Attachment 1

Detailed Comments on NRC's Proposed Initiative for Improving Nuclear Safety and Regulatory Efficiency

This attachment provides more detailed comments on the proposed commission initiative, Improving Nuclear Safety and Regulatory Efficiency.

Phase 1 – Existing Activities

The number of skilled PRA practitioners to perform risk assessments is limited. Currently, those limited industry and NRC skilled resources are committed to working on existing projects and the resource situation is unlikely to improve. The industry is already moving towards attaining the goal of Level 1 and Level 2 PRAs outlined in the commission's COMGEA-12-0001/COMWDM-12-0002 directive to the NRC staff.

While there is no direct regulatory requirement, licensees have developed PRAs to support various risk-informed applications. Internal events models have been developed or evaluated to the endorsed standard at all plants. NFPA 805 is the primary driver for fire PRA, although many non-NFPA 805 plants are also developing such models. Seismic PRAs are being pursued on a sequenced basis to address post-Fukushima regulatory activities. These activities cannot be performed without guidance or consensus standards. Current endorsed standards address Level 1 (core damage frequency and large early release frequency) at power for internal events (including internal flooding), fire, and external events (seismic, high winds, flooding). Plant-specific PRA development and review to the standards has proven to be a time and resource consuming process. PRA scope expansion is currently proceeding at a level that is controlled by the availability of skilled resources.

Phase 2 – Prioritization and Integrated Schedules

This phase is directly associated with the Commissioner directive, COMGEA-12-0001/COMWDM-12-0002. The directive requires the NRC staff to develop a notation vote paper for Commission consideration providing approaches for allowing licensees to propose to NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis. A prioritization and plant-specific scheduling process would improve safety by allowing plant activities to be scheduled according to safety impact, with the most significant activities being implemented on a priority basis.

Power reactors, fuel cycle facilities and the NRC staff have experienced a substantial expansion in regulatory workload, even prior to Fukushima despite improvement in the industry's compliance and safety record. This expansion, which has been made more acute with the onset of actions resulting from the lessons learned from the reactor accidents in Japan has increased the importance of focusing industry and NRC management attention and resources on safety significant actions. To address this

issue, the industry formed a senior working group to address the cumulative impact of industry and regulatory actions.

The industry proposes a two-step prioritization process:

1. the development of a generic process for ranking regulatory issues based on risk insights, and
2. the development of a plant-level integrated scheduling process for plant-initiated and regulatory actions based on safety significance

The generic prioritization process is intended to provide general risk insights and an indication of importance for the required regulatory action to NRC staff and plant management, as well as key considerations for plant specific consideration of the issue.

A plant-specific scheduling process would prioritize plant-initiated and regulatory actions using a process that builds on that used in the Integrated Safety Assessment Program (ISAP) of the 1980s and 1990s and is consistent with the 1992 policy statement, Integrated Schedules. This approach is generally consistent with SECY-12-0137, as directed in the associated staff requirements memorandum, as well as the Commission directive on the proposed initiative.

The industry believes that relative, risk-informed ranking of actions can be developed based on the insights from existing PRAs. The prioritization process will address the risk considerations and contributors. We do not believe full scope Level 1 and Level 2 PRAs that meet NRC endorsed consensus standards are needed to support prioritization. If the requirement for a full scope Level1 and Level 2 PRA is confirmed, it would be many years before a prioritization process could be established. The industry is developing a white paper, which expands on and justifies the risk insights approach, and this will be provided to NRC by June 30. As a longer term objective, full scope PRAs could be used to eliminate regulatory activities that are quantitatively demonstrated to have insignificant safety benefit.

The prioritization process would consist of a similar set of attributes as considered in the original ISAP program, namely:

- Public safety (e.g., radiological and non-radiological hazards)
- Plant personnel safety (e.g., industrial and radiological)
- Plant economic performance (e.g., plant availability and efficiency)
- Personnel productivity
- External impacts (e.g., regulatory).

The approach is risk-informed, not risk-based, and makes use to the extent practicable of risk insights from existing information, such as the Regulatory Oversight Process (ROP), and existing plant PRAs, along with considerations of defense in depth (DID). The process would make use of a front-end generic regulatory action ranking and prioritization, as well as a back-end plant-specific assessment.

The concept of a multi-disciplinary expert panel review similar to those employed by the Maintenance Rule (10 CFR 50.65) and 10 CFR 50.69 would be integrated into the process. An industry-sponsored guidance document, endorsed by the NRC, would be the vehicle for implementation.

Attachment 2 provides an outline of the proposed prioritization process.

The scope of the generic prioritization would include the following regulatory actions:

- Orders
- Rules
- Generic communications, including bulletins and generic letters
- Guidance documents, including Interim Staff Guidance where it applies to licensees
- Establishment of new regulatory positions
- Topical reports
- Regulatory actions emanating from inspections

The scope of the plant-level integrated schedule would include all applicable regulatory actions plus plant-initiated actions for the period under assessment. At predetermined intervals or as new issues and topics are identified for inclusion within the assessment period, additional prioritization and scheduling activities would occur. Discussions have started on the process for obtaining regulatory endorsement of the prioritization and integrated scheduling processes and on the regulatory process for adjusting the plant-level integrated schedules.

As the prioritization and integrated scheduling processes are more fully developed, the NRC and industry need to be mindful of potential regulatory hurdles that may arise as a result of attempting to make changes to schedules that were originally imposed through a wide range of regulatory vehicles such as rulemaking, orders, licenses, etc. It would be a great disincentive for licensees to move forward with an integrated schedule if such a proposal would require using a wide range of regulatory vehicles (e.g. exemption requests, license amendments, order modifications, etc.) to obtain NRC approval. Part of our attention is focused, therefore, on ensuring that integrated schedules can be proposed and approved in the most efficient and least burdensome way possible, but which appropriately observes the existing legal framework and the NRC's desire to maintain an enforceable regulatory footprint. We will continue to work with the NRC staff and Office of the General Counsel to reach consensus on an approach that appropriately balances all interests.

A provisional schedule for developing and piloting the regulatory generic prioritization and the plant-level integrated scheduling processes is shown below.

Development of a White Paper, a process description of the prioritization processes	June 30 2013
NRC review and regulatory interactions on the White Paper	July- August 2013
If there is a common understanding on the general approach, assemble pilot plants and develop draft detailed implementing guidance, interacting with NRC at periodic intervals	August – December 2013
NRC endorsement of guidance sufficient to start pilot activities with NRC involvement	December 31 2013
Conduct pilot activities, interacting with NRC staff	January – June 2014
Update guidance and submit final guidance for NRC endorsement	July – December 2014

Phase 3 – Future Risk-Informed Applications

There are limited numbers of skilled PRA resources and these are committed to working on phase 1 and phase 2. Once the industry has moved beyond the piloting of phase 2 we will have the resources and time to assess the incentives and benefits of moving towards a further expansion of PRA activities, phase 3. To undertake such a task now would be an unnecessary diversion of resources from matters of higher priority.

Attachment 2

Addressing Cumulative Impact through Generic Prioritization and Plant-Level Integrated Schedules

Phase 2 of Commission's Proposed Initiative for Improving Nuclear Safety and Regulatory Efficiency

Outline

Executive Summary

- Phase 1 is existing PRA activities that are under development and being implemented.
- Phase 2 uses existing information and processes, adapted as appropriate, for the prioritization of industry and regulatory actions and issues. It is a risk-informed, phased approach: front-end, generic prioritization of regulatory issues; back-end, plant-specific integrated scheduling of plant-initiated and regulatory actions.
- Phase 3 would include a broader scope of Level 1 and Level 2 PRA models that would enable the NRC and industry to seek additional safety benefits.
- However, the phases are not disconnected. If new PRA models or refinements in existing PRA models are appropriate to support prioritization of specific issues, such new or refined models would support a transition to Phase 3, or could be referred to as Phase 2 Plus.

1.0 Background

1.1 Early NRC and Industry Initiatives

- SECY-84-133, Integrated Safety Assessment Program (ISAP)
- Generic Letter (GL) 85-07, "Implementation of Integrated Schedules for Plant Modifications"
- NSAC-90, "Developing a Living Schedule, Fundamental Concepts," Final Report, Delian Corporation, August 1985
- 57 FR 43886, NRC Policy Statement on Integrated Schedules, published September 23, 1992
    - In response to stakeholder comments, the provision for a license condition was removed in the 1992 final policy statement

1.2 More Recent Policy-Related Documents

- SECY-11-0032, cumulative effects of regulation
- COMGEA-12-0001/COMWDM-12-0002
- SECY-12-0137, "Implementation of the Cumulative Effects of Regulation Process Changes"

2.0 Consideration of Existing or Adapted Processes to Address Prioritization of Regulatory and Plant-Identified Actions

2.1 ISAP-like Process

- Public safety (e.g., radiological and non-radiological hazards)
- Plant personnel safety (e.g., industrial and radiological)
- Plant economic performance (e.g., plant availability and efficiency)
- Personnel productivity
- External impacts (e.g., regulatory)

2.2 Maintenance Rule-like Approach

- Expert panel

2.3 Risk-informed SSC Categorization and Special Treatment-like Approach

- Defense-in-depth assessment
- Integrated Decision-making Panel

2.4 Backfit Rule and Regulatory Analysis

- NUREG-1409, "Backfitting Guidelines"
- NUREG/BR-0058, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission,"

2.5 Generic Safety Issue Prioritization

- NUREG-0933, "A Prioritization of Generic Safety Issues"

2.6 SAMA/SAMDA

- NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants"

2.7 ROP

3.0 Key Characteristics of a Process

- A structured, robust process
- Transparency
  - Need to consider security and financial/proprietary
- Simplicity
- Piloting
- Performance monitoring and feedback
- Process for prioritization of regulatory actions and a process for integrated implementation scheduling
- Risk-informed, not risk-based
- Qualitative considerations of defense in depth
- Include expert panel

4.0 Industry's Proposed Approach

4.1 Overview

- ISAP-like approach
- Consider the NRC 1992 Policy Statement on Integrated Schedules and NSAC-90

- Multi-disciplinary expert panel plant-specific review

4.2 Improved Risk Understanding and Modeling

- IPE and IPEEE
- ASME/ANS PRA standards
- Risk-informed regulation (e.g., RG 1.174)
- Improved EOPs, development and implementation of SAMGs
- Maintenance Rule implementation
- Reactor Oversight Process
- Fire PRAs developed for NFPA 805 and other applications
- SAMAs as part of license renewal
- B.5.b – 10 CFR 50.54 (hh)(2)
- Post-Fukushima Actions (FLEX)

4.3 High-Level Discussion of Proposed Processes

4.3.1 Process for Prioritization

- Progressive
- Generic prioritization
- Plant-specific prioritization
- Risk-related screening questions that mirror those in NRC's Inspection Manual Chapter (IMC) 0609 for Significance Determination Process
    - Significant impact on improving safety
    - Moderate impact on improving safety
    - Minimal impact on improving safety
    - None, i.e., no safety improvement
- Possible alternatives to a quantitative assessment based on a set of conversion factors to dollars might include:
    - Assignment of points depending on the impact of each attribute and subjective weighting
    - A multi-dimensional matrix with implicit weighting of each attribute
    - A process diagram, which builds in a priority and weighting system

4.3.2 Process for Integrated Implementation Scheduling

- Key elements
    - Outage duration
    - Resource availability
    - Budget/Cost
    - Other plant-specific and site-specific constraints
- NRC's 1992 final policy statement on integrated scheduling
    - A provision for NRC to be informed of process and schedule information at periodic intervals
    - A process for requesting schedular relief

- A process for evaluating licensee's maintenance of schedules

4.4 Scope of Applicability

- Fukushima regulatory response
- Fire protection
- Current and future generic safety issues
- Rules/orders/license conditions/generic communications and 10 CFR 50.54(f) letters
- Implementation documents (regulatory guides, interim staff guidance, and so on)
- Plant modifications (regulatory and non-regulatory)

With the following additional recommendations for inclusion

- Regulatory Issue Summary (RIS)
- Frequently Asked Questions
- Requests for additional information in context of license amendment requests
- Proposed additions of scope to license amendment requests
- NRC "positions" expressed in meeting materials and correspondence
- Inspection findings that introduce new issues

4.5 PRA Scope and Technical Adequacy Considerations

- General discussion of ASME/ANS PRA standard
- Virtually all reactor units have Level 1 and LERF internal events and internal flooding PRA models that have been peer reviewed per the ASME/ANS Standard
- For fire events at power, the majority of the reactor fleet has developed and implemented PRA models or development is underway
- A number of plants are also developing external events at power while many of the remaining plants are sequencing the development of these models to support post-Fukushima activities

4.6 Challenges

- Common understanding of the processes for prioritization and integrated scheduling
- Process should not be excessively burdensome
- License conditions should not be imposed on licensees adopting the prioritization and scheduling processes
- Interface with other ongoing regulatory initiatives including the Cumulative Effects of Regulation, Recommendation 1 of NRC's Near-Term Task Force on the Fukushima Dai-Ichi Accident, and the proposed risk-informed regulatory framework in NUREG-2150

5.0 Concluding Remarks and Path Forward

- Importance to the nuclear industry, regulatory bodies including the NRC, and stakeholders
- Builds upon the features of the 1980s era ISAP, NSAC-90, and the 1992 Commission policy statement on integrated scheduling
- Piloting beginning in the second half of calendar year 2013
- NRC-endorsed guidance 2015

References