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VIRGINIA POWER

Mr. W. D. Travers
Deputy Associate Director
Advanced Reactors and License Renewal
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Serial No. 94-264
NL&P/EJL

Dear Mr. Newberry:

License Renewal Rule - Supplementary Comments

In our letter to the Commission dated October 12, 1993 (Serial No. 93-545) we provided our comments regarding the implementation of the license renewal rule (10 CFR 54) and the need to modify it. Since that time, we have invested substantial resources in this area in support of our five year term license renewal initiative for the North Anna and Surry Power Stations. Our primary incentive for this initiative is the opportunity for economic benefit that would begin with the implementation of a renewed license. However, as we have discussed previously, there is a provision in the current rule that would limit our applications for renewed licenses to the Surry Power Station and exclude the North Anna Power Station at least in the near term.

10 CFR 54.17(c) prohibits an application for a renewed license earlier than twenty years before the expiration of the operating license currently in effect. This provision of the rule would prohibit North Anna Unit 1 and North Anna Unit 2 from applying for renewed licenses until 1998 and 2000 respectively. We believe that this section of the rule is unnecessarily restrictive and that there are sufficient good reasons for changing it. The enclosure to this letter provides our rationale. We respectfully request that you consider this material in your current development of proposed changes to 10 CFR 54.

Very truly yours,

J. P. O'Hanlon
Vice President - Nuclear Operations

Enclosure

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Enclosure

Virginia Power

License Renewal Rule

Supplementary Comments

**REVISION OF 10 CFR PART 54:
SUPPLEMENTARY COMMENTS OF VIRGINIA POWER**

On December 7, 1993 the NRC Staff proposed, in SECY-93-331, a series of amendments to the Commission's rule on operating license renewal for power reactors, 10 CFR Part 54. In a subsequent open meeting and memorandum, the Commission endorsed that proposal in large part, and instructed the Staff to prepare a formal set of rulemaking proposals. See SRM, "License Renewal Workshop Results and Staff Proposals for Revision to 10 CFR Part 54,..." February 3, 1994. Virginia Power submits the following suggestion for inclusion in the Staff's package of recommended changes to Part 54.

Virginia Power requests that the Staff change the threshold for filing an application for commercial power reactor operating license renewal, from 20 years before the expiration of the current license, to 10 years after the start of commercial operation.^{1/} The primary reason for this request is that a licensee's proper maintenance of the Current Licensing Basis for a nuclear plant for ten years provides an adequate basis for understanding, anticipating and controlling the effects of plant aging. This licensee experience, supplemented by its experience with other licensed plants, that of other licensees with similar plants, and that of NRC licensees around the nation, indicates that there are no significant health and safety risks associated with a change in the threshold license renewal application date. Further, there are substantial economic benefits to licensees and their ratepayers from such a change, and the Commission should grant it.^{2/}

I. The Commission Should Modify the Current Rule to Permit Earlier License Renewal Application Filings

The current rule, at § 54.17(c), permits license renewal applications to be filed as many as 20 years before the expiration of an operating license but not before then:

^{1/} The license extension term plus the time remaining from the initial license at the time the license renewal is granted will continue to be limited to no more than 40 years. Thus a license renewal granted 10 years after start of commercial operation would produce a license extension of no more than 10 years.

^{2/} Virginia Power's interest in this issue stems from its status as owner, operator and NRC licensee of four nuclear units, Surry 1 and 2 and North Anna 1 and 2. The Surry units obtained their full power operating licenses in 1972 and 1973; the North Anna units were licensed for full power in 1978 and 1980. Thus under the current rule Virginia Power is entitled now to seek license renewals for the Surry units, but may not seek renewal for the North Anna units until 1998 and 2000, respectively. Because of the significant economic benefits from earlier renewal, Virginia Power would prefer to seek renewal now for all four units.

(c) An application for a renewed license may not be submitted to the Commission earlier than 20 years before the expiration of the operating license currently in effect.

Virginia Power recommends that this provision be modified to permit license renewal applications to be filed at any time after a sufficient period of operating experience -- Virginia Power suggests ten years -- has been gained. Virginia Power would modify the current provision to read as follows (new text underscored):

(c) An application for a renewed license may not be submitted to the Commission earlier than 10 years after the commencement of commercial operation.

In an extended and elaborately reasoned rulemaking culminating in the issuance of current Part 54, the Commission has recognized that aging relevant to license renewal is a continuous process which can be dealt with by a combination of programs to ensure maintenance of a plant's Current Licensing Basis (CLB) and updating of the CLB as necessary over time. Together, the Commission concluded, these programs assure detection and anticipation of potential effects of aging on critical plant structures, systems and components not already accounted for by environmental qualification and preventive maintenance programs. 56 Fed. Reg. 64943, 64947 (December 13, 1991).

Virginia Power emphatically agrees with this conclusion. The only issue raised by this letter is the current rule's apparent assumption that something approaching 20 years of operating experience with any given plant is the minimum necessary to give a licensee the perspective necessary to submit a properly supported license renewal application.^{3/} The rulemaking record indicates that the Regulatory Staff believed that 20 years of experience was sufficient; Virginia Power agrees. However, the public record does not compel a conclusion that fewer than 20 years is insufficient; and Virginia Power does not believe that such a conclusion would be supportable.

^{3/} The rulemaking's Statement of Consideration assumes that a threshold date for license renewal 20 years prior to expiration is equivalent to 20 years of operating experience with a 40-year license. This is not exactly true, given the fact that power ascension from low to full power typically requires several months. Even more to the point, the 40-year term for operating licenses began, until recent years with the date of issuance of the construction permit, not that of the operating license. As a result, depending on the length of its construction period, a plant with only 20 years remaining on its operating license might have no more than 10 to 12 years of actual operating experience, unless the additional years had been "recaptured" by subsequent license amendment. This, of course, is that amount of operating experience which Virginia Power urges the NRC to find generally acceptable.

Virginia Power believes, and urges the Staff to consider, that the real basis for confidence in the ability to account for the effects of aging lies in the programs and processes which licensees use, from the time of issuance of an operating license (and often before), to monitor the condition of the plant and of its basic structures, systems and components. Nothing special occurs on the date exactly 20 years before expiration of a 40-year operating license: aging is a continuous process, and its effects are monitored, accounted for, and anticipated by a licensee's engineering and maintenance programs. It follows that if confidence is properly founded in these programs as a basis for maintenance and modification as necessary of CLB, then that confidence cannot be limited arbitrarily to the 20-year period before expiration of an operating license.

For this reason, Virginia Power urges the Staff to permit operating license renewal applications beginning 10 years after commencement of commercial operation, on the basis that sufficient experience exists by then to extrapolate confidently about the effects of plant aging between the expiration of the current operating license and the end of an available renewal term.

In support of its request Virginia Power makes the following basic arguments:

1. Most of the programs that provide confidence in the ability to manage the effects of aging have been in place since the issuance of an operating license, and a minimum of 10 years of plant-specific experience will have been gained with them. Given the nature of these programs, this amount of experience is sufficient to authorize a 40-year license renewal at that point. It will be necessary for all license-renewal applicants to develop or have modified programs to account for passive structures and components whose design lifetimes exceed the operating license expiration date. There is no reason to believe that licensees will be any less qualified to develop these programs after 10 years of commercial operation than they will be 20 years before expiration of the original license.

2. There is nothing in any of the Commission's Statement of Consideration in the Part 54 license renewal rulemaking to indicate that license renewal applications filed earlier than 20 years into the initial license term are inherently premature or unfounded. Indeed, evolution of the language from the proposed to the final provisions of § 54.17(c) indicates the Commission's recognition that general knowledge and experience, rather than the passage of any particular amount of time since issuance of a particular operating license, is most relevant.

There are no substantial safety issues posed by the requested change. There are, however, substantial economic benefits associated with it for the licensee and its ratepayers. Though economic benefit cannot be traded off against increased safety risk, in a situation where, as here, there is no increased risk, the presence of economic benefit provides a sufficient basis for the Commission to act.

II. Changing the License Renewal Threshold from 20-Years-before-Expiration to 10-Years-after-Commercial Operation is Consistent with Current Commission Policy on Plant Aging Phenomena

The Commission's present license renewal rule, and the even more recent expressions of Commission policy in SECY-93-331 and the SRM of February 3, 1994, are consistent with revision of the threshold for applications for license renewal. The current rule and these later documents all recognize that plant aging is a continuous process, and that the Current Licensing Basis of a plant is sufficient, together with program modifications and new programs, to manage the effects of aging during the renewal term. The CLB includes compliance with Commission regulations and specific licensing commitments. It also includes a host of plant-specific programs for testing, monitoring and maintaining safety-related structures, systems, and components, for making determinations of operability status, and for refurbishment, replacement and repair as needed to anticipate and prevent the occurrence of failures. Specific names and attributes of programs will vary from licensee to licensee. A reasonably comprehensive (though not necessarily exhaustive) list of programs employed by Virginia Power, which it believes are representative of those found throughout the power reactor industry, is Attachment A to these comments.

Virginia Power, like all licensees, also employs a range of programs to enable it to assess its effectiveness in maintaining the CLB. These programs include the following goals:

- * Capability to retrieve information and commitments associated with license conditions, exemptions, technical specifications, NRC bulletins, generic letters, enforcement actions, safety evaluations, and LERs;
- * Capability to manage and track commitments through a Commitment Management Tracking System;
- * Identification and inclusion of continuing commitments in appropriate administrative controls through a procedure upgrade program;
- * Maintenance of the North Anna and Surry UFSARs current through frequent updates and improvements;
- * Documenting the design basis and maintaining it current through a configuration management program.

These mechanisms to ensure that the CLB is maintained are not static: they are continuously in effect beginning with the date of licensing (and sometimes before), are amended from time to time as needed to retain their effectiveness, and require ongoing actions by the

licensee. Taken together, their intent and effect are not simply to detect and observe aging but to anticipate and remedy it before it occurs.

Further, this CLB does not remain unchanged during a renewal license term: it must be updated in connection with any renewal term to address any additional aging considerations necessary to maintain the design level of safety. Thus CLB programs are a useful, dynamic benchmark for evaluating and controlling the effects of aging.

III. Permitting License Renewal Applications to be Filed More than 20 Years before License Expiration is Consistent with the Evolution of the License Renewal Rule

Virginia Power recognizes the limitations on textual arguments. However, there seems to have been little live consideration of whether 20 years of specific-plant operating experience was necessary to provide, in the case of any power plant, the minimum adequate knowledge of anticipated aging effects. And in any event, as already shown (see note 3, above), the current rule neither requires nor guarantees that this extent of experience will be attained.

The Commission did reject arguments that would have restricted renewal applications to still later in the life of a nuclear plant, 56 Fed. Reg. 64943, 64963 (1991). However, there is no substantial discussion in the Statement of Consideration for either the draft or the final rule, indicating anything special about the 20th year before license expiration. Indeed, the arguments summarized above about the nature and intent of plant maintenance and monitoring programs clearly suggest that there is nothing special about that year, as compared with any other.

This recognition appears to be reflected in a shift between the language of the Statements of Consideration supporting the proposed and final versions of the rule. The proposed version contained only the following brief discussion:

Neither the AEA nor the Commission's current regulations set a limit on how long before the expiration of the operating license a renewal application may be filed. However, the Commission has decided to impose such a limit to ensure that substantial operating experience for the nuclear power plant is accumulated before consideration of the renewal application for that plant. The 20 year limit established allows the licensee ample time to plan for license renewal or alternative actions.

55 Fed. Reg. 29043, 29051 (July 17, 1990).

The final rule, by contrast, is supported by the following statement:

Neither the AEA nor the Commission's current regulations set a limit on how long before the expiration of the operating license a renewal application may be filed. However, the Commission has decided to impose such a limit to ensure that substantial operating experience is accumulated by a licensee before it submits a renewal application.

* * *

While the Commission accepts the premise that operating experience is important, it rejects the suggestion that 20 years of operational and regulatory experience with a particular plant is an insufficient period in which to accumulate information on plant performance. ...

Commenters incorrectly suggest that new information about plant systems and components as well as age-related degradation concerns discovered after the renewed license is issued would not be considered by the NRC or would not be factored into a plant's programs. The CLB of a plant will continue to evolve throughout the term of the renewed license to address the effects of age-related degradation as well as any other operational concern that arises. ... The NRC's regulatory oversight activities will also assess any new information on age-related degradation or plant operations issues and take whatever regulatory action is appropriate for ensuring the protection of the public health and safety. The commenters ignore that fact that both renewal applicants and the NRC will have the benefit of the operational experience from the nuclear industry and are not limited to information developed solely by the utility seeking a renewed license.

56 Fed. Reg. 64943, 64963 (December 13, 1991).

The Commission's assessment amply justifies allowing renewal applications to be filed 20 years before the end of a license. What it does not do is indicate any reason why, given adequate experience, it should not permit applications to be filed earlier: as the SOC notes, changes to the CLB will continue to accrue and will be reflected in plant documentation after issuance of a renewed license; and the Commission and licensee both have access to industry-wide information, not just plant-specific information.

Virginia Power agrees that some minimum amount of operational time with a plant is necessary to provide information about its basic characteristics and experience managing the

CLB, but submits that such a basis is available after ten years of commercial operation. And a licensee can gain additional perspective from the experience of other plants on its or other utilities' systems. Virginia Power's proposed revision to the rule is predicated on the existence and availability of such experience. For example, Virginia Power has accumulated a total of some 73 plant-years of combined experience at Surry and North Anna. The Westinghouse operating experience, which includes Surry and North Anna, approaches a thousand reactor-years by now.

IV. Substantial Economic Benefits Would Accrue to Licensee and Ratepayers from Earlier Relicensing

Though it is a basis for Virginia Power's interest in this proposal rather than an independent reason for Commission action, there are substantial economic benefits from early license renewal. Extending a reactor's licensed operation permits a utility immediately to reduce the rate at which it must charge for depreciation and collect decommissioning trust fund monies. It also permits a utility to defer capital expenditures on new generating capacity. These savings would flow through to ratepayers as well.

Virginia Power has calculated the net effect of a five-year license extension for each of its four nuclear units, assuming that the extensions became effective in 1997. Costs of nuclear service at the bus bar (i.e., at the point where power enters the grid) would be reduced by 3%. The net present value of these savings, including capacity deferrals, for all four units exceeds \$500 million. Presumably, the present value of these effects would be greater if full-term extensions (i.e., out to 40 years, or extending the present terms by 14 to 20 years) were gained.

But under the current rule, Virginia Power will not be able even to seek license renewals for North Anna 1 and 2 until 1998 and 2000 respectively. Thus the current rule substantially and unnecessarily delays Virginia Power's ability to begin realizing these savings.

V. A Rule Change, not Case-by-case Exemptions, is the Preferred Route to Earlier License Renewal

The Commission's regulations, at 10 CFR § 50.12, provide for exemptions to literal compliance with Commission regulations. However, the tests applicable to exemptions -- particularly the "special circumstances" test -- raise an unnecessarily stiff set of requirements, for a situation in which, properly applied, there is no downside. They also tend to create a separate, duplicative proceeding concerning the exemption, in addition to that for the license renewal. For these reasons, permitting a case-justified showing for a filing date earlier than 20 years prior to expiration of a license would focus on the relevant issue -- experience -- and would keep the issues focused on the licensing renewal itself.

VI. Conclusion

For the reasons stated above, Virginia Power respectfully requests the NRC Staff to include a recommendation authorizing the filing of renewal applications as early as 10 years after the commencement of commercial operation, in its proposal to amend 10 CFR Part 54, the license renewal rule.

ATTACHMENT A

Representative Programs Used to Control Effects of Aging at Virginia Power's Nuclear Plants

- Surry and North Anna Service Water Upgrade (GL-89-13)
- Reactor Vessel Surveillance and Integrity (GL-92-01)
- Flow Accelerated Corrosion (GL-89-08)
- Inservice Inspection and Testing (ASME Section XI)
- Technical Specifications Surveillance (10 CFR § 50.36)
- Containment Leak Rate Testing (10 CFR Part 50 Appendix J)
- Fire Protection (10 CFR Part 50 Appendix R)
- Equipment Environmental Qualification (10 CFR § 50.49)
- Reliability Centered Maintenance
- Steam Generator Maintenance Agreement
- Maintenance Rule Implementation (10 CFR § 50.65)
- Motor operated Valve (GL-90-10)
- Safety and Relief Valve (INPO Good Practice)
- Check Valve (INPO Good Practice)
- Electrical Breaker (NRCB 88-01 and 88-10)
- Predictive Analysis and Maintenance
- Preventive Maintenance
- Emergency Diesel Generator Reliability (GSI B-56)
- Nuclear Plant Chemistry (INPO Good Practice)