Appendix E

Selected Correspondence
Pages E-14 to E-22

TIP 1 -- **License Renewal**

Introduction

Based on the Atomic Energy Act, the Nuclear Regulatory Commission (NRC) issues licenses for commercial power reactors to operate for up to 40 years and allows these licenses to be renewed for another 20 years. A 40-year license term was selected on the basis of economic and antitrust considerations--not technical limitations.

The first 40-year operating license will expire in the year 2006. Approximately 10 percent of the 102 remaining operating plants will expire by the end of the year 2010, and more than 40 percent will expire by the year 2015. The decision whether to seek license renewal rests entirely with nuclear power plant owners, and will be based on the plant's economic situation and whether it can meet NRC requirements.

The NRC has established a license renewal process that can be completed in a reasonable period of time with clear requirements to assure safe plant operation for an additional 20 years of plant life.

Background

In 1982, the NRC held a workshop on nuclear power plant aging in anticipation of the interest in license renewal. The results of the workshop led the NRC to establish a comprehensive program for Nuclear Plant Aging Research. Based on the results of that research, a technical review group concluded that many aging phenomena are readily manageable and do not pose technical issues that would preclude life extension for nuclear power plants. In 1986, the NRC published a request for comment on a policy statement addressing major policy, technical and procedural issues related to life extension.

In 1991, the NRC published the license renewal rule as 10 CFR Part 54. The NRC then undertook a demonstration program to apply the rule to pilot plants and develop experience to establish implementation guidance. To establish a scope of review, the rule defined *age-related degradation unique to license renewal.* However, during the demonstration program, the NRC found that many aging effects arise and are dealt with during the initial license period. In addition, the NRC found that the review did not allow sufficient credit for existing programs, particularly the maintenance rule, which also helps manage plant aging phenomena.

As a result, in 1995 the NRC amended the license renewal rule. The amended Part 54 established a regulatory process that is more efficient, more stable and more predictable than the previous license renewal rule. In particular, Part 54 was clarified to focus on managing the adverse effects of aging. The rule changes were intended to ensure that important systems, structures and components will continue to perform their intended function during the 20-year period of extended operation.

NRC's responsibilities under the National Environmental Policy Act call for a review of the environmental impact of license renewal. In parallel with aging efforts, the NRC pursued a separate rulemaking, 10 CFR Part 51, to focus the scope of review of environmental issues.

Renewal Process

The license renewal process proceeds along two tracks- technical reviews of safety issues and environmental issues. As previously described, the requirements for these reviews are contained in NRC regulations, 10 CFR Parts 54 and 51, respectively. The applicant must provide NRC an evaluation that addresses the technical aspects of plant aging and describes the ways those effects will be managed. It must also prepare an evaluation of the potential impact on the environment if the plant operates for another 20 years. The NRC reviews the application and verifies the safety evaluations through inspections. Public participation is an important part of the license renewal process. There are several opportunities for members of the public to question how aging will be managed during the period of extended operation. Information provided by the licensee is made available to the public. A number of public meetings are held by the NRC, and NRC evaluations, findings and recommendations are published when completed. Concerns may be litigated in a formal adjudicatory hearing if any party that would be adversely affected requests a hearing. In addition, members of the public may petition the Commission for consideration of issues other than the management of the effects of aging during the period of extended operation of the plant.

A nuclear power plant licensee may apply to the NRC to renew its license as early as 20 years or as late as five years before expiration of its current license. License renewal is expected to take 30 months, including the time to conduct an adjudicatory hearing, if necessary. Upon receipt of a license renewal application, the review is conducted according to the following steps :

- Notice that an application has been tendered for a renewed license is published in the *Federal Register*
- Notice of opportunity for hearing published in the *Federal Register*
- NRC staff complete acceptance review and docketing of the application
- Notice of intent to seek public comments for environmental impact statement (EIS) published in the *Federal Register*
- Affected parties and interested persons file hearing request
- Atomic Safety and Licensing Board (ASLB) panel appointed
- Public Meeting & environmental scoping
- End environmental scoping comment period
- Petitioner files proposed issues to be addressed in a hearing with the ASLB
- NRC staff issue request for additional information with safety questions on the content of the application, if necessary
- ASLB ruling on intervention
- NRC staff issue request for additional information for environmental questions, if necessary
- Applicant submits responses to safety questions from the additional information, if necessary

- Applicant submits response to environmental questions from the additional information, if necessary
- NRC staff issue safety evaluation report and identify open items or license conditions
- NRC staff issue draft environmental impact statement for comment
- Public meeting to discuss draft environmental impact statement
- End draft environmental impact statement comment period
- Applicant completes responses to safety evaluation open items
- NRC staff issues safety evaluation report supplement and final environmental impact statement
- Review of the safety evaluation report by the Advisory Committee for Reactor Safeguards
- Complete ASLB hearing
- ASLB Initial Decision
- Commission decision absent any petition for review, or
- Commission decision on any petition for review

Environmental Reviews

The NRC identified nearly 100 potential impacts to the human environment as a result of renewing a license. All nuclear plants affect the environment in similar ways, although we recognize that each location is unique and may have unique problems. To streamline the license renewal process, the NRC resolved a large number of these potential impacts on a generic basis. In addition, each plant must examine those potential impacts that are unique to its design, location or other circumstances where the NRC could not arrive at a generic conclusion.

Environmental protection regulations were revised in December 1996, to facilitate the environmental review for license renewal. The Generic Environmental Impact Statement (GEIS) for License Renewal of Nuclear Plants, NUREG-1437, Volumes 1 and 2, examines the possible environmental impacts associated with renewing licenses of nuclear power plants. For each type of environmental impact, the GEIS attempts to establish generic findings that are applicable to all nuclear power plants. Thus, an applicant for license renewal may incorporate these generic findings in an environmental report, provided there is no new and significant information to change these findings, and address only those environmental impacts that are required to be evaluated on site-specific basis.

The NRC performs reviews of environmental impacts of license renewal in accordance with National Environmental Policy Act and the requirements of 10 CFR Part 51. A public meeting is held near the nuclear power plant seeking renewal to identify the scope of the environmental review specific to the plant. The result of the staff review is an NRC recommendation on the environmental acceptability of the license renewal action. This is commonly known as a draft

plant-specific supplement to the GEIS, which is published for public comment. The staff discusses results of its review at a separate public meeting. After consideration of comments on the draft, the NRC prepares and publishes a final plant-specific supplement to the GEIS.

In August 1999, the Commission issued Addendum 1 of the GEIS and amended Part 51 to address the impacts associated with the transportation of high-level waste. This change to the regulations resulted in a generic conclusion regarding the environmental impacts.

In February 2000, the NRC issued an environmental standard review plan (NUREG-1555, Supplement 1) to provide guidance on how the environmental portions of renewal applications are to be reviewed. The NRC also developed a regulatory guide (DG-4005), that identifies the format and content of environmental reports that accompany license renewal applications. The draft guide was issued for public comment in July 1998, and a final version of the guide is scheduled to be published in 2000.

Safety Reviews

License renewal requirements for power reactors are based on two key principles:

1. That operating plants will continue to maintain adequate levels of safety during the plant's life under requirements of their original licenses. A possible exception may be the detrimental effects of aging on certain systems, structures and components, and possibly a few other issues that arise only during the period of extended operation, and

2. That each plant's licensing basis is required to be maintained during the renewal term.

Applicants are required to identify all plant systems, structures and components that are safety-related, or whose failure could affect safety-related functions, and that are relied on to demonstrate compliance with the NRC's regulations for fire protection, environmental qualification, pressurized thermal shock, anticipated transients without scram, and station blackout.

The applicant must review all systems, structures and components within the scope of the rule to identify "passive" and "long-lived" structures and components. It must be demonstrated that the effects of aging will be managed in such a way that the intended functions of those structures and components will be maintained for the period of extended operation. Passive and long-lived structures and components include components such as the reactor vessel, reactor coolant system piping, steam generators, the pressurizer, pump casings, and valve bodies.

The detrimental aging effects in active components are more readily detected and corrected by routine surveillance, performance indicators and maintenance. Surveillance and maintenance programs for active components are required throughout the period of extended operation. Active components include equipment such as motors, diesel generators, and cooling fans; and electrical equipment such as batteries, relays, and switches.

For some passive structures and components within the scope of the renewal evaluation, no additional action may be required where the applicant can demonstrate that the existing programs provide adequate aging management throughout the period of extended operation.

However, if additional aging management activities are warranted for a structure or component within the scope of the rule, applicants will have to establish a new aging management program or an augmented existing program to manage the effects of aging.

Another requirement for license renewal is the identification and updating of time-limited aging analyses. During the design phase for a plant certain assumptions about the length of time the plant will be operated are made and incorporated into design calculations for several of the plant's systems, structures, and components. Under a renewed license, an applicant can demonstrate that (1) the original analyses remain valid for the period of extended operation, (2) the analyses have projected to the end of the period of extended operation, or (3) the effects of aging on the intended function(s) will be adequately managed for the period of the extended operation.

The NRC staff is continuing development of implementation guidance for the license renewal rule with input from interested stakeholders. A draft Generic Aging Lessons Learned (GALL) report was prepared and made publicly available. The report documents the basis for determining when existing programs are adequate and when existing programs should be augmented for license renewal. A public workshop was conducted on December 6, 1999, to discuss the approach for the report and its contents. The GALL report is currently under review and will be referenced in an update of the draft standard review plan for license renewal as the basis for identifying those programs that warrant particular attention during the staff's review of a license renewal application.

In 1996, the NRC developed a draft regulatory guide for the format and content of the safety aspects of a license renewal application. This guide proposes to endorse an implementation guideline prepared by the Nuclear Energy Institute as an acceptable method of implementing the license renewal rule. The NRC will include changes to the guide and standard review plan as generic renewal issues are resolved, as well as other changes resulting from lessons learned and process improvements identified during the review of the initial renewal applications. The NRC plans to issue the draft GALL report, Standard Review Plan and Regulatory Guide for public comments in August 2000.

Inspections

The NRC has developed inspection guidance and inspection procedures for use in the safety review of license renewal applications. Inspection Manual Chapter 2516 and Inspection Procedure 71002 provide the basic guidance for license renewal inspections. The NRC is revising these procedures to incorporate the lessons learned during the implementation of the inspection program in review of the first two applications.

License renewal inspections take place before the approval of an application for a renewed license to verify that an applicant meets the requirements of the rule and has implemented license renewal programs and activities consistent with their license renewal application and the NRC's safety evaluation report.

The primary objectives of license renewal inspections are to review the documentation and effectiveness of an applicant's license renewal program and to verify that there is reasonable assurance that the effects of aging will be adequately managed.

Hearings

The Commission has issued a policy statement clearly describing its expectations with regard to the conduct of adjudicatory proceedings, with particular expectations for license renewal (*Federal Register* Vol. 63, page 41872, August 5, 1998). The Commission expects that hearings be conducted on an efficient and reliable schedule--imposed by order, as necessary and appropriate--while ensuring fair resolution of contested issues. In addition, there should be timely identification of any open generic policy issues for Commission decision and effective integration of the review of technical issues into the adjudicatory process.

Industry Activities

The industry's past approach to license renewal was to submit technical reports on particular topics for staff approval instead of submitting a complete license renewal application. This approach, along with compilations of past aging research programs, established a foundation of technical information that licensees can use to evaluate the feasibility of license renewal and later reference in a license renewal application.

The Babcock & Wilcox Owners Group, representing five operating B&W plants, has formulated a generic license renewal program. The B&W Owners Group has submitted generic license renewal reports on the reactor coolant system piping, the pressurizer, the reactor pressure vessel, and reactor vessel internals. The Westinghouse Owners Group also has programs for license renewal and has submitted technical reports on the aging management activities for the reactor coolant system supports, the pressurizer, the Class I piping, the containment structure, and the reactor vessel internals. The Boiling Water Reactor Owners Group is currently concentrating its efforts on reports related to the reactor vessel internals program.

Industry representatives also participate in working groups and technical committees, coordinated by the Nuclear Energy Institute, to address generic technical and process issues, and to develop additional guidance related to scoping and aging management programs. The NRC has established a formal feedback process by which the resolution of the generic renewal issues and lessons learned during the review of the initial renewal applications is documented and included in revisions to the implementation guidance. This process identified "credit for existing programs in license renewal" (SECY-99-148) as a policy issue that warranted Commission involvement. The resolution of this issue, as well as the development of improved guidance from other renewal lessons, is expected to improve the efficiency of future renewal reviews.

Plant Applications

Baltimore Gas and Electric Company submitted the first license renewal application for its two Calvert Cliffs units in April 1998. The NRC issued a draft safety evaluation report in March 1999, and a final safety evaluation report in November 1999. Renewal inspections were completed. The Commission issued the renewed license based on staff recommendations on March 23, 2000, extending the license to 2034 for Unit 1 and 2036 for Unit 2.

Duke Energy Corporation submitted a license renewal application for its three Oconee units in July 1998. The NRC issued a draft safety evaluation report in June 1999, and a final safety

evaluation report in February 2000. Renewal inspections were completed, and the staff is preparing its recommendation to the Commission regarding issuance of the renewed license.

Both utilities submitted environmental reports required by 10 CFR Part 51. Separate environmental scoping meetings were held near each of the plants to obtain comments from the public. After the draft environmental impact statements were issued for each plant, the staff met with the public to describe the results of the review, and help them develop any additional comments on the review. All comments received from members of the public were considered in NRC's environmental impact review for each of the plants. The NRC issue final plant-specific supplements to the GEIS in October 1999, and December 1999, for Calvert Cliffs and Oconee plants, respectively.

Entergy Operations, Inc., submitted a license renewal application for Arkansas Nuclear One, Unit 1 (ANO-1) in February 2000. ANO-1 is a Babcock & Wilcox nuclear steam supply system originally licensed for commercial operation in 1974. The NRC plans to issue a draft safety evaluation in January 2001, and a final safety evaluation in September 2001. Also, the NRC plans to issue the draft environmental impact statement for comment in December 2000 and the final environmental impact statement in July 2001.

Southern Nuclear Operating Company, Inc., the licensee for the Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP), submitted its application in March 2000. Both units of HNP are General Electric nuclear steam supply systems originally licensed for commercial operation in 1975 and 1979, respectively. The NRC plans to issue a draft safety evaluation in February 2001, and a final safety evaluation in October 2001. Also, the NRC plans to issue the draft environmental impact statement for comment in January 2001 and the final environmental impact statement in July 2001.

A number of other licensees have expressed interest in license renewal, and have announced plans to submit license renewal applications. Florida Power & Light Company has announced its intention to submit renewal applications for its Turkey Point and St. Lucie plants; Duke Energy Company for its Catawba and McGuire plants; PECO Energy Company for its Peach Bottom plant; Virginia Electric & Power Company for its North Anna and Surry plants; Carolina Power & Light Company for its H. B. Robinson Unit 2, Florida Power Corporation for its Crystal River plant; South Carolina Electric Company for its Summer plant; Southern Nuclear Operating Company for its Farley plant; Entergy for its Arkansas Nuclear One, Unit 2 ; Nebraska Public Power District for its Cooper plant, and Omaha Public Power District for its Fort Calhoun plant.

Highlights of License Renewal

- The Atomic Energy Act limits initial licenses to 40 years but allows for renewal. 10 CFR Part 54 of the NRC's regulations provides appropriate procedures and requirements for renewing power reactor licenses up to an additional 20 years.

- Nuclear power comprises approximately 20 percent of the electric power produced in the United States. With many operating licenses expiring in the next 15 years, license renewal would be needed to maintain the same level of nuclear energy supply into the future.

- The decision whether to request renewal of an operating license rests with plant utilities.
- NRC's license renewal rule builds on existing programs such as the maintenance rule, and targets structures and components that typically cannot be readily monitored.
- Several opportunities are provided for public participation throughout the license renewal process.
- NRC's review of a license renewal application is expected to take about 30 months, including time for a hearing, if requested and justified.
- Applicants can apply for renewal as early as 20 years before their current licenses expire, but not later than 5 years before the current license expires.
- NRC reviews both safety and environmental issues affecting license renewal-10 CFR Part 54 and Part 51, respectively.
- The NRC will focus its safety review of renewal applications on the management of the effects of aging during the period of extended operation on "passive" and "long lived" structures and components and updating of time-limited aging analyses.
- Environmental aspects of license renewal are covered by a generic environmental impact statement and NRC's regulations 10 CFR Part 51. The generic environmental impact statement is supplemented by the plant-specific reviews.
- The Baltimore Gas and Electric Company submitted the first license renewal application for its Calvert Cliffs plants in April 1998. The NRC issued a safety evaluation report in November 1999, and the final plant-specific supplement to the generic environmental impact statement in October 1999. A renewed license was issued on March 23, 2000.
- Duke Energy submitted a license renewal application for its three Oconee plants in July 1998. The NRC issued a safety evaluation report in February 2000, and the final plant-specific supplement to the generic environmental impact statement in December 1999.
- Entergy Operations, Inc. submitted a license renewal application for Arkansas Nuclear One, Unit 1 in February 2000. The NRC plans to issue a draft safety evaluation in January 2001, and a final safety evaluation in September 2001. Also, the NRC plans to issue the draft environmental impact statement for comment in December 2000 and the final environmental impact statement in July 2001.
- Southern Nuclear Operating Company, Inc., the licensee for the Edwin I. Hatch Nuclear Plant, Units 1 and 2, submitted its application in March 2000. The NRC plans to issue a draft safety evaluation in February 2001, and a final safety evaluation in October 2001. Also, the NRC plans to issue the draft environmental impact statement for comment in January 2001 and the final environmental impact statement in July 2001.
- The industry's past approach to license renewal has been to submit technical reports on selected structures, systems, or components for NRC review and approval instead of

submitting actual license renewal applications. The current industry's approach is to submit renewal applications and pursue generic technical issues in parallel.

- Generic technical reports have been submitted by the Babcock and Wilcox Owners Group, the Westinghouse Owners Group, and the Boiling Water Reactor Owners Group, which address license renewal requirements and aging management programs for major systems, structures and components. These reports would be referenced in individual plant applications.

- The NRC issued a draft regulatory guide for the format and content of a renewal application that proposes to endorse a guideline prepared by the Nuclear Energy Institute as an acceptable approach for implementing the renewal rule. Improvements will be made with increased experience from license renewal. The NRC plans to issue the draft regulatory guide for public comment in August 2000.

- NRC developed a draft regulatory guide which addresses the format and content of the Environmental Report that accompanies a license renewal application. The draft guide was issued for public comment in July 1998, and a final version of the guide is scheduled to be published in 2000.

- NRC is preparing a standard review plan for the license renewal safety review. A working draft was completed and placed in the Public Document Room in December 1995, and updated in September 1997. A draft Generic Aging Lessons Learned (GALL) report was prepared and made publicly available. The NRC will include changes to the standard review plan as generic renewal issues are resolved, as well as other changes resulting from lessons learned and process improvements identified during the review of the initial renewal applications. The NRC plans to issue the draft GALL report and the standard review plan for public comment in August 2000.

- NRC issued its environmental standard review plan NUREG-1555, Supplement No.1, for license renewal in February 2000.

- NRC developed inspection guidance and inspection procedures for use in the safety review of license renewal applications. Inspection Manual Chapter 2516, and Inspection Procedure 71002 provides the basic guidance for license renewal inspections.

- In August 1998, the Commission issued a policy statement on the efficient, reliable yet fair conduct of adjudicatory proceedings, particularly those related to license renewal applications.

Last Update: August 2000

Appendix E

Selected Correspondence
Pages E-23 to E-24

Entergy

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September 21, 2000

1CAN090005

U. S. Nuclear Regulatory Commission
Document Control Desk
Mail Station OP1-17
Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Environmental Report RAIs (TAC No. MA8054)

Gentlemen:

Entergy Operations recently received a copy of a letter from the NRC to the Arkansas State Historic Preservation Office (SHPO) which described a concern about a recent reforestation project at the Arkansas Nuclear One (ANO) site. Attached to this correspondence was a letter from the Caddo Tribe of Oklahoma expressing a concern relating to the disturbance of archeological sites during the reforestation.

Based on a subsequent conversation with the NRC Staff, Entergy Operations is providing a description of the actions being taken to address these concerns. With respect to the reforestation activities near the ANO meterological tower, which is an area previously disturbed during site construction, corrective actions have been taken in accordance with the site's 10CFR50 Appendix B corrective action program. Specifically, the trees in this limited area have been removed, and the land returned to its previous condition. In addition, Entergy Operations is currently developing an administrative level environmental procedure to provide additional control over future land disturbances at the ANO site. Entergy Operations plans to implement this new procedure by December 15, 2000.

With respect to the potential archeological sites, Entergy Operations will continue to work with the SHPO in order to identify additional sites that should be included with those that currently require an evaluation for land disturbances. Should you have any further questions, please contact me.

U. S. NRC
September 21, 2000
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I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 21, 2000.

Very truly yours,

Jimmy D. Vandergriff
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JDV/nbm

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