

## **Chairman Gregory B. Jaczko, Dissenting**

### **I. INTRODUCTION**

It is with great disappointment that I offer this dissent on the order for the uncontested portion of the hearing related to Southern Nuclear Operating Co. Vogtle Nuclear Power Plant, Units 3 and 4. This action represents years of hard work by the staff of the NRC, and I would like nothing more than to celebrate the completion of their efforts and this historic license. But, ultimately, my responsibility is to make what I believe is the best decision for nuclear safety. I simply cannot authorize issuance of these licenses without any binding obligation that these plants will have implemented the lessons learned from the Fukushima accident before they operate.

### **II. DISCUSSION**

My analysis begins with the significance of the Fukushima accident. On March 11, 2011, a magnitude 9.0 earthquake, known as the Great East Japan Earthquake, occurred approximately 80 miles east of the coast of Japan and precipitated a large tsunami. These events caused widespread devastation, including extensive damage to the Fukushima Dai-ichi nuclear reactor facilities and a complete, sustained loss of electrical power to five reactors. These events had serious and unacceptable consequences, causing reactor core damage and uncontrolled releases of radioactive materials into the environment. These unprecedented and catastrophic events and their aftermath have provided real world experience that we are applying in comprehensive review of our regulatory requirements, programs and processes and their implementation.

That review is well under way and has already identified significant safety improvements. Most importantly, the review has identified safety improvements applicable to these new Vogtle reactor units that I believe must be implemented before operation to ensure adequate protection

of public health and safety. I do not support authorizing the issuance of COLs that will allow both construction and *operation*, without binding assurance that these issues will be addressed before the plant operates. Only by imposing a license condition can we ensure that all the lessons we learn from Fukushima are implemented before operation. I describe my reasoning in more detail below.

**1. Nuclear Reactor Safety Enhancements Have Been Identified Based on New Information and Insights From the Fukushima Accident**

The Fukushima accident was precipitated by natural disasters of historic proportions. For reasons not yet definitively established, the Fukushima reactor design and mitigation measures did not prevent serious consequences from these events. These events prompted us to take immediate action to address the safety of our nation's nuclear fleet. Within weeks of the Fukushima accident, the Commission established a task force responsible for making recommendations to the Commission on potential improvements to our regulatory system.<sup>1</sup> The Task Force's efforts represent an important first step in applying new insights from the Fukushima accident in our regulatory oversight of the nation's nuclear fleet.

The Task Force identified twelve overarching recommendations for improving safety of operating and new nuclear reactors.<sup>2</sup> These included measures to ensure protection against earthquakes and flooding, measures to minimize potential hazards from those events and measures to improve emergency preparedness and response.<sup>3</sup> More broadly, the Task Force recommended strengthening our regulatory framework by making it more logical, systematic

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<sup>1</sup> See "NRC Actions Following the Events in Japan," Staff Requirement—Tasking Memorandum COMGBJ-11-0002 (Mar. 23, 2011) (ML110800456).

<sup>2</sup> See *generally* Near-Term Report.

<sup>3</sup> *Id.* at 69-70.

and coherent.<sup>4</sup> Taken together, the recommendations were intended to clarify and strengthen our regulatory framework to protect against and mitigate the consequences of natural disaster, enhance emergency preparedness, and improve the effectiveness of our regulatory programs.<sup>5</sup>

We remain focused on completing a comprehensive review of the events at Fukushima and ensuring that the lessons from that review are incorporated as safety enhancements without delay. To accomplish this, we have taken steps to accelerate our review and currently expect to issue orders requiring initial actions by March 2012.<sup>6</sup> Our goal is to complete and implement the lessons learned from the Fukushima accident by 2016.<sup>7</sup>

**2. Commission Approved Safety Enhancements Must be Implemented to Ensure Reasonable Assurance of Safe Operation of New Vogtle Reactors**

In considering whether to authorize issuance of these COLs, I am mindful of the regulatory findings underlying our decision. They require us to determine, among other things, that: (1) the applicable regulations have been met, (2) there is reasonable assurance that these new reactors will be constructed and will operate in conformity with our regulations, and (3) issuance of these licenses will not be inimical to the health and safety of the public.<sup>8</sup> Based on the evidence presented during this hearing, I am convinced that the Staff's review was adequate to support those findings based on our regulatory requirements in place prior to the Fukushima accident. But that accident has fundamentally altered our understanding and appreciation of the

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<sup>4</sup> *Id.* at 69.

<sup>5</sup> *Id.* at viii.

<sup>6</sup> See Slides from Public Meeting, Status Update on Implementation of the NTF Recommendations (Jan. 13, 2012) at 9 (ML120120491).

<sup>7</sup> Staff Requirements–SECY-11-0124 at 1.

<sup>8</sup> 10 C.F.R. § 52.97.

impacts of a catastrophic natural disaster. Therefore, I consider this licensing decision in light of those events.

We have already identified Fukushima recommendations that must be taken without delay.<sup>9</sup> Our decision was premised on the Staff's assessment of which recommendations have the greatest potential for safety improvement in the near term.<sup>10</sup> The Staff then took a broader look at the recommendations in the context of our regulatory framework and formed recommendations to prioritize them based on its judgment of relative safety enhancement.<sup>11</sup> Based on its analysis of those recommendations, the Staff has proposed moving forward under the presumption that they will be implemented as adequate protection measures.<sup>12</sup> Of particular relevance here, the Staff has recommended that two be implemented before issuance of a COL.<sup>365</sup> Further, the ACRS has determined that the need for these safety improvements will not be negated or rendered inappropriate by the acquisition of new information as the Staff completes ongoing reviews and analyses.<sup>13</sup> I agree with the Staff's conclusions and path forward, but the Commission has not yet determined whether implementation will be based on adequate protection.

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<sup>9</sup> See Staff Requirements--SECY-11-0124.

<sup>10</sup> See *generally* SECY-11-0124.

<sup>11</sup> See *generally* SECY-11-0137.

<sup>12</sup> SECY-11-0124 at 6.

<sup>365</sup> Near-Term Report at 71-72.

<sup>13</sup> Abdel-Khalik, Said, Chairman, ACRS, letter to Chairman Gregory Jaczko, "Initial ACRS Review of (1) the NRC Near-Term Task Force Report on Fukushima and (2) Staff's Recommended Actions to be Taken Without Delay" (Oct. 13, 2011) (ML1129A006).

The expectation that newly licensed reactors would incorporate new, Fukushima-related safety enhancements was an implicit underpinning of our decision not to halt new reactor licensing proceedings in response to multiple petitions asking, among other things, that we stay this proceeding.<sup>14</sup> We found no imminent safety reason to halt our new reactor licensing process because there was sufficient time to implement applicable new requirements before operation, saying:

[L]icensing decisions for pending COL applications are months and, in many cases, years away and fuel loading into completed reactors is still further away; continuation of these reviews poses no immediate threat to public health and safety. Our regulatory processes provide sufficient time and avenues to ensure that design certifications and COLs satisfy any Commission-directed changes before any new power plant commences operations. This is demonstrated by the implementation strategy for new reactor licensing outlined in the Near-Term Report. When we adopt the Task Force recommendations or require more, or different, actions associated with certified design or COL applications, we have the authority to ensure that certified designs and combined licenses include appropriate Commission-directed changes before operation. We therefore find no imminent risk to public health and safety or to the common defense and security that necessitates a stay of new reactor licensing actions or adjudications.<sup>15</sup>

Now that the decision to license the first COLs is before us, we have an obligation to exercise this authority and require that all new safety enhancements be implemented before these new reactors begin operation. Knowing that new safety enhancements are under development, some of which I consider necessary for adequate protection, I cannot support authorizing operation with no more than an expectation that they will be timely implemented.

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<sup>14</sup> *Callaway*, CLI-11-5, 74 NRC at \_\_\_\_.

<sup>15</sup> *Id.* at \_\_\_\_ (slip op. at 23–25) (footnotes omitted).

### **3. The Vogtle COLs Must Require Implementation of Fukushima Safety Enhancements Before Operation**

We must include a binding requirement that all Fukushima-related safety enhancements be implemented before operation of the COLs. Unless we impose this requirement now, when the licenses are issued, we cannot be certain that they will be implemented before operation or, indeed, at all for two reasons. The first is our so-called “backfit” regulations that allow licensed reactors to avoid compliance with new safety enhancements based on considerations like implementation costs. The second is the difficulty of requiring timely compliance with new safety requirements that are not tied down in the license.

First, I will address the backfit regulations. These came about because of the evolving nature of our regulatory framework and the perception that it was causing unjustified regulatory instability and unpredictability. Over time, advances in our technical capabilities and knowledge have led to regulatory refinements that have significantly enhanced the safety of our nuclear fleet. But these improvements are not applied to every nuclear reactor. For example, when we impose new regulatory requirements that are important safety enhancements but not deemed necessary to ensure adequate protection of public health and safety, the NRC often does not require existing licensees to implement them based on considerations such as whether they are cost beneficial.<sup>16</sup> As a consequence, the design and level of protection from natural phenomena differ among existing operating reactors depending on when the plant was constructed and licensed for operation.

While I can appreciate reasons for using this approach for reactors that were designed and constructed long before the new requirements could have been anticipated, I see no reason to relieve new reactor licensees from compliance with safety enhancements that arise from our

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<sup>16</sup> See 10 C.F.R. §§ 52.98(a) and 50.109(a)(3).

Fukushima review. Only limited, safety-related construction activities have been started at Vogtle units 3 and 4.<sup>17</sup> Construction is expected to be completed in 2016,<sup>18</sup> the same year we expect to have implemented all of the Fukushima recommendations. The process of completing and implementing Fukushima-related safety enhancements is proceeding expeditiously and transparently. We expect to issue a number of orders imposing new requirements relating to flooding, seismic events and station blackouts as well as information requests<sup>19</sup> in March 2012. While the content of these orders and letters has already been discussed with licensees<sup>20</sup> they are only the initial phase of our post-Fukushima regulatory actions. As we move forward, we will continue to engage stakeholders and share our findings and initiatives. The accelerated pace of our work and the transparency of our regulatory processes will help minimize any disruptions or delays in the operation of the new reactors.

Secondly, I address the difficulty of requiring timely resolution of significant safety issues and prompt implementation of new requirements intended to address those safety issues. Our experience has shown that even when we identify serious safety concerns, licensee resolution of those concerns and implementation of necessary changes can be subject to lengthy delays. The starkest examples of these long standing safety issues are fire protection and emergency core cooling system sump performance (i.e., GSI-191). In both cases, we have longstanding compliance issues. For fire protection, compliance with our rules is necessary to ensure that a

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<sup>17</sup> The activities under way are site-preparation activities permitted by the first LWA.

<sup>18</sup> <http://www.southerncompany.com/nuclearenergy/plan.aspx>

<sup>19</sup> See generally 10 C.F.R. § 50.54(f).

<sup>20</sup> The draft 50.54(f) letters have been made available to the public. See Miller, G. Edward Project Manager, Office of New Reactor Regulation, to Robert J. Pascarelli (Jan. 13, 2012) (making publicly available the draft letter section 50.54(f) letter and enclosures) (ML12013A224) (package).

fire cannot disable or impede the function of equipment needed to safely shutdown a reactor. For sump performance, resolution of the issues is necessary to ensure that accident generated debris cannot impede the cooling of the reactor core following an accident. These long-standing safety issues have not been completely resolved for decades.

This history demonstrates the importance of using our regulatory tools to require compliance with our expectations. On the day before the Fukushima accident, any nuclear professional or regulator would likely have told you that a natural disaster causing a loss of containment at three reactors simultaneously anywhere in the world was not a credible event we need be concerned about. If nothing else, the Fukushima accident has demonstrated the potential consequences of that type of complacency. I believe one of the primary lessons we should take from the accident is the need to take proactive and decisive regulatory action. As I explain below, we have the regulatory tools to require that all Fukushima enhancements are implemented before operation in this license. We should not simply hope for the best. Any risk of incomplete implementation, delayed implementation or both is not acceptable when we have the regulatory tools to require timely and complete implementation.

**4. A License Condition is The Appropriate Regulatory Vehicle to Require Implementation of Fukushima Safety Enhancements Before Operation**

For the reasons discussed above, I am convinced we must include a condition requiring implementation of all Fukushima-related safety enhancements before operation into the COL. Anticipating the need to impose this license condition, I asked the Staff to recommend language for such a condition in my post-hearing questions. My questions followed submission of the Staff's information paper stating that the Commission could choose to adopt some or all of the Near-Term Task Force recommendations and implement them in the COLs through license



conditions or, alternatively, issue the COLs and later modify, add, or delete any terms or conditions of the COLs to reflect any new Commission requirements.<sup>21</sup>

In its response, the Staff declined to provide the requested language, citing two reasons. First, the Staff objected that the license condition would have to be drafted “such that it could not be interpreted as evidence that the staff does not have reasonable assurance of adequate protection of the public health and safety at the time the COL is issued.”<sup>22</sup> But this is not the Staff’s decision to make in a mandatory hearing—it is a decision for the Commission. And, for the reasons discussed above, I cannot find reasonable assurance without the license condition.

The Staff also said that it did not have sufficient information to draft a viable license condition. But the Staff has performed an extensive assessment of the Tier 1 Task Force recommendations to determine the regulatory activities that will be necessary to implement them along with an estimated schedule and resource impacts.<sup>23</sup> To take one example, the Staff recommended issuing orders requiring licensees to reevaluate and upgrade seismic and flooding protection of structures systems and components for each operating reactor.<sup>24</sup> The Staff concluded that current regulatory guidance is sufficient to permit licensee reevaluations,<sup>25</sup> and suggested continued stakeholder interactions to discuss and define how compliance can be

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<sup>21</sup> See Ex. NRC00003, Staff Testimony, at 9.

<sup>22</sup> See Ex. NRC000015, Staff Post-Hearing Response, at 12.

<sup>23</sup> SECY-11-0137.

<sup>24</sup> Enclosure to SECY-11-0137, “Staff Assessment and Prioritization of NTTF Recommendations,” at 4.

<sup>25</sup> *Id.* at 5.

achieved.<sup>26</sup> This regulatory recommendation, like those for the remaining Tier 1 recommendations, is sufficiently concrete and specific to include in a license condition.

While we do not yet know the precise details of all new safety requirements, this does not—as the Staff suggests—mean that this license condition would be invalid. All Fukushima-related requirements are subject to review and approval by the Commission and will be implemented through our normal regulatory processes. By the time verification is necessary, we will know the precise details of those requirements. This satisfies the test set forth by the Commission in *Private Fuel Storage, L.L.C. (Independent Spent Fuel Storage Installation)*, CLI-00-13, 52 NRC 23, 34 (2000), that the Staff verification be a straightforward matter of applying a defined set of requirements, i.e., a ministerial action. I do not consider the fact we do not yet know the precise details of all those requirements to be an obstacle from requiring this or any other new licensee from coming into compliance before initiating operations. Most importantly, the timing of when those details are developed does not diminish the ability of a license condition to ensure compliance. All licensees must comply—at all times—with the conditions of their licenses. In contrast, as I discuss above, regulations issued after the license can be subject to “backfit” exceptions and, in practice, lengthy delays in licensee compliance. Therefore, a license condition is the strongest regulatory tool for ensuring that all Fukushima-related safety enhancements are imposed before operation.

My judgment is informed by the Commission’s actions following the most serious accident at a reactor in the United States, the Three Mile Island (TMI) accident that occurred on March 28, 1979. Like Fukushima, the TMI accident prompted us to undertake a comprehensive reassessment of the safety of the operations of our nation’s nuclear reactors. While that was

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<sup>26</sup> *Id.* at 6.

under way, the Commission implemented a “licensing pause” to ensure that lessons learned from the accident were appropriately accounted for with respect to operating reactors and new reactor applications that were under review.

The comprehensive review following the TMI accident, like our review of the Fukushima accident, resulted in recommendations for significant safety enhancements. Following TMI, the Commission expressly considered the applicability of those recommendations to pending license applications for operation of new nuclear reactors. The Commission identified near term recommendations that new operating licensees would be required to implement before operation. License conditions were imposed requiring compliance with those recommendations, called “near term operating license requirements,” before fuel load. One such license<sup>27</sup> included conditions requiring completion of actions from the TMI Action Plan, Near Term Operating License (NTOL) Requirements, dated February 6, 1980.

While the license conditions described requirements generally, precise details were missing because they had not yet been developed. Notably, for all of the conditions, the license said they “shall be completed to the satisfaction of the Commission.”<sup>28</sup> The precise details concerning implementation were developed and documented later, in NUREG-0737 “Clarification of TMI Action Plan Requirements” issued in November 1980, and 10 C.F.R. § 50.34(f), “Additional TMI-related requirements,” promulgated in January 1982.<sup>29</sup>

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<sup>27</sup> Ross, D.F., Office of Nuclear Reactor Regulation, NRC, letter to J.H. Ferguson, Virginia Electric and Power Co. “North Anna Power Station, Unit No. 2 – Issuance of License NPF-7” (Apr. 11, 1980) (ML013520351).

<sup>28</sup> *Id.* at 5.

<sup>29</sup> See Final Rule, Licensing Requirements for Pending Construction Permit and Manufacturing License Applications, 47 Fed. Reg. 2301 (Jan.15, 1982).

Thus, within one year of the TMI accident, the Commission had not only identified the actions that needed to be implemented to improve safety, but had taken decisive regulatory actions to ensure those actions would be implemented prior to the operation of new reactors. Then, as now, we had identified actions to enhance safety but had not yet developed all of the implementing details. I believe we should follow that example by imposing a license condition requiring that all Fukushima recommendations are implemented before these new reactor units are allowed to operate.

Imposing this license condition should not place an undue burden on this or any future COL holder. We are working to have all Fukushima recommendations implemented by 2016, the same year that construction of these new reactors is expected to be complete. We have already shared detailed information regarding our expectations in the draft 50.54(f) letters and will continue to apprise COL applicants and licensees as our work proceeds. In this critical time, when the public is naturally rethinking the future of nuclear energy, it is essential that our actions support public confidence in the safety of our nation's nuclear reactors.

I am confident that we can authorize the issuance of these COLs now with a license condition requiring compliance with Fukushima safety enhancements before operation. If, as the Staff suggests, our regulatory processes have not proceeded to a point where we can impose this license condition, then we cannot be ready to issue these COLs. Ultimately, I cannot find reasonable assurance that these reactors will be operated safely without that requirement in the license, whether it is issued now or in the future.

### **III. CONCLUSION**

I agree with my colleagues that the Staff's review was sufficient to support issuance of these licenses under the regulatory requirements in effect before the Fukushima accident. But, unlike my colleagues, I do not believe we should authorize the operation of these new reactors without imposing a license condition that requires the implementation of all Fukushima-related

safety enhancements before operation. The recent accident at Fukushima already has, and will continue to, provide valuable information and insights that will improve our regulatory requirements, programs and processes and, with their implementation, improve the safety of our nuclear reactors. Fortunately, catastrophic accidents like these happen extremely rarely. But when they do, they provide invaluable real world experience and information about events we can normally only hypothesize and consequences we can normally only project in mathematical models. In the aftermath of the catastrophic events at Fukushima, I cannot authorize the operation of these new reactors until we fully synthesize and analyze that information and ensure that all the lessons we learn are fully implemented. If our regulatory processes have not proceeded to a point where we can require implementation before operation as a license condition, then we are not yet ready to issue these licenses.