7590-01-P

NUCLEAR REGULATORY COMMISSION

PRELIMINARY IMPACT ASSESSMENT OF NUCLEAR INDUSTRY CONSOLIDATION ON NRC OVERSIGHT:

REQUEST FOR COMMENTS

AGENCY: Nuclear Regulatory Commission (NRC)

ACTION: Request for comments

SUMMARY: Economic deregulation of the electric utility industry has resulted in consolidation and restructuring of the nuclear power industry. The transformation of the once strictly regulated industry has led to separation of the generation, transmission and distribution sectors, corporate mergers and asset transfers, acquisitions by outright purchase, and a general transition to a nationwide competitive market. There have also been numerous nuclear power plant license transfer applications, which the NRC staff must review and approve before a license can be transferred to a new entity.

The NRC staff has identified and performed a preliminary assessment of the impacts of nuclear industry consolidation on the NRC and whether the NRC needs to change its regulations, policies, processes, guidance, or organizational structure to continue to meet its strategic public health and safety goals. The initial object of this effort is to identify impacts that need to be considered further.

The NRC staff has identified a number of consolidation and a few deregulation-related impacts on NRC oversight of the nuclear industry, grouped them by category, and performed preliminary impact assessments. The individual assessments follow this notice.

The NRC staff requests comments and suggestions from stakeholders on the identified issues and the preliminary impact assessments. The NRC staff will consider all comments received. A public workshop will be held at NRC Headquarters in the October/November 2001

timeframe to discuss the regulatory oversight issues attendant to industry consolidation, the staff's preliminary impact assessments, and the comments received from the stakeholders. Notice of this workshop will be published at a later date. Commenters should indicate their interest in attending and participating in this workshop.

The product of this effort will be staff recommendations of impacts that the Commission needs to consider further.

DATES: The comment period ends August 27, 2001. Comments received after this date will be considered if it is practical to do so, but the staff guarantees consideration only of comments received on or before this date.

ADDRESSES: Mail written comments to Chief, Rules and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Comments may also be sent by completing the online comment form at http://www.nrc.gov/NRC/REACTOR/CONSOLIMPACT/index.html.

Deliver comments to Room 6D59, Two White Flint North, 11545 Rockville Pike, Rockville, Maryland, between 7:30 a.m. and 4:15 p.m. on Federal workdays.

For further information contact Herbert N. Berkow, Mail Stop O 8 H-12, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555; telephone (301) 415-1485 and e-mail at HNB@NRC.GOV.

Dated at Rockville, Maryland, this 20th day of June 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Herbert N. Berkow, Director
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

INDUSTRY CONSOLIDATION

PRELIMINARY IMPACT ASSESSMENTS

Categorization of Industry Consolidation Issues

Category 1 **Plant Operational Safety**

Issue 1.a **Possible Cost-cutting Initiatives**
Issue 1.b **Technology-related Issues**
Issue 1.c **Spent Fuel Storage and Transportation**
Issue 1.d **Low-Level Radioactive Waste Management**
Issue 1.e **Emergency Preparedness**
Issue 1.f **Reliable Off-site Power**

Category 2 **Licensing**

Issue 2.a **License Transfer Process**
Issue 2.b **New License Applications, Site Approvals, and Reactivations of Deferred Plants**
Issue 2.c **License Renewal**
Issue 2.d **NRC Organizational Structure**

Category 3 **Inspection, Enforcement, and Assessment**

Issue 3.a **NRC Reactor Oversight Process**
Issue 3.b **Other NRC Inspection Programs**
Issue 3.c **NRC Enforcement Program**
Issue 3.d **NRC Allegation Program**

Category 4 **Decommissioning**

Category 5 **External Regulatory Interfaces**

Category 6 **Fuel Cycle Facilities**

Category 7 **Financial**

Issue 7.a **Foreign Ownership**
Issue 7.b **License Fee Structure**
Issue 7.c **Insurance**
Issue 7.d **Joint and Several Regulatory Responsibility**
Issue 7.e **Bankruptcy Protection**
Issue 7.f **Financial Qualifications**

Category 8 **Non-NRC Regulatory Considerations**

Issue 8.a **Grid Stability/Reliability**
Issue 8.b **Antitrust Considerations**

Issue Category: 1. Plant Operational Safety

Issue: 1.a Possible Cost-cutting Initiatives

Discussion:

In a more consolidated, economically deregulated market, the nuclear power industry will be faced with new pressures to operate more efficiently. Cost controls could result in shorter outages (and thus longer run times), increased use of on-line maintenance, power uprate amendments, increased use of risk-informed technology and decisions and other changes that would result in lower costs and increased productivity.

Consolidated licensees will also seek to achieve economies of scale, which is a major potential benefit of consolidation. This will likely be manifested in organizational changes, both at the plant and corporate levels, to combine duplicative functions, optimize staff size, standardize best practices, and centralize functions. Organizational and operational philosophies may also be influenced by the prerequisites of economic deregulation, which often require existing utilities to separate power generation from transmission and distribution functions. Consolidation and economic deregulation will likely result in increased efforts by licensees to seek reductions in unnecessary regulatory burden. Licensees may also seek reductions in licensing fees beyond that relief already provided by Congress.

Preliminary Impact Assessment:

Licensee efforts to operate more efficiently may result in net positive safety impacts. There is evidence, both domestic and foreign, to demonstrate that well run, efficiently operated plants are also the safest plants. Nevertheless, if carried to excess, cost-cutting measures to achieve short-term economic gains could result in longer-term adverse safety performance impacts.

Licensees are responsible to ensure that safety and regulatory compliance are not compromised by the industry goals to maximize operational efficiency and performance effectiveness. The NRC must stay focused on operational safety and have the capability to assess and react to industry activities in response to economic pressures that appear to have an adverse impact on safety. Augmented staff expertise beyond currently existing capabilities may be needed to effectively implement oversight responsibilities in the changing industry environment. The staff must assure that its safety assessment processes have adequate flexibility to detect and respond to adverse safety performance trends that result from competition-driven licensee actions. At the same time, the staff will have to remain sensitive to reducing unnecessary regulatory burden.

Recommended Followup:

Continued staff monitoring of experience and feedback from current oversight processes should provide early identification of issues related to economics-driven licensee actions that need to be addressed. This, in turn, will define any needed staff reaction. No other special followup effort is recommended at this time.

Issue Category: 1. Plant Operational Safety

Issue Title: 1.b. Technology-Related Issues

Discussion:

While technology and process advances have continued to be developed and introduced to the design and operation of licensed nuclear facilities, industry consolidation and economic deregulation may provide additional incentives for such advances.

The NRC research-sponsored effort encompasses a variety of broad technological areas which may be involved in future developments related to industry consolidation and economic deregulation. The following are examples of such technological areas which the staff may have to deal with in the future.

1. Fuel integrity must be addressed in an integrated fashion considering longer operating cycles, ultra-high fuel burnups, new cladding materials, power uprates, and changes to operational conditions such as may result from load following. A stronger, consolidated industry may see advantages to moving to a simpler performance-based assessment rather than the present design-based method.

2. Human and organizational factors affected by industry consolidation and deregulation may need to be considered to address reduced staffing, modified maintenance strategies, and possible increased use of contractors.

3. Introduction of new technologies, such as advanced information technologies, evolution of digital instrumentation and control systems in existing facilities, and development of new reactor concepts may require new regulatory approaches. These types of issues are also pertinent to Issue 2.b.

The staff has on-going, or planned activities which will enable it to accommodate the technology-related issues arising from industry consolidation and deregulation. The following are examples of such activities:

1. Development of risk-based performance indicators (RBPIs) could provide an additional tool with which to assess plant safety performance on a plant-specific as well as industry-wide basis. The RBPIs, if successfully developed, would provide broader coverage of risk than the current performance indicators and would allow a more detailed assessment of the root causes of problems, whether or not they are related to consolidation or deregulation. Also, plant-specific thresholds based upon risk could be established.

2. Risk information is routinely used to assist in regulatory decisions regarding such issues as equipment and plant aging, fuel burnup and power uprates. The synergetic effects of such changes on the overall safety of operating plants may require re-evaluation of existing probabilistic risk assessments.

3. Advanced information technologies are likely to be employed in emergency preparedness programs (Issue 1.e). Areas of potential interest are possible consolidation-related impacts on the communications infrastructure and integrity of data used for making decisions during emergencies.

4. There is an increased focus on results-based regulatory decision-making. The staff has developed high-level guidelines for performance-based activities to facilitate implementation of such approaches while ensuring that adequate safety margins are maintained. Broader use of performance-based approaches may allow more direct observation of the effects of consolidation.

Preliminary Impact Assessment:

The technology-related aspects of many of the potential issues that may arise from industry consolidation and deregulation require that more experience and operational information be incorporated into the staff's evaluations. While the staff is alert to possible safety concerns, the expectation is that the changes will also bring about safety improvements. However, impact assessments are premature at this point. The work being conducted by the staff on issues relevant to industry consolidation and deregulation provides confidence that technical challenges can and will be met effectively.

The generic issues program has dealt with a number of issues where safety considerations similar to those occurring with industry consolidation were addressed. A process exists for new information from industry consolidation to be fed back into the program and potentially trigger a re-evaluation of specific issues, if appropriate. So far, resolved issues in this area have not had to be re-evaluated, suggesting that the safety assessments conducted previously remain valid.

Recommended Followup:

As experience with industry consolidation is limited at this time, the emphasis should be on monitoring operational information and being alert to indications of an unexpected nature. NRC should continue to monitor the changes occurring within the nuclear industry and take these changes into account when considering modifications to its research activities.

Issue Category: 1. Plant Operational Safety

Issue: 1.c Spent Fuel Storage and Transportation

Discussion:

U.S. nuclear power plants were not designed to store all the spent nuclear fuel generated throughout their operating lives. To date, utilities have been coping with the lack of spent fuel storage capacity by expanding the capacity of spent fuel pools through redesign (reracking) and by constructing independent spent fuel storage installations (ISFSIs) for at-reactor, above ground, dry storage. Prior to the increase in industry consolidation activities, Private Fuel Storage L.L.C, a company owned by eight U.S. utilities, applied for a license to receive, handle, transfer, and store spent nuclear fuel from commercial nuclear power plants at a privately owned ISFSI. This away-from-reactor ISFSI will be able to store as much as 40,000 MTU of spent fuel at one location. The purpose of the proposed facility is to satisfy the need for an interim storage facility that would serve as a safe, efficient, and economical alternative to continued spent fuel storage at reactor sites. NRC is aware of a potential application for a second away-from-reactor ISFSI (i.e., the Owl Creek site). As a result of industry consolidation and the good performance record of operating plants, it is expected that essentially all currently operating plants will seek license renewal. Since the availability of a permanent spent fuel repository is uncertain, there will likely be a need for additional temporary spent fuel storage as plants operate for extended lifetimes. At this point in time, it is premature to predict whether nuclear industry consolidation could increase the need to consolidate spent fuel storage either at selected reactor site ISFSIs or at new away-from-reactor ISFSIs. Further, there is no basis to say that consolidation will affect the amount of spent nuclear fuel that will need to be transported to or from reactor sites.

Preliminary Impact Assessment:

The NRC has been able to successfully address applications for new ISFSI licenses and new spent fuel storage cask designs, as well as applications to amend existing licenses and cask certifications. Consolidation could result in an increased number of amendments to existing ISFSI licenses (to increase storage capacity), applications for new site-specific ISFSI licenses, applications for away-from-reactor ISFSIs, applications to amend existing Part 71 and 72 quality assurance programs, and amendments to existing certified cask designs (to permit storage of additional types of spent fuel and fuel with higher burnup). The staff currently interfaces with the licensees and industry groups (e.g., NEI) on a periodic basis to identify future submittals and thus aid in assessing future resource needs.

Existing Part 71 and 72 regulations, policies, and guidance are sufficient to support nuclear industry consolidation.

Recommended Followup:

At this time, it appears that current ISFSI licensing and spent fuel storage cask certification regulations, policies, and procedures are sufficient to accommodate situations resulting from industry consolidation. Staff will continue to work with industry to obtain advance notice of future applications and thus predict future casework levels that may be generated by consolidations. Furthermore, there may be some unique, unanticipated circumstances that require changes to spent fuel storage or transportation policies or regulations. For either of these situations, the staff will utilize the PBPM process to address resource impacts or significant policy matters and make appropriate recommendations to NRC management.

Issue Category: 1. Plant Operational Safety

Issue: 1.d Low-Level Radioactive Waste Management

Discussion:

Nuclear industry consolidation can affect how individual licensees address management of low-level wastes. Regulations applicable to waste management include operational radiation health and safety requirements applicable to all waste generator licensees and requirements for commercial facilities licensed to dispose of low-level radioactive wastes. The Low-Level Radioactive Waste Policy Amendments Act of 1985 provides a process for siting new low-level waste disposal facilities. Regulations are also in place for transportation of low-level radioactive wastes. Policy guidance for implementing these regulations has been prepared and issued as standard format and content guides, standard review plans, and branch technical positions.

Nuclear industry consolidation has the potential to strengthen low-level waste management programs within licensee organizations by consolidating management of waste disposal activities. The Envirocare disposal facility in Utah currently negotiates disposal charges on a case-by-case basis. Therefore, consolidation may also reduce disposal costs through the negotiation of larger volume contracts. Additional cost savings could also be implemented through the potential use of licensees' own low-level waste volume reduction and processing systems that may become economical for a larger number of plants, rather than contracting for this service. The construction and use of new volume reduction and waste processing systems would generally be implemented through 10 CFR 50.59, without the need for a license amendment. Incineration, however, would require licensing pursuant to 10 CFR 20.2004. Due to the controversial nature of incineration issues, intervention on any such license amendment applications would be likely.

Most nuclear power plants have developed on-site storage facilities as a contingency in the event of short-term interruptions in disposal site availability, as has occurred in the past. Industry consolidation could allow more optimal use of these storage facilities. However, because nuclear power plants generally are not licensed to accept wastes from off-site, license amendments would be required to implement optimized storage programs among several nuclear power plant sites. Indeed, the staff recently issued a license amendment to TVA that allows them to store low-level waste from the Watts Bar facility at Sequoyah. There would also be a need for transportation of wastes from the point of generation to the centralized storage facility. Due to the controversial nature of waste management and transportation issues, intervention on any license amendment applications is a likelihood. Centralization of storage facilities could require that licensees increase tracking of the origin of the wastes to ensure that State and compact waste generator reporting requirements are met.

There do not appear to be consolidation efforts among the low-level waste disposal licensees at this time. Programs at low-level waste facilities are driven primarily by external impacts (e.g., decisions related to the closure of the Barnwell low-level waste site) rather than by consolidation. Currently, all low-level waste disposal site facilities are located in and licensed by Agreement States, and there are no new applications projected to be submitted to the NRC.

Preliminary Impact Assessment:

Regulations and policies addressing low-level waste management and transportation are sufficiently flexible to address license amendments to consolidate on-site storage operations or to use advanced volume-reduction technology. Industry consolidation should have no impact on the availability of low-level waste disposal sites or programs for handling and processing mixed wastes. There does not appear to be a need to revisit the Low-Level Radioactive Waste Policy Amendments Act of 1985 based solely on industry consolidation impacts, although the lack of progress in opening new low-level waste disposal sites, as documented by the General Accounting Office, may require amendment of that statute. DOE and State projections of low-level waste generation may be affected by nuclear power plant license renewals that occur from industry consolidation.

Recommended Followup:

At this time, it appears that current low-level waste management regulations and policies are sufficiently flexible to accommodate situations resulting from industry consolidation. Therefore, industry consolidation appears to have no significant impact in the waste management area and no further effort is recommended. However, the NRC needs to consider the effects of license renewals when providing feedback on DOE and State projections of low-level waste generation.

Issue Category: 1. Plant Operational Safety

Issue: 1.e Emergency Preparedness

Discussion:

Emergency preparedness (EP) programs, both on-site and off-site, are sensitive to the impacts of industry consolidation because of the dependence on relationships with State and local governments and facilities where the plants are located. Outcomes of industry consolidation have included centralization of staffs, functions, and facilities remote from individual site locations and the standardization of licensee EP programs and procedures. These outcomes can have both positive and negative impacts. Consolidation can strengthen licensees' programs or, conversely, create problems and deficiencies throughout multiple plant organizations or facilities. There are NRC staff resource implications and challenges to assure that regulations and policies continue to be satisfied and that the NRC's safety assessment processes provide sufficient focus on any proposed changes. Changes that impact offsite emergency preparedness are coordinated with the Federal Emergency Management Agency (FEMA) as well as affected State and local authorities.

Preliminary Impact Assessment:

The NRC must be alert to potential safety impacts of EP program changes resulting from consolidation. Industry consolidation already has resulted in some centralized Emergency Operations Facilities (EOFs), with the corporate headquarters serving as the location for and source of personnel to staff the EOF. Shared Emergency News Centers are another result of consolidation, with licensee corporate personnel staffing these facilities. Efficiencies can result when one EOF is capable of effectively serving multiple nuclear sites.

Some concerns associated with centralized emergency preparedness facilities remote from the site area include the potential loss of expertise local to the facility and maintenance of local contacts with first responders. Corporate personnel may face challenges in maintaining knowledge of the plant(s), local organizations, and procedures. However, centralized, shared facilities and staffs can strengthen EP programs. Some communications capabilities have improved and the perception for the need for locating close to the site has been reduced in some locations. Consolidation of EOFs affecting multiple States and/or local authorities can present challenges in accommodating differences among these offsite entities and meeting the needs of local constituencies. A major factor in the location of the EOF is ensuring the capability for effective communication and response among the licensee, the State and local emergency response organizations, FEMA, and NRC relative to protective action decision-making and implementation of protective actions.

Another area of potential impact is the incentive for increased use of standardized emergency response procedures across multiple reactor facilities. Standardized procedures have positive and negative aspects. They can result in a better procedure and the ability to cross-utilize staff at multiple facilities. However, a licensee may be more reluctant to modify standardized procedures for needed changes, due to the number of facilities affected by procedure changes and potentially increased training needs.

NRC has reviewed industry requests for consolidation of emergency response facilities (ERFs), changes in emergency plans and procedures, Emergency Action Levels (EALs), and emergency organizations as a result of consolidation. The NRC evaluates proposals for centralized EP staffs, programs and facilities and, indeed, has approved such proposals in the past. Commission-level approval is required for centralized EOFs and EOFs located more than

25-miles from a nuclear power plant site. The NRC coordinates with FEMA and States when emergency planning changes are contemplated that affect offsite preparedness.

Recommended Followup:

Given the ongoing industry consolidation, the potential exists that owners of multiple facilities will continue to seek consolidation of EP program functions and organizations. The staff recommends that NRC staff resource implications and challenges be assessed and trended to assure that regulations and policies continue to be satisfied and that the NRC's safety assessment processes provide sufficient focus on emergency preparedness.

Issue Category: 1. Plant Operational Safety

Issue: 1.f Reliable Off-Site Power

Discussion:

As described in Issue 8.a., the primary concerns that arise with respect to off-site power reliability are a result of economic deregulation rather than industry consolidation. Stability and reliability of off-site power is a significant safety consideration in the regulation of nuclear power plants. The primary reason is that off-site power is the preferred source of electrical supply to operate decay heat removal systems. Hence, although highly reliable on-site emergency diesel generators will be available to assure capability to safely shut down the plant and provide for transfer of decay heat to the ultimate heat sink temporarily, a reliable off-site power supply is important for long-term safety. The NRC has a significant interest in monitoring challenges to the operation and management of the electric power grid so that appropriate actions can be taken to address concerns regarding reliability of off-site power.

From the perspective of plant operational safety, the potential challenges to the reliability of off-site power affect the use of probabilistic risk analyses in safety related decision-making. Increasingly, both licensees and the NRC staff use PRAs for risk-informed decision-making. Regulatory Guide 1.174, “An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis”, provides the guidance needed for making licensing decisions using risk insights that may derive from the impacts of changes due to economic deregulation. New information based on grid experience after economic deregulation may have to be considered in estimating the frequency of initiating events where off-site power plays a role. Most of the information needed is likely to be readily available from the grid operators. This information is likely to be a part of submittals made by licensees in support of licensing actions.

In recognition of the importance of assuring the stability and reliability of off-site power the industry, as well as the NRC, has implemented programs and other initiatives to address this challenge. The NRC issued Regulatory Issue Summary 2000-24 on the subject in December 2000. NEI and INPO sponsored a workshop on offsite power reliability in April 2001, in which NRC staff participated. In 1999, INPO issued SOER 99-1, which provides guidelines for good practices in support of grid reliability and is currently conducting an audit of licensees to determine the degree of conformance to these good practices.

Preliminary Impact Assessment:

Reliability of off-site power lately has been receiving considerable attention. The external stakeholders include other government agencies with regulatory responsibilities. Communication channels have been established with various stakeholders and are improving as experience is gained. The Institute for Nuclear Power Operations has developed the Equipment Performance and Information Exchange (EPIX) system, which should enable information needed to update PRAs to be easier to obtain.

Relative to operational safety matters, the body of regulations currently in force provides for safe operation, shutdown, and decay heat removal from nuclear power plants. The established lines of communication with industry and other stakeholders, especially those concerned with economic deregulation, are expected to provide timely information if safety issues arise. In addition, the NRC has in place the needed infrastructure (such as a Memorandum of Understanding with the Electric Power Research Institute) to obtain and assess information, affecting off-site power reliability.

Recommended Followup:

The NRC should continue its ongoing efforts to monitor developments relative to grid operation. The monitoring should include keeping abreast of actions taken by other government agencies which may affect grid reliability, as well as nuclear power industry initiatives relative to assurance of grid reliability.

Issue Category: 2. Licensing

Issue: 2.a License Transfer Process

Discussion:

The NRC responsibilities for the transfer of a license are set forth in 10 CFR 50.80, "Transfer of Licenses." From 1998 through the present, the staff has received license transfer applications for about 80 nuclear power reactor units. Most of the reviews for these applications have been completed except for a few that were submitted recently. Applications for transfer of a license include information on the identity and technical and financial qualifications of the proposed transferee, as well as any additional information that the Commission requires, such as radioactive material safeguards protection, and certain information related to the purpose of the transfer and the nature of the transaction necessitating the transfer. The NRC must obtain, review, and assess all relevant organizational and financial information associated with each license transfer to determine whether the proposed transferee is qualified and the transfer is otherwise consistent with the law and NRC regulations. Transfer of the license is by issuance of an order and, where necessary, a conforming amendment.

A concern has been raised by some external stakeholders that once a licensee has decided to sell its nuclear plants that licensee may no longer have the incentive to invest in safety or maintenance improvements, or take necessary corrective action to address identified problems, pending transfer of responsibility and liability to the license transferee. The stakeholders' proposed resolution to this concern is that the NRC staff consider such indications in its license transfer reviews and make the correction of physical or performance problems a condition of transfer approval.

Preliminary Impact Assessment:

The staff believes that the current license transfer process is effective. It appears likely that license transfer applications will continue to be submitted, and completed transfers will continue to be reviewed for lessons learned to improve the effectiveness of the process.

The concern that a licensee planning to sell its plant might no longer place a high priority on safety initiatives is accommodated by the staff's oversight process, as discussed in Issue 3.a. The NRC closely monitors the transfer process to ensure that NRC regulations and license requirements are met regardless of any pending sale. Further, the new license holder has a strong incentive to assure that the plant will meet NRC requirements upon completion of the transfer. Finally, it should be noted that the staff has had considerable experience with the license transfer process and has not seen any evidence to validate this concern.

Recommended Followup:

No special followup effort is recommended at this time.

Issue Category: 2. Licensing

Issue: 2.b New License Applications, Site Approvals, and Reactivations of Deferred Plants

Discussion:

A consolidated nuclear power industry consisting of larger, financially strong nuclear operators is more likely to consider new plant applications, standard design applications, power uprates, reactivation of deferred plants, and site approval applications. There already is industry consideration of new reactor design applications (such as the pebble-bed-type standard design) within the next few years.

With larger, more stable licensees, the costs associated with new nuclear power plant planning and construction can be more readily supported. These new units likely would serve as merchant power plants for the owner. New construction may also involve multiple corporations pooling their resources to build new facilities.

The NRC has been monitoring industry activities in this area. The Commission has stated in COMSECY-00-0026 (REVISED FY 2000-2005 STRATEGIC PLAN) that the staff has an important ongoing initiative to improve the regulatory infrastructure associated with new plant construction (10 CFR Part 52) and that improving this infrastructure should serve to improve the efficiency, effectiveness, predictability, and consistency of the combined license review process.

Preliminary Impact Assessment:

The staff will need to assure that the necessary staff resources, expertise, organizational infrastructure, review processes, and guidance are available to support future activities in this area. In addition, current regulations and processes may need to be reviewed. New guidance may be needed on the scope of the review, as well as for antitrust and foreign ownership issues. Additional resources may need to be reassigned to support future staff action in this area. The Commission has directed the staff in COMJSM-00-0003, “Staff Readiness for New Nuclear Plant Construction and the Pebble Bed Reactor,” to assess existing capabilities and identify needed enhancements to process an early site permit application, a license application, and construction of a new nuclear power plant. It also directed the staff to assess and identify needed enhancements to the regulatory infrastructure supporting applicable regulations, with emphasis on identification of regulatory issues and potential process improvements. In response to this directive, the staff has established a temporary Future Licensing Organization (FLO) within the Office of Nuclear Reactor Regulation. A principal function of the FLO is to coordinate an interoffice effort to assess the needed technical, licensing, and inspection capabilities to ensure that the agency can effectively carry out its future licensing activities.

Recommended Followup:

Renewed interest in new license applications is attributable, at least in part, to industry consolidation. The Commission and staff have had meetings with industry representatives who are formulating plans for possible site and plant license application submittals in the next few years. The staff already has initiatives underway to prepare for such submittals. These ongoing initiatives appear to be sufficient and should be responsive to industry developments and evolving plans. Because industry’s interest in pursuing new licenses only recently materialized, the current FY2002 budget estimate does not provide sufficient resources to accommodate emerging work for potential new license applications. The FLO is developing

updated budget assumptions and resource needs. No specific additional followup effort is recommended at this time.

Issue Category: 2. Licensing

Issue: 2.c License Renewal

Discussion:

The number of future license renewal applications is expected to increase as a result of consolidation. Some reactors that were not considered to be candidates for license renewal could be reevaluated as a result of consolidation. With larger, more financially stable nuclear power plant owners, increased competition in power generation, and because of cost benefits, there will be increased incentive to extend the licenses of currently operating nuclear power plants. License renewal is seen by licensees as a cost-effective means of adding capacity. It is anticipated that virtually all of the currently operating plants will seek license renewal.

The license renewal process for power reactors relies on a review of the licensing basis and plant design, scoping, and screening of structures and components that need to be subjected to an aging management review and evaluation of time-limited aging analyses.

Preliminary Impact Assessment:

The staff recognizes the potential resource impacts of the receipt of an increased number of license renewal applications, some of which may not have been in the planning assumptions. The NRC has published Regulatory Issue Summary 2000-20, which encourages licensees to inform the staff as soon as possible of their plans for license renewal. The staff uses the PBPM process to budget for applications for which the staff has been notified of submittal dates and to respond to emergent work. However, license renewal is a voluntary initiative and the decision to renew an operating license is largely a business decision over which the NRC has no control. In addition, a greater number of renewal applications could result in already established submittal dates being changed as consolidated licensees re-evaluate and re-prioritize their license renewal plans.

Recommended Followup:

No special followup effort is recommended at this time. As consolidation progresses, the NRC should stay engaged with the industry as to changing license renewal plans and schedules and modify resource planning assumptions accordingly.

Issue Category: 2. Licensing

Issue: 2.d NRC Organizational Structure

Discussion:

Traditionally, licensees have operated within limited geographical service areas and have had to interface with just one regional office and one headquarters project directorate. As a result of consolidation, some licensees may have to interact with as many as four regional offices and headquarters project directorates. This is likely to introduce management challenges, both for the staff and the licensees, especially with respect to consistent, coordinated, efficient, and effective regulatory oversight.

The Commission stated in COMSECY-00-0026 (REVISED FY 2000-2005 STRATEGIC PLAN) that the staff needs to assure that NRC stakeholders recognize the importance the Commission places on regional consistency and coordination. With deregulation proceeding in the electric industry and with continuing applications for license transfers, the NRC will see an increase in the number of cross-regional licensees. While consistency and coordination between and among headquarters and the regions have been high priorities for the NRC, the increase in cross-regional licensees represents a growing challenge in these areas warranting greater management oversight.

Preliminary Impact Assessment:

The industry is currently in a state of transition and significant consolidation is relatively recent. Thus, it is premature to identify potential challenges to the current NRC organization, or to consider alternative organizational structures.

With respect to the question of whether the existing regional boundaries and currently assigned licensee oversight responsibilities will facilitate efficient and effective regulation of those licensees that own and operate reactor facilities in multiple regions, the key is effective NRC management oversight to assure consistency in implementing its programs. Measures that have been developed to assure consistent application of oversight processes include various periodic meetings with regional and headquarters management to discuss program implementation issues, conducting annual self-assessments, development of metrics for inspection procedures, program office audits of regional inspection reports, and obtaining industry stakeholder feedback. Consistent application of the Significance Determination Process among regions will be particularly important. Increased communications, both formal and informal, among the respective regional staffs are necessary to share insights when programs and processes are transferred from one licensee to another. Increased communications and coordination among regional staffs may also result in a broader look at a particular performance issue.

Recommended Followup:

Within the next few years, the regional and headquarters staffs will gain significant experience in regulating and otherwise interacting with consolidated licensees. This experience should be monitored so that a meaningful assessment of the impacts of consolidation on the NRC organization can be made at the appropriate time.

The recommended followup effort is to establish a consistent, agency-wide process to monitor and document relevant staff experience and stakeholder feedback and to establish meaningful assessment criteria for evaluating this experience and feedback. A principal objective of this effort should be an assessment of the impact of industry consolidation on both the efficiency and effectiveness of the agency's current organizational structure. Since there already are several cross-regional, consolidated licensees, this effort should be started in the near-term.

Issue Category: 3. Inspection, Enforcement, and Assessment

Issue: 3.a NRC Reactor Oversight Process

Discussion:

In evaluating the potential impact of industry consolidation on effective implementation of the reactor oversight process (ROP), a number of issues need to be considered. One of the principal considerations is whether the ROP will provide the NRC with assurance that licensees are maintaining public health and safety in a consolidated/deregulated environment. The ROP is performance-based, meaning the level of NRC engagement is a function of licensee performance. It is also structured to be "indicative" rather than "diagnostic", meaning the inspection and assessment processes within the ROP are designed to provide an indication of licensee problems, e.g., performance indicators (PIs) and associated thresholds, rather than to determine the specific root causes for issues of lesser significance. This raises the question of whether the ROP enables the NRC to address adverse performance trends that might result from consolidation-related cost-cutting initiatives, which could be driven by financial pressures, or non-conservative changes to corporate policies, programs, and procedures, before they evolve into significant safety issues.

Industry consolidation could result in staffing reductions as licensees seek to increase their efficiency of operations by eliminating redundant functions and standardizing "best practices". If the staffing reductions are substantive, not targeted appropriately, and/or not managed well, problem identification and resolution functions could be impacted as key staff leave the company. Licensee efforts to increase operational efficiency could also result in changes to corporate policies, programs, and procedures. If these changes are non-conservative, the effectiveness of problem identification and resolution activities could be adversely affected. For example, a licensee could adopt a corrective action program with higher thresholds for initiating a root cause evaluation. This could result in more significant problems developing, as the root causes for lower level issues are not addressed. It is important to note that, while these postulated scenarios may be possible, experience to date with consolidated licensees has demonstrated that the opposite is true. Changes associated with the integration of individual facilities into a consolidated entities have generally been well managed and produced positive performance results.

The current situation in California, where the Southern California Edison and Pacific Gas and Electric companies are facing substantial financial difficulties, has generated a number of questions regarding the NRC's role in ensuring public health and safety. The NRC conducted focused inspections at these facilities in response to this situation. These inspections revealed that there was no adverse impact on safety as a result of the financial difficulties. Nevertheless, significant financial pressures on a licensee could result in decisions to reduce the workforce, revise the scope of and/or delay planned maintenance and modification activities, shorten or delay plant outages, terminate licensing classes or training initiatives, etc. While these decisions would likely result in performance problems, it is not clear how significant those problems would be and in what time frame they would emerge. Assuming that some licensee decisions would have short-term and substantive effects on performance and given that the NRC focus is on safety performance, a critical question is whether the NRC's safety assessment processes are structured to ensure that the NRC will be made aware of these performance issues in sufficient time to engage the licensee with the appropriate focus. For those licensee decisions that provide short-term financial relief but have a longer-term impact on performance, the question is how significant the associated performance issues would be when they first surface.

Another issue warranting consideration is whether the existing regional boundaries and currently assigned licensee oversight responsibilities will facilitate effective regulation, within the context of the ROP, for those licensees that own and operate reactor facilities in multiple regions (see Issue 2.d). Licensees that cross regional boundaries may present management challenges for the NRC with respect to consistency, coordination, and efficiency of oversight.

Preliminary Impact Assessment:

There are two scenarios which need to be considered in evaluating what impact industry consolidation might have on the effectiveness of the ROP. The first scenario relates to longer-term manifestation of licensee performance problems stemming from consolidation-related activities, and the second scenario involves safety performance problems deriving from licensee actions in response to financial pressures.

Regarding the first scenario, one of the primary considerations is whether the ROP is conducive to identifying adverse performance trends that might result from consolidation-related activities such as cost-cutting initiatives and non-conservative changes to corporate policies, programs, and procedures. The NRC must be able to engage a licensee to ensure the underlying performance deficiencies are appropriately addressed before these deficiencies evolve into significant safety issues that challenge public health and safety. Licensee performance issues, particularly those relating to human performance and the corrective action program, should become evident at a lower level of significance. This affords the licensee the opportunity to correct the issues before more significant NRC action is necessary due to elevated safety performance problems. As noted earlier, by design, the ROP is “indicative” rather than “diagnostic”, which means that as inspection findings and PIs become more safety significant, the ROP increases focus on why a particular performance problem has occurred. Thus, if a consolidation-related, cost-cutting initiative or non-conservative changes in corporate policies, programs, and procedures result in a performance issue, that issue would likely surface initially as a finding of lesser safety significance. The licensee should then determine the extent of the condition and implement appropriate corrective action. Assuming that consolidation-related activities continue to create performance problems because the licensee has not addressed the root causes for the issues of lesser significance, those problems should develop into more safety-significant issues. The NRC would then detect this adverse performance trend and engage appropriately. This is not to say that licensee performance problems could not initially be evident at a higher level of significance, but this should be the exception if the licensee is aggressively addressing its lower level issues.

The corporate structure, ownership, and location of a particular plant should not impact the effectiveness of the ROP. While industry consolidation may offer efficiencies for the licensee, the assessment process under the ROP is based on performance results and not on how licensees gain efficiencies. Inspection activities under the baseline and supplemental inspection programs are sufficiently defined in terms of scope and objectives, that ownership or geographic location is not a factor in effective implementation of the inspection program. Similarly, the use of risk information to determine the safety significance of inspection findings by applying the Significance Determination Process (SDP) is independent of plant ownership or licensee size.

In assessing overall licensee performance, the ROP uses PI information in conjunction with the significance of inspection findings. The degree of regulatory engagement is dictated by the results of this assessment through the Agency Action Matrix. Each licensee is expected to submit quarterly PI information to the NRC for each plant owned by that licensee. If a licensee, for some reason, elects not to submit PI data for a specific plant, then the ROP has provisions for additional inspection activities to obtain the information captured by the PIs in order to fully

assess licensee performance. As the ROP is further refined, each licensee will be expected to implement associated changes, e.g., revisions to the PI reporting criteria, at each of its facilities.

Regarding the second scenario, there is a concern among some stakeholders that a licensee, when faced with financial pressures, including potential bankruptcy, could make decisions that might have significant short- or long-term effects. With respect to substantial short-term effects, the question is whether the NRC's regulatory oversight framework, given its performance-based, indicative nature in contrast to a more diagnostic approach, could preclude the NRC from increasing the level of licensee oversight in a timely manner to assure that operational safety is being maintained. Rather than having a short-term impact, some licensee decisions to dramatically improve financial viability could generate performance issues that do not surface until several months after the decisions are implemented. These performance issues could be safety-significant, depending upon the activities affected by the financially-based decisions. While the NRC's limited experience with licensees facing financial pressures has not validated these concerns, it may be prudent for the NRC to adopt a preemptive approach by initiating a targeted inspection module to assess licensee response to financial pressures.

Recommended Followup:

The ROP is expected to be transparent to industry consolidation. However, the NRC currently has limited experience with the effects of industry consolidation on effective implementation of the ROP. With additional experience, changes that may be needed to the ROP should become evident. The annual self-assessment process built into the ROP should serve as a vehicle to evaluate any needed changes. The NRC staff should continue to monitor consolidation activities and use the ROP self-assessment process to periodically evaluate the effectiveness of the ROP in light of the changing industry environment.

Further study should be initiated by the NRC to determine if an inspection module or "contingency plan" (similar to the "strike contingency plans" generated by some of the regional offices) needs to be developed to facilitate NRC evaluation of a licensee facing financial difficulties. This will help ensure that an enhanced level of NRC oversight is provided, if appropriate, in a timely manner to assure operational safety is being maintained, and that the longer-term performance impacts of licensee actions have been appropriately evaluated.

Issue Category: 3. Inspection, Enforcement, and Assessment

Issue: 3.b Other NRC Inspection Programs

Discussion:

The NRC is in the process of developing revisions to the fuel cycle facility oversight process, including inspection, performance assessment, and enforcement. This process affects ten fuel cycle facilities: two gaseous diffusion plants, two highly enriched uranium fuel fabrication facilities, five low-enriched uranium fuel fabrication facilities, and one uranium hexaflouride production facility (See Issue Category 6). These facilities possess large quantities of materials that are potentially hazardous (radioactive, toxic, and/or flammable) to the workers, public, and environment. Similar to the reactor oversight process (ROP), the overarching objective in revising the fuel cycle facility oversight process is to establish a process that is more risk-informed and performance-based to focus on the more significant risks at fuel cycle facilities. The intent is to provide an objective and reliable basis for determining if a fuel cycle facility is safe and secure and to provide early indications of declining safety and safeguards performance.

The staff has interacted with external stakeholders through several public meetings and exchanges of documents. A work plan for revision of the fuel cycle facility oversight process, which lists the priority, sequence, and schedules for completing the oversight program revisions has been issued for stakeholder comment.

The NRC is also in the process of making the inspection program for independent spent fuel storage installations (ISFSIs) more risk-informed and performance-based. This is being accomplished in a phased approach. The short-term phase involves risk prioritizing the existing inspection procedures using available risk/consequence information and an expert panel approach, and applying inspection resources commensurate with risk and the performance history of the licensee. The longer-term phase is conceptualized to more closely align with the risk-informed inspection approach of the ROP. This would involve completing a probabilistic risk assessment (PRA) for ISFSIs and then using the PRA results to develop an inspection program, which is based on performance indicators and a significance determination process, similar to the ROP.

Preliminary Impact Assessment:

Given that the fuel cycle facility oversight process is being revised using a framework similar to the ROP, it is reasonable to expect that the new oversight process will be able to accommodate potential impacts of consolidation (refer to Section 3.a. for a discussion of the impacts of industry consolidation on the ROP). In addition, the extensive outreach effort initiated by the NRC to exchange information and obtain stakeholder feedback provides an opportunity to discuss any expected impacts from the consolidation of fuel cycle facilities on the new oversight process. Similarly, since the ISFSI inspection program is being revised using a framework similar to the ROP, it is reasonable to expect that the new program will be able to accommodate potential impacts of consolidation.

Recommended Followup:

No additional staff action beyond that recommended under Issue 6 is recommended at this time.

Issue Category: 3. Inspection, Enforcement, and Assessment

Issue: 3.c NRC Enforcement Program

Discussion:

The NRC derives its enforcement authority from the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974, as amended. The NRC exercises its statutory authority to impose enforcement sanctions in accordance with its enforcement policy described in NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions". Enforcement actions have been used as a deterrent to emphasize the importance of compliance with NRC requirements and to encourage prompt identification and prompt, comprehensive correction of violations of those requirements. Compliance with NRC requirements plays an important role in giving the NRC confidence that safety is being maintained. In the context of risk-informed regulation, compliance also plays an important role in ensuring that key assumptions used in underlying risk and engineering analyses remain valid.

With the development of the reactor oversight process (ROP), where the significance of individual non-compliance findings is evaluated using more objective criteria and the regulatory response to these findings is more predictable, the enforcement program was revised to better integrate with the ROP. This revision to the enforcement program consisted of categorizing violations into two groups. The first group consists of those violations that can be evaluated under the Significance Determination Process (SDP), with appropriate NRC action determined by the Agency Action Matrix. Issue 3.a. discusses the potential impacts of industry consolidation on the ROP. The second group includes violations related to willfulness, including discrimination; violations involving actual safety consequences, such as an overexposure to the public or plant personnel or a substantial release of radioactive materials; and violations that may impact the NRC's ability to oversee licensed activities. This issue discussion focuses on the impact of industry consolidation on the enforcement program as it pertains to violations in the second group.

As noted in other issue discussions, licensee efforts to increase efficiency of operations could result in changes to corporate policies, programs, and procedures. Since consolidation results in more reactor facilities under a single licensee's control, corporate-wide changes affect more reactor facilities and more employees. Depending upon how a licensee manages these changes, there could be an increased number of allegations, although there has been no evidence of such a trend in the industry consolidation that has taken place to date. Similarly, efforts to increase operational efficiency or actions in response to financial pressures could result in staffing reductions which could lead to more discrimination complaints. Increased numbers of allegations would translate to an increased enforcement workload, assuming that the NRC substantiates some percentage of these allegations, in whole or in part, based on the results of its investigations.

On the other hand, it is equally likely that consolidation may result in a reduced volume of enforcement actions because of stronger licensees and better managed regulatory programs. Staff experience to date with consolidated licensees has not shown any noticeable increases or decreases in discrimination complaints or other allegations or in related enforcement actions.

While measures and processes have been established to assure consistent application of the enforcement program among the regions, e.g., audits, enforcement panels, counterparts meetings, etc., those inconsistencies in implementing the enforcement program that may exist will be more apparent to cross-regional licensees. These inconsistencies may involve different

thresholds for issuing non-cited violations, distinguishing between minor and Severity Level IV violations, and reaching conclusions on alleged discrimination. This may necessitate more oversight from the Office of Enforcement to ensure similar issues are treated consistently among the regions.

Another area potentially impacted by consolidation relates to the possible employment by a licensee of an individual who was terminated at one facility, based on poor performance or wrongdoing (whether or not the individual had been issued an NRC order prohibiting his involvement in licensed activities), at another facility if the second employer is unaware of the performance or wrongdoing problem at the first facility. This would be less likely to occur in a consolidated industry with fewer licensees.

Preliminary Impact Assessment:

The impact of industry consolidation on the NRC's enforcement program relates to implementation issues vice policy issues. It appears that the NRC can address these implementation issues within the context of the existing enforcement program framework/infrastructure. The Office of Enforcement may decide to increase its audit activities in an effort to minimize inconsistencies among the regions in implementing the enforcement program. More coordination and communication between the regions and program office can help assure that the same thresholds are applied for determining if discrimination violations occurred, as well as distinguishing between cited and non-cited violations and between minor and Severity Level IV violations. Regarding the potential increase in enforcement workload stemming from a greater number of technical allegations and discrimination complaints, this situation will need to be monitored to determine if additional resources are warranted.

Recommended Followup:

Experience with the effects of industry consolidation on effective implementation of the enforcement program is limited. The NRC should continue to monitor the enforcement workload associated with discrimination complaints and technical-related allegations to determine if industry consolidation activities are influencing this workload and make resource decisions based on the monitoring results. The Office of Enforcement should maintain its oversight activities of regional enforcement program implementation to minimize inconsistencies.

Issue Category: 3. Inspection, Enforcement, and Assessment

Issue: 3.d NRC Allegation Program

Discussion:

The allegation program was established to provide a mechanism for individuals to identify safety and regulatory issues directly to the NRC. An allegation is defined as a "declaration, statement, or assertion of impropriety or inadequacy associated with NRC-regulated activities, the validity of which has not been established." The allegation program is structured to provide a comprehensive response to an alleger's concerns in a timely manner. It includes provisions to protect the identity of the alleger; to provide timely resolution of the issues specific to an allegation; and to communicate the staff's understanding of those issues, status of the staff's review efforts, and ultimate resolution of the issues in a timely manner. Industry consolidation could potentially impact these and other aspects of the allegation program.

As discussed in Issue 3.c., licensee efforts to increase efficiency of operations could result in changes to corporate policies, programs, and procedures. Since consolidation results in more reactor facilities under a single licensee's control, corporate-wide changes would affect more reactor facilities and more employees. The impact of these changes could result in larger numbers of allegations. Similarly, corporate cultural initiatives such as maintaining a safety conscious work environment (SCWE), could have a bigger impact on safety given the increased number of affected reactor sites. Additional NRC inspection may be necessary to evaluate whether a SCWE exists or was adversely affected by changes in corporate policies, programs, or procedures. In addition, reductions in licensee staff could result in an increased number of discrimination allegations.

As is the case with enforcement actions (Issue 3.c), it is equally likely that consolidation may result in a reduced number of allegations because of stronger licensee management and more effective regulatory programs. However, staff experience to date with consolidated licensees has not shown any noticeable increase or decrease in allegations.

Under the current program, the NRC may elect to refer a particular allegation to the licensee for evaluation with the licensee reporting back to the NRC on the results of its review, or decide to conduct an independent inspection to determine the validity of the allegation. If a consolidated licensee crosses regional boundaries, absent some coordinating efforts on the part of the NRC, one regional office could decide to follow up an allegation with inspection to protect the alleger's identity, while another regional office could decide to refer a similar allegation from another employee to the licensee for followup. With different approaches to following up on similar allegations, NRC staff in the respective regions may reach a different conclusion on the validity and disposition of the allegation issues, although this is unlikely. These and other potential inconsistencies in implementing the allegation program would be more apparent to cross-regional licensees.

The roles and responsibilities of NRC staff in implementing the allegation program are another area potentially impacted by consolidated licensees that cross regional boundaries. If the NRC receives an allegation concerning a programmatic issue which cross-cuts regional boundaries because it pertains to activities at multiple sites in different regions, there must be a standard method for determining which NRC organization would take the lead for followup.

Preliminary Impact Assessment:

While industry consolidation may impact some aspects of the NRC's allegation program, as described above, the impact relates to implementation issues vice policy issues. It appears that the NRC can address these implementation issues within the context of the existing NRC allegation program framework/infrastructure. For example, NRC follow-up action to address similar allegations received in different regions, stemming from corporate-wide changes to policies, programs, and procedures, may require coordination of efforts among regional offices to ensure consistency and alleger identity protection. Allegations involving programmatic issues which cross-cut regional boundaries, i.e., pertain to activities at multiple sites in different regions, can be effectively addressed by defining which internal NRC organization has the lead responsibility for follow-up. The potential increased number of allegations, including those involving discrimination complaints, as well as increased inspection activities to validate corporate cultural issues, e.g., SCWE, may require additional resources dedicated to the allegation program.

Recommended Followup:

While experience to date with the effects of industry consolidation on effective implementation of the allegation program is limited, there appears to be the need for developing guidance to assure consistent treatment of similar allegations received in different regions, and to define which organization should take the lead in addressing programmatic issues that cross-cut regional boundaries. In addition, the NRC should continue to monitor the number of allegations received to determine if industry consolidation activities are influencing this workload, through an increased or decreased number of allegations, and make resource decisions based on the results of this monitoring.

Issue Category: 4. Decommissioning

Discussion:

Nuclear industry consolidation can affect individual licensee decommissioning planning, financial assurance, and schedules for dismantling power reactor and fuel cycle facilities. Regulations applicable to decommissioning include radioactivity cleanup criteria for unrestricted and restricted release, financial assurance that funds will be available to decommission the site, decommissioning planning, and procedures for submitting applications requesting license termination. Decommissioning policy guidance for implementing the above regulations has been prepared and issued as standard format and content guides and standard review plans.

The potential impacts from nuclear industry consolidation on decommissioning planning, scheduling, and funding can vary. The most likely outcome is that industry consolidation will strengthen licensee business conditions to encourage license renewal or avoid early license termination. For example, strengthened business conditions from consolidation have allowed power reactor licensees to continue operations at some plants (e.g., Oyster Creek) that were previously being considered for decommissioning. Consolidation has and will likely continue to result in an increased interest in license renewal. Actions that extend the operation of nuclear power plants will, in general, increase the available time to fund decommissioning if sinking funds are used.

Consolidation may also result in decommissioning schedule stretch-outs to accommodate consolidated company-wide decommissioning programs. Licensees may seek process and funding alternatives not specifically addressed or allowed in current regulations, and possibly request an increased number of exemptions. Licensees may also seek financial assurance rule changes to allow stretch-outs in the time required to fully fund decommissioning trusts, on the basis that consolidated decommissioning schedules can reduce the need for full funding if plant dismantlement will take place further in the future. Adverse impacts of delaying decommissioning include uncertainties in the availability of future low-level waste disposal sites that could result in higher decommissioning costs and the possible lack of licensed disposal facilities at the time decommissioning activities take place.

Nuclear power plant licensees that are no longer rate-regulated are required by the NRC's regulations to provide means of assuring any estimated unfunded decommissioning cost through some surety, insurance, or equivalent method. The staff evaluates such changes either through license transfer applications pursuant to 10 CFR 50.80 or through biennial reports on decommissioning funding status required to be submitted by licensees.

Preliminary Impact Assessment:

License termination regulations apply to planned and premature decommissioning activities. Because regulations allow nuclear power plant licensees 60 years after permanently ceasing operations to complete decommissioning, there is substantial flexibility already allowed for consolidated utilities to delay decommissioning to take advantage of operational efficiencies. NRC staff has been able to successfully address cases involving immediate dismantlement, partial dismantlement, and delayed decommissioning alternatives.

Fuel cycle facility license termination regulations do not allow delayed decommissioning because studies have shown that delaying decommissioning of these facilities does not have a financial or radiological safety benefit. Thus, fuel cycle facility shutdowns due to industry consolidation efforts do not appear to introduce unique circumstances that require new license termination processes.

Power reactor decommissioning financial assurance regulations allow the use of sinking funds where licensees are either rate-regulated or can recover costs through the rate base (currently all States allow recovery of decommissioning costs through various rate base mechanisms; otherwise, full funding or guarantee of full funding would be required under NRC regulations). In premature decommissioning cases, full funding may not be available at the time of shutdown. However, experience with actual cases has not identified unresolvable funding issues. Reviews of power reactor licensee ownership changes include consideration of decommissioning funding. No decommissioning regulation or policy changes, other than the rulemaking to standardize trust fund provisions currently underway, appear necessary at this time to reflect industry consolidation impacts.

Fuel cycle licensee decommissioning financial assurance regulations should not be affected by industry consolidation because the regulations ensure that full funding would be available if a licensee is unable to complete decommissioning, for example due to bankruptcy or premature shutdown.

Recommended Followup:

At this time, it appears that current decommissioning regulations and policies are sufficiently flexible to accommodate situations resulting from industry consolidation. Therefore, industry consolidation appears to have no significant impact in the decommissioning area and no further effort is recommended. Some unique, unanticipated circumstances may arise in the future that result in requests for exemptions or require changes in decommissioning regulations or policies. For these situations, staff will continue to identify significant policy matters and make appropriate recommendations to NRC management.

Issue Category: 5. External Regulatory Interfaces

Discussion:

The Commission issued the "Final Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry", 62 Fed. Reg. 44071 on August 19, 1997. The policy statement established the NRC's expectations for, and intended approach to, power reactor licensees as the electric utility industry moved from an environment of rate regulation toward greater competition. In its policy statement, the Commission anticipated changes, including consolidation, in the electric utility industry. The policy statement states:

> The electric utility industry is entering a period of economic deregulation and restructuring that is intended to lead to increased competition in the industry. Increasing competition may force integrated power systems to separate (or 'disaggregate') their systems into functional areas. Thus, some licensees may divest electrical generation assets from transmission and distribution assets by forming separate subsidiaries or even separate companies for generation. Disaggregation may involve utility restructuring, mergers, and corporate spinoffs that lead to changes in owners or operators of licensed power reactors and may cause some licensees, including owners, to cease being an 'electric utility' as defined in 10 CFR 50.2.[1]

In its policy statement, the Commission recognized the primary role that State and federal economic regulators have served, and in many cases will continue to serve, in setting rates that include appropriate levels of funding for safe operation and decommissioning. The NRC took a number of actions to increase cooperation with State and federal rate and financial regulators to promote dialogue and minimize the possibility of rate deregulation or other actions that would have an adverse effect on safety. The policy further elaborated on NRC's intent to continue to work and consult with the State public utility commissions, individually or through the National Association of Regulatory Utility Commissioners (NARUC), and with the Federal Energy Regulatory Commission (FERC) and other federal agencies to coordinate activities and exchange information. This increased level of interaction and consultation has also been beneficial to the NRC in industry consolidation efforts.

Several regulatory agencies at the federal and State level have jurisdiction over, or interest in, nuclear industry consolidation. Issues concerning nuclear industry consolidation and license transfers (see Issue 2.a.) involve a number of entities besides the NRC, including, as appropriate, State public utility commissions, the Department of Justice (DOJ), FERC, the Securities and Exchange Commission (SEC), and the Federal Trade Commission (FTC).

Traditionally, State public utility commissions have had jurisdiction over electric utilities with the general responsibility to assure safe, reasonable and adequate service at rates which are just and reasonable to customers and the utilities. DOJ is responsible for maintaining competitive markets by enforcing federal antitrust laws. Among other things, FERC has responsibility for regulating the transmission and sale of wholesale electricity. SEC administers federal securities laws that seek to provide protection for investors and to ensure that securities

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[1] Section 50.2 defines "electric utility" as "any entity that generates or distributes electricity and which recovers the cost of this electricity, either directly or indirectly, through rates established by the entity itself or by a separate regulatory authority. Investor-owned utilities, including generation and distribution subsidiaries, public utility districts, municipalities, rural electric cooperatives, and State and federal agencies, including associations of any of the foregoing, are included within the meaning of 'electric utility.'"

markets are fair and honest. The role of the FTC is to maintain the competitive enterprise and to prevent the free enterprise system from being fettered by monopoly or restraints on trade or corrupted by unfair or deceptive trade practices. The NRC has worked with FERC, SEC and DOJ to develop methods by which the NRC can minimize the duplication of effort on antitrust reviews and still carry out its statutory responsibilities. For example, NRC recently amended its regulations to clarify that it will no longer require owners of operating nuclear power plants to include antitrust information in license transfer applications, eliminating duplication of a review performed by other federal and State agencies. However, NRC continues to require antitrust information for new license applications (see Issue 8.b.). NRC is supporting legislation to eliminate its antitrust review mandate. Other such jurisdictional issues (i.e., antitrust and merger reviews by multiple jurisdictions) between regulatory authorities may emerge as a result of further industry consolidation.

In addition, industry consolidation may affect NRC's interfaces with other federal and or State agencies having collateral jurisdiction, responsibility or interest in nuclear licensees. Potential consolidation issues discussed elsewhere in this document have external regulatory interface elements. These issues include: high-level radioactive waste and low-level radioactive waste management (see Issue 1.d. - Department of Energy (DOE), Environmental Protection Agency (EPA) and State agencies), spent fuel storage and transportation (see Issue 1.c. - DOE, Department of Transportation and State agencies), decommissioning (see Issue 4. - EPA and State agencies) emergency preparedness (see Issue 1.e. - Federal Emergency Management Agency and the associated State agencies) and grid stability and reliability (see Issues 1.f. and 8.a. - DOE and FERC).

Nuclear industry consolidation may also have additional impacts on NRC's interactions with external regulatory agencies. For example, new license applications (see Issue 2.b.) and license renewals (see Issue 2.c.) require consultation or interaction with a number of federal, State and local governmental agencies in the preparation of the environmental impact statement. In the event of bankruptcy (see Issue 7.e.), to ensure that NRC's interests and responsibilities and a licensee's obligations with respect to public health and safety are properly recognized, NRC would ask DOJ to intervene on behalf of the NRC in any bankruptcy proceeding.

Preliminary Impact Assessment:

As identified in the Commission's policy statement, the NRC took a number of actions to increase cooperation with State and federal rate and financial regulators to minimize the possibility that rate deregulation or other actions would have an adverse effect on safety. This open dialogue with these regulators has been helpful in minimizing potential adverse effects on nuclear safety as a result of electric utility industry deregulation and restructuring by assuring appropriate levels of funding for safe nuclear power plant operation and decommissioning. As electric utility industry consolidation continues, a reassessment may be needed of its impact on NRC's interfaces with other regulatory bodies at the federal and State levels in approving license transfers.

Recommended Followup:

There does not appear to be a need for any additional near-term action to address the potential impacts of industry consolidation on NRC's external regulatory interfaces. However, NRC interaction and dialogue with other federal and State regulatory authorities, including national associations representing these authorities, as well as foreign regulatory authorities, should continue in order to identify emerging policy issues related to new trends in industry consolidation. In addition, NRC should continue to consult with its stakeholders to identify

emerging policy issues that could affect NRC's interfaces with other State and federal regulatory bodies in approving license transfers.

Issue Category: 6. Fuel Cycle Facilities

Discussion:

Industry consolidation activities are occurring throughout the entire fuel cycle as global market conditions become more competitive and force companies to eliminate excess capacity and less economically beneficial operations. Consolidation of fuel cycle facilities has occurred in the past, as most recently experienced in the Westinghouse and ABB merger, which is resulting in the closure of the former ABB fuel fabrication operation (CE Nuclear Power) in Hematite, MO. Other significant past consolidations include Westinghouse and BNFL, Framatome's purchase of the B&W fuel operation, and the reorganization of GE with its Japanese shareholders to create Global Nuclear Fuels (GNF).

Even in light of this recent flurry of consolidations within the nuclear fuel cycle, this consolidation trend appears to be continuing. The staff is currently reviewing an application for the transfer of ownership and control of a materials license as a result of the planned merger of the world-wide nuclear businesses of Siemens AG (Siemens) and Framatome S.A. (Framatome). Also, information from licensees indicates that the Honeywell facility will be acquired by General Electric; and the fact that the United States Enrichment Corporation (USEC) is planning on closing portions of the enrichment cascade at the Portsmouth Gaseous Diffusion Plant and turning them over to the Department of Energy within the next year, coupled with the expiration of USEC stock ownership restrictions in July 2001, may make them a target for acquisition. In addition, due to low uranium market prices, uranium mining and milling companies throughout the world are discussing consolidation, which may lead to further consolidation or possible closure of U.S. fuel cycle facilities that are not fiscally viable under increased global competition. New construction may also involve multiple corporations pooling their resources to build new fuel facilities, as evidenced by Duke, Cogema, and Stone & Webster's plan to build a mixed oxide (MOX) fuel fabrication facility at the Savannah River site.

All commercial nuclear fuel facilities in the United States are required to be licensed or certified by the NRC. Existing domestic fuel facilities are divided into three groups: those that involve the processing of uranium ore into uranium hexaflouride (UF_6); those that enrich the UF_6 in the ^{235}U isotope; and those that fabricate enriched uranium into nuclear reactor fuel. The NRC issues and maintains licenses or certificates for fuel facility operators to authorize their possession and use of source, special nuclear, and byproduct material in accordance with the requirements promulgated in 10 CFR Parts 40, 70, 73, 74, and 76 upon NRC approval of the license or certificate applications. Certain facilities are also subject to Agreement State regulation for source and byproduct materials.

The potential impacts from further fuel cycle industry consolidation will depend on the licensee and the objectives of the consolidation. In cases where a consolidated facility can operate in a more profitable environment, license renewal applications may be submitted to the NRC. Recent inquiries during the ongoing Siemens/Framatome merger indicate that the consolidated company may want to license both facilities under one license, thereby avoiding an additional license fee. Staff is currently preparing a Commission paper that describes the NRC fee methodology and associated constraints on agency action in order to reduce unnecessary burden, while making regulatory improvements, especially for a declining licensee population. In other cases, the economics of the newly formed conglomerate may lead to facilities closing down, as in the case of the Westinghouse/CE Hematite merger, which would require decommissioning on an earlier schedule than previously forecasted.

In addition, the staff is currently considering whether to realign the fuel cycle inspection program partly because of the trend in industry consolidation, but also to attain improved

efficiency and effectiveness. This may involve a range of options, including consolidation of the program in a region, consolidation within NMSS, or maintenance of the status quo.

Preliminary Impact Assessment:

The NRC has addressed fuel cycle consolidations in the past, and in all cases the existing regulations and NRC staff resources have been sufficient to ensure the safety of the facilities involved in the mergers. However, due to the consolidation and decommissioning of fuel cycle facilities, there is now only one domestic source of uranium ore conversion to UF_6 (Honeywell), and within the next fiscal year there will only be one domestic source of UF_6 enrichment (Paducah Gaseous Diffusion Plant). If either of these plants were to close, there could be significant impact on the three remaining civilian nuclear fuel fabricators, and likewise on the entire nuclear industry due to domestic fuel unavailability.

Although the fuel fabrication field has become fairly narrow, with only a handful of fuel cycle facilities now in operation, further consolidation of companies is not out of the question. The international conglomerates BNFL and Cogema have been aggressively acquiring a wide range of fuel cycle operations around the world, which would seem to indicate that they intend to become the predominant companies in the marketplace. Although foreign ownership and transfer of companies is not uncommon in the fuel cycle, complete reliance on foreign sources for nuclear fuel may need to be addressed. This may have national security implications, as noted by Congress and by the FY2001 Energy and Water Appropriations Act, which required DOE to assess the implications for uranium conversion and enrichment.

There are other impacts of fuel cycle facility industry consolidation on NRC oversight and regulation of the industry. For example, although the Commission approved staff plans to proceed with a rulemaking to establish a stand-alone, risk-informed, and performance-based rule for uranium recovery in August 2000, because the number of facilities to which the rule would apply has reduced significantly since the staff originally made the recommendation, and the potential future for uranium recovery is bleak over the next several years, the Commission has directed the staff to develop guidance rather than rulemaking.

Recommended Followup:

Many of the impact assessments discussed in other areas are applicable to licensed fuel cycle facilities as well as licensed reactor sites. NRC experience in handling past and pending consolidations within the fuel cycle industry has demonstrated that the existing regulations, guidance, and processes have been able to handle the various consolidation efforts. No obvious impacts from industry consolidation were identified that could affect the staff's future ability to regulate fuel cycle facilities. However, two followup efforts are recommended. Staff should consider options to consolidate the fuel cycle inspection program, in parallel with efforts to revise the oversight process and the ongoing Phase II Byproduct Materals Review. Staff should also stay aware of pending competition-related business decisions by licensees such as those to shut down portions of operations and outsource that work, similar to what is currently happening at Global Nuclear Fuels-Americas, which is shutting down its uranium recovery circuit and is planning on sending their waste for processing by other facilities. This is to enable the staff to plan for the necessary resources to process the licensing actions that may follow such decisions.

Issue Category: 7. Financial

Issue: 7.a Foreign Ownership

Discussion:

This issue addresses potential unique concerns associated with foreign ownership of reactor facilities that might occur as a result of industry consolidation.

The Atomic Energy Act of 1954, as amended, and the NRC's regulations in 10 CFR 50.38 provide that any person who is a citizen, national, or an agent of a foreign country, or any corporation, or other entity which the Commission knows or has reason to believe is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government, shall be ineligible to apply for and obtain a license. The NRC staff evaluates license transfer applications that involve foreign ownership considerations by using the Final Standard Review Plan (SRP) on Foreign Ownership, Control, or Domination, which was issued on September 28, 1999. In addition, the NRC is required to make a finding that the approval and issuance of a licensing action, including license transfers, would not be inimical to the common defense and security of the United States.

Ownership of domestic operating nuclear power plants has been explored by several foreign utilities. One joint venture, AmerGen, was formed to buy domestic nuclear power plants. This venture was structured as a joint partnership with a U.S. utility owning 50% and a foreign entity owning 50%.[2] Based on a "negation action plan" developed pursuant to the SRP to mitigate foreign ownership, control, or domination, the NRC found that the foreign partner did not control or dominate the safety-related decision making related to the plant. Based on this assessment, the NRC was able to approve AmerGen's purchase of Three Mile Island, Unit 1, as well as subsequent license transfers involving AmerGen. The NRC has similarly analyzed proposals by other entities with some degree of foreign involvement. As industry consolidation progresses, it is anticipated that there will be additional situations in which foreign organizations seek to acquire domestic nuclear power plants and domestic utility organizations. However, the Atomic Energy Act significantly inhibits any foreign acquisitions and the NRC's review will be performed within these constraints as reflected in the Commission's regulations and the SRP. Since 1999, the Commission has developed and submitted proposed legislation that would remove restrictions on foreign ownership. Senator Domenici has introduced in the current session of Congress, S. 472, "Nuclear Energy Electricity Assurance Act of 2001," which, among other things would eliminate the foreign ownership restrictions for nuclear power plants.

Preliminary Impact Assessment:

Industry consolidation is not likely to have an impact on the complexity of the NRC's process for evaluating foreign ownership, control, or domination. An applicant for several plant licenses would be required to meet the same standards as a single-plant applicant to address any foreign ownership, control, or domination issues in a negation action plan pursuant to the SRP. For example, AmerGen has bought three U.S. nuclear plants so far and has bid on several others. The NRC's review of AmerGen's additional acquisitions essentially followed the same template laid out in AmerGen's initial acquisition. A suitable negation action plan would also likely allow the NRC to make its required findings.

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[2] Other than 100 percent ownership by a foreign entity of a U.S. nuclear reactor, there is no pre-established limit above which foreign ownership would be absolutely prohibited.

At this time, it appears that current financial regulations and policies are sufficiently flexible to accommodate situations associated with foreign ownership resulting from industry consolidation, within the provisions of current law.

Recommended Followup:

No further effort is recommended at this time.

Issue Category: 7. Financial

Issue: 7.b License Fee Structure

Discussion:

Since FY 1991, the NRC has been required by the Omnibus Budget Reconciliation Act of 1990 to recover approximately 100 percent[3] of its budget, less any amount appropriated to the Commission from the Nuclear Waste Fund and the General Fund, by assessing fees. Additionally, in recent Appropriations Acts, Congress has permitted NRC to perform certain limited activities that are not subject to fee recovery.

The NRC assesses two types of fees to recover its budget authority. First, license and inspection fees, established in 10 CFR Part 170 under Title V of the Independent Offices Appropriation Act of 1952, recover NRC's costs for special services rendered to an individual licensee or applicant. These services include things like inspections and review of applications for the issuance of licenses (new, amended, or renewal). Second, annual fees, established in 10 CFR Part 171 under the authority of the Omnibus Budget Reconciliation Act of 1990, recover generic and other regulatory costs not recovered through 10 CFR Part 170 fees. The generic and other regulatory costs are allocated to classes of licensees on an annual basis.

Continued consolidation is expected to result in fewer owners having more licenses under their domain. It does not appear that industry consolidation will have an effect on the total number of licenses held by the industry.

Preliminary Impact Assessment:

NRC's assessment of fees is based on the filing of a request for NRC review and approval, or the existence of an NRC license or approval for individual facilities or licenses. There does not appear to be a need to change NRC's fee structure at this time due to industry consolidation.

Recommended Followup:

Since there is no significant impact, no further effort is recommended at this time.

[3] In order to address fairness and equity concerns related to charging NRC licensees for agency expenses that do not provide a benefit to the licensee, the FY 2001 Energy and Water Development Appropriations Act requires that 98 percent of the NRC's new budget authority, less the appropriations from the Nuclear Waste Fund and from the General Fund, be collected from fees in FY 2001, decreasing by 2 percent per year to 90 percent by FY 2005.

Issue Category: 7. Financial

Issue: 7.c Insurance

Discussion:

This issue is concerned with whether industry consolidation will affect the availability and maintenance of insurance and indemnity for both off-site and on-site coverage.

The Atomic Energy Act of 1954, as amended, and the NRC's regulations at 10 CFR Part 140 require licensees to provide financial protection for the off-site consequences of accidents at nuclear power plants. Insurance and indemnity programs have been developed to provide coverage for third-party liability claims that may arise from any accidents that may occur. Coverage includes $200 million of primary insurance from commercial insurers. In addition, each power reactor licensee is required to provide secondary financial protection through an agreement to pay a retrospective premium that would, if necessary, be assessed against each power reactor licensee up to a maximum of $88 million per reactor per accident, with an annual cap of $10 million per reactor. The total available financial protection currently available is about $9 billion per accident.

In an August 1998 report to Congress, the NRC recommended that consideration be given to doubling the current retrospective premium from $10 million to $20 million annually (as well as raising the $200 million primary level of private insurance). The NRC was concerned that the 1998 forecast of a significant number of early plant shutdowns would decrease contributions to the retrospective pool. However, in his May 2001 Congressional testimony related to renewal of the Price-Anderson Act, Chairman Meserve reversed the 1998 recommendation in light of the much more optimistic current industry projections for license renewal.

In addition to Price-Anderson, 10 CFR 50.54(w) requires power reactor licensees to provide on-site property damage insurance of $1.06 billion per unit. The NRC imposed this requirement after the Three Mile Island, Unit 2, accident in order to ensure that licensees had sufficient funds to stabilize and clean up a reactor site after an accident. The insurers and insured in the industry adopted a retrospective premium methodology (similar to Price-Anderson) to reduce the up-front premiums associated with on-site insurance. The insurers have performed their own assessments of license transfer applicants' ability to pay retrospective premium assessments. The NRC's policy has been to accept, although not necessarily endorse, the use of retrospective premiums for on-site insurance since it was developed in the early 1980s.

Preliminary Impact Assessment:

With respect to Price-Anderson liability coverage, each reactor that a licensee owns will expose it to a potential retrospective premium assessment of $10 million per year. For example, in the event of a major accident, a licensee with 20 reactors could be required to pay retrospective premiums of $200 million annually for about 9 years. If a major accident forced the shutdown of a class of reactors for safety reasons, a consolidated licensee could lose a portion of its primary source of revenue for paying its retrospective premiums.

With respect to on-site insurance, licensees are also exposed to potential retrospective premium payments. These payments would be in addition to the retrospective premium payments required to be made under the Price-Anderson system and could impose additional financial stress on some licensees. Licensees with several plants will likely have access to a greater revenue stream than licensees with fewer plants. Nevertheless, the impact of being required to pay retrospective premiums for many units could be significant if a licensee was otherwise financially stressed.

The NRC has programs in place to evaluate a licensee's or license applicant's ability to pay retrospective premiums for both liability and on-site insurance. With respect to license transfers, this evaluation is part of the safety evaluation that the staff prepares to support approval (or denial) of license transfer applications. In addition, licensees are required pursuant

to 10 CFR 140.21 to demonstrate annually that they are able to pay retrospective premiums for their reactors that may be assessed under the Price-Anderson system.

However, for those licensees not involved in license transfers, there is no requirement similar to that under 10 CFR 140.21 for licensees to demonstrate annually their ability to pay on-site insurance premiums. With industry consolidation, the potential burden of such retrospective payments on licensees, especially when coupled with Price-Anderson retrospective payments, could be significant.

Recommended Followup:

Since a potentially significant impact has been identified, consideration should be given to developing a rulemaking to establish an annual requirement to demonstrate the licensee's ability to pay on-site retrospective insurance premiums specified in 10 CFR 50.54(w), in parallel with those in 10 CFR 140.21.

Issue Category: 7. Financial

Issue: 7.d Joint and Several Regulatory Responsibility

Discussion:

The NRC views all co-owners as co-licensees who are responsible for complying with the terms of their licenses. Co-owners and co-licensees generally divide costs and output from their facilities by using a contractually-defined, pro rata share standard. The NRC has implicitly accepted this practice in the past and believes it should continue to be the operative practice. Most power reactor owners and operators believe that each co-owner should be limited to its pro rata share of operating costs and decommissioning expenses and that the NRC should not look to one owner to "bail out" another owner by imposing joint and several liability on the co-owners. Joint and several liability refers to the legal doctrine of holding all or any one of the co-owners financially responsible for the default of any co-owner.

The Commission addressed the issue of joint and several liability by nuclear power reactor licensees in its "Final Policy Statement on the Restructuring and Economic Deregulation of the Electric Utility Industry" 62 Fed. Reg. 44071 (August 19, 1997). The Commission stated that it

> reserves the right, in highly unusual situations where adequate protection of public health and safety would be compromised if such action were not taken, to consider imposing joint and several liability on co-owners of more than *de minimis* shares when one or more co-owners have defaulted.

On July 25, 2000, the Commission denied a petition for rulemaking to amend the regulations to preclude the imposition of joint and several liability. 65 Fed. Reg. 46661 (July 31, 2000). The Commission emphasized its already articulated policy not to impose operating and decommissioning costs on co-owners in a manner inconsistent with their agreed-upon shares, except in highly unusual circumstances when required by public health and safety considerations, and that it would not seek more than pro rata shares from co-owners with *de minimis* ownership. The Commission stated, however, that granting the petition would unnecessarily limit the Commission's flexibility when highly unusual circumstances affecting the public health and safety would require action by the Commission. The Commission also noted that the term "joint and several liability" may have connotations for contract law that it did not intend to convey and that the term "joint and several regulatory responsibility" more accurately reflects the Commission's intent. Thus, the Commission stated that it will use the term "joint and several regulatory responsibility" in lieu of "joint and several liability." Id. at 46663. The Commission's policy on joint and several regulatory responsibility applies only to nuclear power reactor licensees.

Preliminary Impact Assessment:

In its recent denial of the petition for rulemaking, the Commission addressed this issue in the midst of the trend toward industry consolidation. It, therefore, is unlikely that the issue warrants reconsideration in the near future. Indeed, the trend toward consolidation arguably makes it even more important to maintain the Commission's position.

Recommended Followup:

Since there is no significant impact, no further effort is recommended.

Issue Category: 7. Financial

Issue: 7.e Bankruptcy Protection

Discussion:

This issue addresses whether industry consolidation raises unique concerns with respect to licensee bankruptcy. The provisions in 10 CFR 50.54(cc) require a licensee to notify the NRC when a voluntary or involuntary petition for bankruptcy is filed under Title 11 of the United States Code against it or its parent or affiliate. Notifications of petitions for bankruptcy are required for fuel cycle facilities under 10 CFR 40.41(f)(1) and 70.32(a)(9)(i) and for spent fuel storage licenses under 10 CFR 72.44(b)(6)(i). The NRC needs information with respect to bankruptcy filings against its licensees in order to determine whether additional action is warranted. Specifically, the NRC must be able to participate in bankruptcy proceedings when necessary to ensure the adequate protection of the public health and safety.

Preliminary Impact Assessment:

Industry consolidation, in and of itself, is not expected to increase or decrease the frequency of bankruptcy filings by licensees. However a bankruptcy filing (either under Chapter 7 or Chapter 11 of the U.S. Bankruptcy Code) by a licensee with several plants could have more wide-ranging effects than a licensee with only one or a few plants. It is likely that the NRC's reactor oversight process will detect declining plant performance caused by financial stress, including bankruptcy. However, a bankrupt licensee with several plants, each of which could possibly require increased NRC oversight, could place additional burdens on the NRC oversight process.

Additionally, a bankrupt licensee with few assets other than its nuclear plants might have difficulty in obtaining necessary funds to operate and decommission its nuclear plants even with, as is likely based on previous experience, positive actions by a bankruptcy court. (Presumably, a licensee that only owns nuclear assets would file for bankruptcy protection only because the revenues received from its power sales in an unregulated market were insufficient to cover its overall production costs. In such a situation, a bankruptcy court could do little to improve a licensee's cost structure beyond relieving it of some portion of its debt burden.) In a worst case situation, the NRC could be required to shut down the nuclear plants of a bankrupt licensee if sufficient operating funds were unavailable.

Licensees with only nuclear assets would almost certainly not be subject to rate regulation. As such, these licensees are required under NRC regulations to have decommissioning costs prepaid or otherwise guaranteed in an amount either based on NRC-stipulated generic formulas or on site-specific estimates, if greater than the formula amounts. Although unlikely, if the cost estimates did not reflect the full cost to decommission because of unforeseen difficulties in the decommissioning process, the bankruptcy of a licensee could have adverse impacts on the timing and completion of decommissioning.

Recommended Followup:

The NRC will continue to monitor licensees' financial health using the reports filed under 10 CFR 50.71(b) and financial trade press resources to determine whether any bankruptcy filings appear to be imminent. As in the past, if a licensee files for bankruptcy protection, the NRC will work to ensure that health and safety interests are adequately represented in bankruptcy proceedings. No additional action appears to be necessary at this time.

Issue Category: 7. Financial

Issue: 7.f Financial Qualifications

Discussion:

The provisions of 10 CFR 50.33(f) require that power reactor licensees demonstrate that they are financially qualified to construct and operate their nuclear plants safely. Licensees that are "electric utilities" are exempt from demonstrating financial qualifications at the operating license stage pursuant to 50.33(f). Currently, the provisions of § 50.33(f) require licensees or applicants to demonstrate financial qualifications, in essence, by showing that projected revenues exceed expenses over the first five years following the licensing action. Additionally, applicants for the transfer of the Three Mile Island, Unit 1, Pilgrim, Clinton, and other plants recently sold have provided parent company guarantees of additional operating expenses. NUREG-1577, Rev. 1, provides additional information on how licensees and applicants may demonstrate financial qualifications for initial licensing and license transfers. The issue is whether industry consolidation will affect the ability of applicants and licensees to demonstrate financial qualifications.

Preliminary Impact Assessment:

As industry consolidation proceeds, licensees with a large number of reactor units may be vulnerable to financial stress if a significant number of their units are shut down at one time or are otherwise unable to operate over sustained periods at costs less than revenues received for output from the plants. This situation could be exacerbated for licensees that are no longer diversified companies with substantial non-nuclear assets (e.g., transmission lines, distribution networks, non-nuclear generating units) to provide offsetting revenues. On the other hand, industry consolidation may actually reduce some financial risk by spreading out risk among several units -- that is, it is unlikely that several nuclear units would be shut down at the same time. The remaining operating units could provide sufficient funds to cover expenses for the shutdown plants. Of course, if a consolidated licensee had reactors predominantly of one design, and that design was found to have sufficient safety concerns to cause an extended shutdown of all the units of that design, the financial stress would likely increase significantly.

Once a plant is permanently shut down and enters decommissioning status, financial qualification for operations is no longer a health and safety issue. Rather, the issue then concerns the adequacy of decommissioning funds. However, the ability to provide safety expenditures during the transition period between a permanent shutdown and decommissioning could be affected if the licensee is financially stressed. It is not clear, at present, whether industry consolidation would positively or negatively affect access to funds during such a transition period. However, this issue has been raised in license transfer cases by petitioners to intervene.

In 1997, in SECY-97-253, the staff proposed to conduct a rulemaking, among other things, to require sufficient financial resources in certain reactor license transfer cases to assure funding for the transition from cessation of operations to the beginning of decommissioning, but the Commission did not approve the proposal. In SECY-98-153, the Commission again considered the issues related to reactor financial qualifications in light of industry restructuring and decided to delay that rulemaking in its SRM dated December 9, 1998. The current standard review plan (SRP), based on the current rules, requires only that the non-utility license transfer applicant comply with the same financial qualifications standards as for a non-utility operating license applicant: it must submit estimates of annual operating costs for each of the first 5 years of operation of the facility and indicate a source of funds to cover the operating costs.

However, the current *de facto* situation is different. One entity, Amergen, has "voluntarily" set up a $200 million reserve for the plants it has or is planning to acquire. Within the $200 million it has apparently established specific funds for specific reactors, and it has pointed to those funds in State Public Utility Commission proceedings as "assurance that at least that amount will be available specifically to assure for the transition from cessation of operation of Vermont Yankee to the beginning of its decommissioning." (*Nucleonics Week*, Volume 41, Number 23, June 8, 2000, at page 5.) The Commission, in its recent license transfer decisions has specifically acknowledged the staff practice of capturing these "voluntary" offers in license conditions.

Recommended Followup:

The potential impacts of industry consolidation on licensees' financial qualifications are uncertain at present. There doesn't appear to be a need for any immediate response, but the NRC should continue to evaluate its financial qualification requirements for the transition period between permanent plant shutdown and decommissioning to determine whether any changes are needed to 10 CFR 50.33(f).

Issue Category: 8. Non-NRC Regulatory Considerations

Issue: 8.a Grid Stability/Reliability

Discussion:

As discussed in Issue 1.f, reliability of off-site power and grid stability are safety-significant issues. There is a large and diverse combination of situations possible when the issues of nuclear industry consolidation, economic deregulation, and separation of generation and transmission functions are considered simultaneously. A consolidation of companies may occur with or without economic deregulation. The parties involved in a deregulated electrical industry could include companies generating electricity, regulated entities such as an Independent System Operator in charge of transmission and distribution, and regulatory agencies such as the Federal Energy Regulatory Commission which may have significant impacts on the market environment in which nuclear power plants operate. Given the complex range of possibilities coming into play in a market environment, the effects on grid stability/reliability cannot be predicted with any confidence. It is prudent to monitor grid stability around nuclear power plants and anticipate scenarios that may require NRC actions.

Deregulation and restructuring of the electric power industry prompted the NRC to conduct studies and initiate interaction with entities such as the National Electricity Reliability Council. A Commission paper was issued on May 11, 1999, on “Effects of Electric Power Industry Deregulation on Electric Grid Reliability and Reactor Safety” (SECY-99-129). A study was commissioned at the University of Wisconsin to examine how deregulation has worked in other industries relative to safety. The staff also responded to grid-related events that have occurred at some plants by getting stakeholders such as the Nuclear Energy Institute and Institute of Nuclear Power Operations involved in discussions regarding industry-sponsored initiatives, and the adequacy of the existing regulatory requirements, such as those in General Design Criterion 17. On the basis of the insights gained so far, it appears that grid reliability issues are primarily a consequence of economic deregulation rather than industry consolidation. This was demonstrated by the California experience of the 2000-2001 time period.

Preliminary Impact Assessment:

Experience in other industries has shown that the transition phase from a regulated to a de-regulated activity is often accompanied by unanticipated difficulties. This may be the case with the impacts of deregulation on electrical grid performance. Prior to consolidation and economic deregulation, licensees of nuclear power plants were “utilities” who controlled both the generating plants and the distribution grid. With consolidation and economic deregulation, these two functions are generally within separate corporate entities. Thus, NRC licensees may no longer have direct control of the grid; and NRC regulations which addressed grid reliability by the licensee would not apply to the grid operator.

At this time, operational experience appears to indicate that grid stability/reliability will be strained without additional capacity in transmission and generation. In a deregulated market, if sufficient economic incentives are not provided for maintaining adequate reserve capacity, cost control will lead to a decrease in reserve capacity with corresponding problems during peak periods, power system disturbances, etc. The heavy cost burden of maintaining sufficient spinning reserve that does not produce revenue may or may not be transferrable to the consumer.

Reductions in system reserve margins and unregulated fluctuations may increase the likelihood of trips that can challenge safety systems in ways not considered in the plant’s probabilistic risk

assessment (PRA). Grid stability/reliability responsibility may move from the licensees to independent grid operators. The frequency and voltage level under degraded grid conditions may present safety concerns relative to supporting safety system operations. Licensees must assure that they have adequate procedures to monitor grid reliability and stability, and deal with their effects on plant operations.

Experience has shown that nuclear power plants that perform well tend to be low cost producers, thus offering strong economic incentives for the licensee to keep operations proceeding smoothly. As a consequence, licensees are likely to pay close attention to conditions outside the immediate confines of the plant. This may increase the likelihood that grid disturbances will be noticed by licensees and that they will anticipate potential problems. Additionally, if a licensee operates plants at multiple sites which feed power into a grid, there would be an incentive to assure grid stability on a company-wide basis. This is likely to lead consolidated licensees to coordinate activities among their sites to improve grid stability. For example, on-line maintenance performed at each of the sites may be coordinated to reduce the probability that more than one plant might trip off-line.

The NRC has sufficient regulatory and inspection mechanisms in place to identify and respond to nuclear safety concerns that may develop as a result of grid-related stability and reliability issues. As experience is gained with the deregulated industry, changes to the regulatory framework may be required. The NRC has informed the industry stakeholders of its concerns and has observed that organizations such as Nuclear Energy Institute and the Institute for Nuclear Power Operations are responding with their own initiatives to address the concerns. Any proposals to change the regulatory framework will be based on information from the NRC's monitoring activity as well as assessments of operational experience.

Recommended Followup:

The NRC has established communication channels with industry stakeholders and other government and non-governmental institutions to obtain accurate and timely information. The recommended followup is to monitor the developments unfolding in different parts of the country and continue the current efforts to assimilate information.

Issue Category: 8. Non-NRC Regulatory Considerations

Issue: 8.b Antitrust Considerations

Discussion:

On June 18, 1999, the Commission issued a Memorandum and Order in the Wolf Creek license transfer proceeding dismissing a petition to intervene on antitrust grounds. *Kansas Gas and Electric Co.* (Wolf Creek Generating Station, Unit 1), CLI-99-19, 49 NRC 441 (1999) (Wolf Creek). In *Wolf Creek*, the Commission "concluded that the Atomic Energy act does not require or even authorize antitrust reviews of post-operating license transfer applications, and that such reviews are inadvisable from a policy perspective." The Commission directed the staff to initiate a rulemaking to clarify the Commission's regulations to remove any ambiguities and ensure that the rules clearly reflect the views set out in the *Wolf Creek* decision. On August 18, 2000, the final rule became effective. The Commission stated that "because the Commission is not authorized to conduct antitrust reviews of post-operating license transfer applications, or at least is not required to conduct this type of review and has decided that it no longer will conduct them, no antitrust information is required as part of a post-operating license transfer application. Because the previous regulations did not clearly specify which types of applications are not subject to antitrust review, these clarifying amendments bring the regulations into conformance with the Commission's limited statutory authority to conduct antitrust reviews." 65 Fed. Reg. 44649 (July 19, 2000).

The *Wolf Creek* decision and the clarifying rule, which apply only to post-operating license transfers, eliminate antitrust reviews for transfers of facility operating licenses which occur after the issuance of the initial operating license for the facility. They do not affect the Commission's continuing statutory obligation to conduct antitrust reviews of applications for new facility operating licenses. The Commission has repeatedly sought legislation to eliminate all Commission antitrust reviews, but such legislation has not been enacted. Therefore, antitrust reviews for new facilities must continue to be conducted.

Preliminary Impact Assessment:

The Commission's decision in the *Wolf Creek* case, and the final rule affirming that decision, reflect the Commission's conclusion that the trend toward increased consolidation and deregulation in the nuclear power industry warranted a close look at the limited antitrust authority conferred upon the Commission by the Atomic Energy Act. The result was the Commission's conclusion that the Act does not require antitrust reviews for post-operating license transfers and, even if they are authorized, they no longer will be conducted as a matter of sound policy. Although that result applies only to operating license transfers occurring after the initial operating license has been issued, the Commission's policy reasons for eliminating those reviews which it was not required to conduct under the Atomic Energy Act apply equally to antitrust reviews of initial operating license applications for new facilities. It is, therefore, likely that the Commission will continue to seek legislation to eliminate all Commission antitrust reviews because such reviews duplicate responsibilities of other agencies that have more expertise in this area. Until and unless such legislation is enacted, however, antitrust reviews for new facilities must continue to be conducted. In a consolidated and deregulated industry, and where licensees are not electric utilities, those reviews could be more complex for an applicant that already owns a number of nuclear (and other electric generating) facilities. If so, the antitrust reviews conducted by the staff may require more resources than have been used for such reviews in the past.

Recommended Followup:

No further effort is recommended at this time, except that projected resource needs for new applications should account for more complex antitrust reviews.