropriate, therefore, to consider extending an operations license for a reactor shut down so long ago, for such problems. (BF-N-10)

Response: *NRC's ongoing safety program focuses on prevention of safety problems so that potential issues like aging and thermal shock do not lead to accidents. To the extent that the comments pertaining to safety of equipment and aging are within the scope of license renewal, these issues will be addressed during the parallel safety analysis review performed under 10 CFR Part 54. Operational safety issues are outside the scope of 10 CFR Part 51 and will not be evaluated further in this SEIS. The comments provide no new information and, therefore, will not be evaluated further in the context of the environmental review. However, the comments will be forwarded to the project manager for the license renewal safety review for consideration.*

Comment: TVA should be required to determine the structural soundness of the reactor containment vessels using a non-invasive technique, if such a technique exists. (BF-A-10)

Comment: I'm also not a nuclear engineer or anything. So what I contend is, if we had a meltdown, there would be quite a significant environmental impact. (BF-A-12)

Comment: Obviously the economic advantages to extending the reactors life are huge, but the magnitude of the disaster that would occur if a "Meltdown" happened is beyond measure or determination and if there is any significant risk of this then the reactor life should not be extended. (BF-A-15)

Comment: TVA needs to do detailed investigations into the issue of the structural soundness of each Browns Ferry reactor containment vessel prior to considering extending the life of these units by 50%. (BF-A-14)

Response: *NRC's ongoing safety program focuses on prevention of safety problems so that potential issues like aging and thermal shock do not lead to accidents and subsequent environmental impacts. The intent of the NRC's safety review is to determine if the licensee has adequately demonstrated that the effects of aging will not adversely affect any systems, structures, or components identified in 10 CFR 54.4. The safety review process includes site inspections to assess whether the applicant has implemented and complied with the regulations for license renewal. The inspection teams comprise technical, program, and operational experts from the NRC and its consultants. Teams of specialized inspectors travel to the reactor site at least twice and sometimes three times to verify whether the effects of aging will be managed such that the plant can be operated during the period of extended operation without undue risk to the health and safety of the public. The review results in a publicly available safety evaluation report available online at http://nrc.gov. The comments provide no new information and, therefore, will not be evaluated further in the context of the environmental review. However, the comments will be forwarded to the project manager for the license renewal safety review for consideration.*

Comment: I noticed when you were discussing the licensing for the additional 20 years. You made a distinction between active systems that are continually inspected. I think they were referred to as passive systems. I think it was your talk. Could you describe, and I assume those will be the elements that will have the additional scrutiny, what are some of those things? (BF-G-4)

Response: *Various structures and components are inspected as part of the license renewal process. These include passive structures and components that perform an intended function without moving parts or without a change in configuration, change in properties, or change of state. These may include structures and components which are classified as inherently reliable under the maintenance rule, or structures and components for which aging degradation is not readily monitored. In addition, inspections long-lived structures and components which are not subject to replacement based on a qualified life or specified time period are required for license renewal. For further information on the requirements for license renewal inspections, please refer to Inspection Procedure 71002, "License Renewal Inspection", which can be downloaded from the NRC website at http://www.nrc.gov.*

Comment: I guess, you know the aging. Everyone today would probably look at the Davis -- I don't know how to say it -- Bessie as a -- well, an aging problem that might occur in a plant. I guess I have one quick specific question to our inspectors is, I didn't see an inspection report where that issue for the Browns Ferry Plant on the web site. Was that because it's not subject to that problem? Or I wasn't looking in the right spot? (BF-G-2)

Response: *The NRC heightened its regulatory oversight of the Davis-Besse Nuclear Power Station due to the discoveries of reactor pressure vessel head degradation. The Davis-Besse Nuclear Power Station is a Pressurized Water Reactor (PWR). The degradation of the reactor pressure vessel (RPV) head at Davis-Besse appears to be related to boric acid. Other factors contributing to the degradation might include the environment of the RPV head during both operating and shutdown conditions (e.g., wet/dry), the duration for which the RPV head is exposed to boric acid, and the source of the boric acid (e.g., leakage from the CRDM nozzle or from sources above the RPV head such as CRDM flanges). Browns Ferry has Boiling Water Reactors (BWR). BWRs do not use boric acid, thus they don't have the accelerated corrosion mechanism. In addition, the configuration of the reactor heads at Browns Ferry are a different design than the reactor head at Davis-Besse. The problems experienced at Davis-Besse appear to be confined to pressurized water reactors that use boric acid. The comment provides no new information and, therefore, will not be evaluated further in the context of the environmental review.*

Comment: I know that in aging issues for airplanes and things like that there's the concept of the fleet leader or something that has been operating the longest, as being an indicator of what problems other members of the fleet will have. I was wondering if anyone here can tell me if there are reactors of the same design as Units 1, 2 and 3 that are substantially older and could be considered a fleet leader for the purpose of aging. In other words, are 1, 2, and 3 the oldest of their design or are they somewhere in the middle, or are they pretty much unique? (BF-G-3)

Response: *NRC has applied the knowledge from "lessons learned" to improve the safety review for license renewal. NUREG-1801, "Generic Aging Lessons Learned (GALL)" contains*

recommendations on specific areas for which generic existing programs should be augmented for license renewal and documents the technical basis for each such determination. This report was based on information in over 500 documents: Nuclear Plant Aging Research (NPAR) program reports sponsored by the Office of Nuclear Regulatory Research, Nuclear Management and Resources Council (NUMARC, now NEI) industry reports addressing license renewal, licensee event reports (LERs), information notices, generic letters, bulletins, and reports provided by the Union of Concerned Scientists (UCS) in a letter dated May 5, 2000. The GALL report provides a technical basis for crediting existing plant programs and recommending areas for program augmentation and further evaluation. The comment provides no new information and, therefore, will not be evaluated further in the context of the environmental review.

MOX Fuel

Comment: Whenever you're doing your EIS, will you address in that EIS that TVA is going to use a new type of fuel, downblending from nuclear weapons grade material? Will that come into the mix? And if so, will you address in the EIS how that mix will change as result of the new fuel? (BF-C-2)

Comment: In an EIS how can you -- that this is not a secret that what TVA's doing here. To come to Browns Ferry with this new theory on fuel, and I'm wondering why it wouldn't be an issue for an EIS, since it's going to change the make-up of what you dump into the river through waste water...And if you're not addressing it, why not? (BF-C-3)

Comment: The whole plan here is to provide TVA with an outlet for nuclear weapons materials made into fuel for this plant. (BF-C-10)

Comment: Has anyone said out loud that the French will carry large amounts of American taxpayers money back home to France from TVA and the US government as they "work" on this process? Does anyone know about the millions of TVA dollars that TVA is spending up at Erwin, Tennessee at Nuclear Fuel Services so that TVA and the french group, Framatome can get cozy in bed together? (BF-C-11)

Comment: Will the NRC analyze the effects of burning nuclear weapons materials at this plant. Has the NRC got out their pencils and wrote up some pie-in-the-sky answer for an untried, untested process TVA will be using in these units? And before the boys at TVA and the Frenchies get their boxers in was, the process has not been tested in the US. (BF-C-12)

Comment: It will cost the ratepayer's enormous amounts of money for the Erwin, Tennessee connection and the French nuclear industry to collect money from TVA while the NRC plays the fiddle and the TVA money burns. (BF-C-13)

Comment: In 1995 TVA's public relations people publicly stated that if they wanted to burn this type fuel in TVA reactors then "an Environmental Impact Statement would have to be done." Does this mean that you, NRC, and you, TVA, recognize that a full EIS must be produced prior to a license extension? (BF-C-15)

Response: *The NRC staff has determined that MOX fuel issues are outside the scope of license renewal at Browns Ferry. The use of MOX fuel will be addressed in a separate environmental review if and when an application to use MOX fuel at Browns Ferry is received. The comments provide no new relevant information and, therefore, will not be evaluated further under this SEIS.*

Decommissioning

Comment: The NRC should evaluate the decommissioning trust fund balances for TVA's Browns Ferry units and how decommissioning will be impacted by extending the operating licenses of all three units...According to a General Accounting Office (GAO) report in 2003, all of TVA's nuclear power plants were found to be below the benchmark of sufficiency for decommissioning trust fund balances—with the Browns Ferry units being among nuclear plants with the poorest decommissioning fund status. This is extremely problematic. (BF-L-7)

Comment: The NRC should also ensure that sufficient decommissioning funds would be in place in order to protect utility ratepayers and taxpayers. (BF-L-8)

Comment: Extending the license for another 20 years at any nuclear power production facility in the US is simply a way for the industry to delay the fact that decommissioning funds are not available for these plants. (BF-C-5)

Comment: If TVA had the money to decommission Unit One it would already be a done deal. In Fifteen years to sit in "Administrative Hold." Too bad that no such action is permitted in NRC rules. But rules don't count here do they? (BF-C-6)

Response: *Regulations are provided in 10 CFR 50.75 that establish the requirements for indicating to NRC how a licensee will provide reasonable assurance that funds will be available for the decommissioning process. The cost of renewal versus decommissioning is a business decision that NRC does not control. The Commission has determined these issues are outside the scope of the environmental analysis for license renewal.*

Restart of Browns Ferry, Unit 1

Comment: Finally, we must comment on the unprecedented attempt by TVA and the NRC to simultaneously restart Browns Ferry 1 (after nearly 20 years in the non-defined regulatory status of "administrative hold") and extend its operating license for 20 additional years. Because Browns Ferry should rightly have had its operating license revoked after it was shut down in 1985 due to a "failure at [Browns Ferry Nuclear Plant] to consistently maintain a documented design basis and to control the plant's configuration in accord with that basis," the plant should now be required to go through NRC's license application process, just as any new plant would. Twisting NRC's administrative process for restarting problem plants on temporary shutdown, Inspection Manual Chapter 0350, to resuscitate a plant that has been all but left to crumble for nearly 20 years is an approach that's just too convenient for TVA. (BF-L-28)

Comment: To ensure optimal safety at the plant, TVA should be required to bring everything to plant up to current design technical specifications (as described in over 1,200 letters that NRC

has issued to licensees since Browns Ferry's shutdown), and then apply for a new license. If, after some period of operation without disaster following a restart, TVA could then apply for a license extension. (BF-L-29)

Comment: The NRC should, instead, require full remediation of all technical and design problems which have placed safety operations at risk in the past. (BF-N-11)

Comment: To attempt to do both simultaneously only further bolsters the case that the NRC is captured by the industry it is charged with regulating, and it is once again greasing the skids for a licensee to just coast through substantive, safety-related problems without serious oversight and regulation of their activities. (BF-L-30)

Comment: I have major concerns concerning the restart of the Browns Ferry Reactor that has been mothballed for so long. (BF-A-2)

Comment: With letter of May 14, 2003 we had urged of the Board of Directors of the TVA a decision against the restarting of Unit 1 of the Browns Ferry plant. (BF-N-1)

Comment: The Agency should allow provisional re-start of Unit 1 under its current license, at best, or under new-license standards. (BF-N-12)

Comment: Public protection would seem to demand that the NRC closely monitor and evaluate the operation of Unit 1 after re-start and grant license extension only after its performance has proved safe. (BF-N-13)

Response: *Browns Ferry is currently in the process of restarting Unit 1. This action is occurring under the current operating license. The restart of this unit does not require a separate licensing action and is not part of license renewal, however Unit 1 must meet the current licensing requirements prior to restart. Restart of Unit 1 is outside the scope of the environmental review for license renewal*.

Cost-Benefit Analysis

Comment: Tennessee Valley Authority (TVA) has a congressionally mandated debt ceiling of $30 billion. TVA is currently carrying a debt of approximately $25 billion along with other obligations that could be construed as debt (e.g. leaseback contracts, pre-purchase of electricity, etc.) that are between $3-5 billion, bringing them very close to exceeding that debt-ceiling. With estimates of $1.8 billion for the restart of Browns Ferry Unit 1, TVA is close to meeting or exceeding the $30 billion limit. The Nuclear Regulatory Commission (NRC) should thoroughly review the economic situation at TVA along with the estimated cost projections of relicensing the three Browns Ferry nuclear reactors, along with other projected costs associated with other projects. (BF-L-1)

Comment: The fiscal prudence of TVA's expenditure of at least $2 billion estimated to bring Unit 2 back from mothball status should be weighed against longer-term economic, marketing, and social advantages of investment in energy sources of the future instead of last century's. (BF-N-7)

Response: *The cost of relicensing, in addition to TVA's standing debt, is outside the scope of the environmental review. The decision to apply for relicensing is a business decision that NRC does not control. The comment provides no new relevant information and, therefore, will not be evaluated further under this SEIS.*

14. Request for Information

Comment: I wanted to know what the proposed dates were for decommissioning the units, and when they were originally built. (BF-F-1)

Response: *Construction permits were granted in 1967 and 1968; construction was completed in 1973 (Unit 1), 1974 (Unit 2), and 1976 (Unit 3). There is no specified decommissioning date. Nuclear power plants cease operation for a variety of reasons. The NRC grants a license for a period of 40 years. At the end of the license period, the licencee can seek to renew the operating license of the plant for another 20 years, or can cease operations before the 40-year licensing period has been completed. Reasons for the decision to decommission can be financial or NRC can order the licensee to cease operation for safety reasons. The comment provides no new relevant information and, therefore, will not be evaluated further under this SEIS.*

Comment: Who are the inspectors that look into the different components that may be vulnerable to aging? And are those reports made public? (BF-F-3)

Response: *Inspections are conducted by NRC inspectors. Routine operational inspections of the plants are conducted daily by four onsite NRC inspectors. In addition, the license renewal inspection program consists of three separate inspections to support the decision on an application for license renewal. At a minimum, a scoping inspection and aging management inspection are conducted. An optional third inspection will be performed, if needed, to verify items identified by the staff, Advisory Committee on Reactor Safeguards, and regional administrator that are needed to close open items from the technical review of the application or previous inspections. This final inspection would be performed prior to the staff's recommendation regarding the approval or disapproval of the application. License renewal inspections are conducted by inspectors from the NRC office in Atlanta and from NRC headquarters in Washington D.C. The inspection reports will be available to the public through the NRC's Public Document Room in Rockville, Maryland or from the NRC's Electronic Reading Room available online at http://www.nrc.gov/reading-rm.html, before the Commission makes its decision.*

Comment: They're issuing this in December?(BF-A-1)

Response: *The SEIS will be issued to the public on December 17, 2004. The public meeting to discuss comments on the SEIS is scheduled for January 20, 2005. The comment provides no new relevant information and, therefore, will not be evaluated further under this SEIS.*

Comment: I want to know if the ACRS may -- that will come here to the site , will it be open to the public and will we be notified of it?...But do the regs require you to have an on-site meeting at some point before the ACRS? (BF-C-1)

Response: *The Advisory Committee on Reactor Safeguards (ACRS) is independent of the NRC staff and reports directly to the Commission, which appoints its members. During the license renewal process the ACRS acts as an independent third-party oversight group that reviews and makes recommendations on renewal applications to the Commission before the Commission rules on whether the licenses should be renewed. ACRS reports are made part of the record of the application and made available to the public, except to the extent that security classification prevents disclosure. Most committee meetings are open to the public and any member of the public may request an opportunity to make an oral statement during the committee meeting. These meetings are held in a central location, which may or may not be onsite. The comment provides no new relevant information and, therefore, will not be evaluated further under this SEIS.*

Comment: Would you ask him to specify the exact document on this report? [MR. CAMERON: The question is, the annual report on emissions, that the off site dose report. Mike, can you give that to -- unless you know right off the top of your head]. (BF-C-4)

Response: *The NRC publishs two annual reports for Browns Ferry regarding environmental monitoring and environmental effluents. The "Annual Radiological Environmental Operating Report (AREOR)" and the "Annual Radiological Effluent Release (ARER) Report" are available to the public through the NRC's Public Document Room in Rockville, Maryland or from the NRC's Electronic Reading Room available online at http://www.nrc.gov/reading-rm.html.*