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MEMORANDUM TO: John A. Zwolinski, Director  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

FROM: Thomas L. King, Director  
Division of Risk Analysis and Applications  
Office of Nuclear Regulatory Research

SUBJECT: REVIEW OF INDIAN POINT UNIT 2 INDIVIDUAL PLANT  
EXAMINATION OF EXTERNAL EVENTS (IPEEE) SUBMITTAL

Attached is RES's Staff Evaluation Report (SER) on its review of the Indian Point Unit 2 IPEEE submittal. Also included with the SER are the contractor's Technical Evaluation Report (TER) and a staff TER on the internal floods analysis, which the licensee submitted as part of their IPEEE. We recommend that the enclosed report be formally issued to document the staff's findings and conclusions.

A Step 1 review was performed which examined the IPEEE results for their completeness and reasonableness considering the design and operation of the plant. On the basis of this review and further review by a senior review board (SRB), the staff concluded that the aspects of seismic, fires, and high winds, floods, transportation and other (HFO) external events were adequately addressed. The SRB is comprised of RES and NRR staff and RES consultants (Sandia National Laboratories) with probabilistic risk assessment expertise for external events. The staff's review findings are summarized in the attached SER, and the details of the contractor's findings in the TER appear in an attachment to the SER.

The licensee estimated a mean seismic core damage frequency (CDF) of  $1.5E-5$  per year using the LLNL seismic hazard curves, and a value about 10% lower using the EPRI seismic hazard curves, before plant modifications. The licensee implemented a modification to the component cooling water (CCW) surge tank supports which lowered the mean seismic CDF to  $1.1E-5$  per year. The fire CDF was estimated as  $1.8E-5$  per year. For high winds, floods, transportation and other (HFO) external events, the events other than high winds were either qualitatively or quantitatively screened. For high winds, the core damage frequency was  $3.0E-5$  per year; tornadoes contributed  $1.7E-5$  per year, extratropical cyclones  $1.1E-5$  per year, and hurricane events  $2.4E-6$  per year to the high winds core damage frequency. The licensee calculated that the contribution to the core damage frequency from internal flooding was  $6.7E-6$  per year. The CDF due to internal events was estimated to be  $3.1E-5$  per year, in the licensee's IPE.

The licensee noted, in Section 9.3 of the IPEEE submittal, that a concise definition of "vulnerability" was not provided in the NRC documentation associated with the performance and reporting of the IPEEE. The licensee's IPEEE submittal categorized and evaluated the external event-induced sequences in accordance with the guidelines provided in the Nuclear Energy Institute (NEI) Severe Accident Closure Guidelines NEI 91-04. The licensee identified no vulnerabilities associated with external events, but, with regard to seismic events, the improvement already noted for the CCW surge tank supports was implemented. For external

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flooding, although no vulnerabilities were identified, some plant improvements associated with the probable maximum precipitation event were identified and either already implemented, or were intended to be implemented, at the time of the IPEEE submittal, as discussed in the attached SER. No needed plant improvements were identified for fire or internal flooding.

As a part of the IPEEE, unresolved safety issue (USI) USI A-45, "Shutdown Decay Heat Removal Requirements," and generic safety issues (GSIs) GSI-57, "Effects of Fire Protection System Actuation on Safety-Related Equipment," GSI-103, "Design for Probable Maximum Precipitation (PMP)," GSI-131, "Potential Seismic Interaction Involving the Movable In-Core Flux Mapping System Used In Westinghouse Plants," and the Sandia Fire Risk Scoping Study (FRSS) issues were specifically identified during the initial planning of the IPEEE program and explicitly discussed in Supplement 4 to GL 88-20 and its associated guidance in NUREG-1407 as needing to be addressed in the IPEEE. The specific information associated with each issue is identified and discussed in the attached SER. Based on the review of the information contained in the submittal, the staff believes that the licensee's process is capable of identifying potential vulnerabilities associated with USI A-45, GSI-57, GSI-103, GSI-131. As far as the FRSS issues are concerned, the staff believes that the licensee's process is capable of identifying potential vulnerabilities, except for the issue of equipment damage caused by operators misdirecting manual fire suppression actions because of smoke; this issue is not addressed in the IPEEE submittal. Misdirection of manual suppression efforts is also part of GSI-148, "Smoke Control and Manual Fire-Fighting Effectiveness." Except for the FRSS issue of misdirected manual fire suppression, all of these issues called out directly in Supplement 4 to GL 88-20 and its associated guidance document are considered resolved, on the basis that the process used by the licensee to identify vulnerabilities associated with these issues is judged to be capable of identifying any potential vulnerabilities, and the licensee found no vulnerabilities.

On the basis of the Step 1 review, the staff concludes that the licensee's IPEEE process is capable of identifying the most likely severe accidents and severe accident vulnerabilities and, therefore, that the Indian Point Unit 2 IPEEE has met the intent of Supplement 4 to Generic Letter 88-20.

In addition, the licensee's IPEEE submittal contains some specific information that addresses the external event aspects of certain generic issues: GSI-147, "Fire-Induced Alternate Shutdown/Control Room Panel Interactions;" GSI-148, "Smoke Control and Manual Fire-Fighting Effectiveness" (also a FRSS issue, mentioned above); GSI-156, "Systematic Evaluation Program (SEP);" and GSI-172, "Multiple System Responses Program (MSRP). The specific information associated with each issue is identified and discussed in the attached SER. Apart from the GSI-148 issue of misdirection of manual fire suppression, the staff considers that the licensee's process for the analysis of these issues is capable of identifying potential vulnerabilities associated with these issues. Since no vulnerabilities associated with the external events aspects of these issues were found, the staff considers these issues resolved for Indian Point 2, except for the GSI-148 issue of misdirection of manual fire suppression. The need for any additional assessment or actions related to the resolution of this issue will be addressed by the NRC staff separately from the IPEEE program.

If you have any questions regarding the attached BEH, please contact Arthur Hushik.  
(415 616-4) When the BEH is issued to the licensee, please put the following staff on  
distribution: Arthur Hushik, REA; Alan Rubin, REB; Carolyn Woods, REA, and Doug Cho, NHI

If you have any questions regarding the attached BEP, please contact Arthur Bushik (415-6184). When the BEP is issued to the licensee, please put the following staff on distribution: Arthur Bushik, HER, Alan Rubin, HER, Carolyn Woods, HER, and Dong Goo, NHH.

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**ATTACHMENT**  
**STAFF EVALUATION REPORT**  
**OF**  
**INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS (IPEEE) SUBMITTAL**  
**ON**  
**INDIAN POINT UNIT 2 NUCLEAR GENERATING STATION**

**STAFF EVALUATION REPORT OF  
INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS (IPEEE) SUBMITTAL  
ON INDIAN POINT UNIT 2 NUCLEAR GENERATING STATION**

**I. INTRODUCTION**

On June 28, 1991, the NRC issued Generic Letter 88-20, Supplement 4 (with NUREG-1407, Procedural and Submittal Guidance) requesting all licensees to perform individual plant examinations of external events (IPEEE) to identify plant-specific vulnerabilities to severe accidents and to report the results to the Commission together with any licensee-determined improvements and corrective actions. In a letter dated December 6, 1995, the licensee, Consolidated Edison Company of New York, submitted its response to NRC.

The staff contracted with Energy Research, Inc. (ERI) to conduct a "Step 1" review (a review for completeness and reasonableness) of the licensee's IPEEE submittal and its associated documentation and sent a request for additional information (RAI) to the licensee on September 22, 1997. The licensee responded to the RAI on February 24, 1998. Based on the results of the review, the staff concluded that the aspects of seismic; fires; and high winds, floods, transportation and other external events were adequately addressed. However, the Fire Risk Scoping Study issue associated with misdirected manual fire suppression failing equipment was not addressed. This issue is also part of the generic safety issue (GSI), GSI-148, "Smoke Control and Manual Fire-Fighting Effectiveness."

The review findings are summarized in the evaluation section below. Details of the contractor's findings are in the technical evaluation report attached to this staff evaluation report. In addition, in a separate attachment, there is a technical evaluation report on the internal floods analysis, which the licensee submitted as part of its IPEEE.

In accordance with Supplement 4 to GL 88-20, the licensee has provided information on the Fire Risk Scoping Study (FRSS) issues, generic safety issue (GSI)-57, "Effects of Fire Protection System Actuation on Safety-Related Equipment," GSI-131, "Potential Seismic Interaction Involving the Movable In-Core Flux Mapping System Used In Westinghouse Plants," GSI-103, "Design for Probable Maximum Precipitation (PMP)," and Unresolved Safety Issue (USI) A-45, "Shutdown Decay Heat Removal Requirements." This information was explicitly requested in Supplement 4 to GL 88-20 and its associated guidance in NUREG-1407. The licensee regards these issues as resolved and also considers as resolved the following issues: unresolved safety issue (USI) A-17, "System Interactions at Nuclear Power Plants;" USI A-40, "Seismic Capability of Large Safety-Related Above-Ground Tanks;" and the Eastern US Seismicity (Charleston Earthquake) Issue.

**II. EVALUATION**

Indian Point Unit 2 is a Westinghouse four-loop pressurized water reactor (PWR) with a large dry containment. The plant is located on the east bank of the Hudson River, in upper Westchester County, about 24 miles from the New York City boundary line. The owner/operator is Consolidated Edison Company of New York. The operating license was issued on September 28, 1973.

## Core Damage Frequency Estimates

### Seismic

The plant is classified in NUREG-1407 as a 0.3g full scope plant. For the seismic evaluation, the licensee performed a seismic probabilistic risk assessment, with screening based on seismic margin and Seismic Qualification Utility Group methods. The mean estimate of the seismic core damage frequency (CDF) is given as  $1.46\text{E-}5$  per year by the licensee, with the LLNL hazard curves, and about 10% lower when the EPRI curves are used. The licensee made a modification to the component cooling water (CCW) surge tank supports; after the modification the licensee's mean estimate of the seismic core damage frequency was reduced to  $1.1\text{E-}5$  per year.

### Fire

For fire, the licensee used the Electric Power Research Institute's fire-induced vulnerability evaluation (FIVE) methodology for both qualitative and quantitative screening, and used probabilistic risk assessment (PRA) methodology for the detailed evaluation. The total fire CDF from the scenarios surviving screening is estimated at  $1.8\text{E-}5$  per year.

### High Winds, Floods, Transportation, and Other (HFO) External Events

HFO events, except for high winds and tornadoes, were screened out using the screening criteria given in NUREG-1407. For high winds and tornadoes, a PRA was performed. The contribution to the CDF from tornadoes and extratropical cyclones was estimated by the licensee as  $1.7\text{E-}5$  per year and  $1.1\text{E-}5$  per year, respectively. Hurricane events were estimated to contribute  $2.4\text{E-}6$  per year to the CDF.

### Internal Flooding

The licensee's flooding analysis included a screening analysis, and a detailed risk evaluation on nine flood scenarios which survived the screening. The licensee's estimate of the total flood-induced CDF is  $6.7\text{E-}6$  per year.

## Dominant Contributors

### Seismic

Four seismic damage states (SDSs) contributed about 92% of the seismic CDF. These are:

- Loss of instrumentation and control, due to structural failures of the turbine building frame and the Unit 1 superheater stack
- Loss of CCW, due to failure of the CCW surge tank or failure of the steel superstructure of the fuel storage building
- Loss of 480 VAC electric power, due to seismic failure of cable trays and the seismic failure of 480 VAC motor control centers

- Loss of service water, due to seismic failure of the pumps or heat exchangers, or sliding failure of the intake structure

#### Fire

The main contributors to the fire CDF are:

- Control room fires, contributing  $7E-6$  per year to the CDF
- Cable spreading room fires, contributing  $4E-6$  per year to the CDF
- Switchgear room fires, contributing  $4E-6$  per year to the CDF

These fires contribute, in total,  $1.5E-5$  per year to the CDF; this is about 85% of the total fire CDF of  $1.8E-5$  per year.

#### HFO

Except for high winds, screening analyses were used. The major HFO contributors to the CDF are tornadoes and extratropical cyclones, contributing  $1.7E-5$  per year and  $1.1E-5$  per year, respectively. The dominant high wind core damage sequences are station blackout sequences, responsible for 87% of the high wind CDF. For tornadoes, the dominant structural failures are turbine building failure (leading to consequential failure of the control building), failure of the control building itself, and failure of the diesel generator building together with the gas turbine shelter. The EDG building failures are more important for extratropical cyclones than they are for tornadoes. The reason is evidently that the dominant failure mode for the EDG building is that of suction failure of the roof. If the tornado is not accompanied by rain, the equipment in the EDG building may not fail.

#### Internal Flooding

The largest contributor to the internal flood CDF was initiated by a break in a 3-inch diameter service water pipe located in the emergency switchgear room. The resulting water flow could not be totally accommodated by the drains, and consequently damage could result in as little as four minutes after the break occurs, assuming no credit for flood detection and isolation due to the limited time available. The second highest contributor was a turbine building flood which resulted in the non-recoverable loss of normal power to the emergency buses due to damage to 6.9 kV buses in the vicinity of the flood. The third highest contributor was a fire protection system pipe break in the deluge valve room located in the control building. The flood propagated to the emergency switchgear room via an interconnecting door.

These three highest contributors to the internal flooding CDF account for 94% of the internal flooding CDF.

## Assessment of Licensee's Determination of Dominant Contributors

For seismic, fire, HFO events, and internal flooding, the licensee appears to have identified the significant initiating events and dominant accident sequences.

### **Containment Performance**

#### Seismic

The licensee did not find, in their IPEEE, any seismic vulnerabilities which could lead to early containment failure or bypass directly as a result of seismic failures of major structures or systems. About 65% of the seismic CDF results in plant damage states with initial loss of containment pressure suppression and heat removal functions. If these functions are not regained, long-term overpressure failure of the containment would likely result, but the conditional probability of early containment failure (e.g., by direct containment heating) would be no more likely than for long term station blackout sequences resulting from internal events initiators.

#### Fire

Containment performance was evaluated for the potential of fire-induced containment bypass and failure of containment isolation. No significant sequences involving containment bypass or failure of containment isolation were found. The licensee did not evaluate the likelihood of long term containment failure by overpressure.

#### HFO

HFO events other than high winds were addressed by a screening analysis, consistent with NUREG-1407 guidelines. Although an explicit containment performance analysis is not required for these events, Section 6.2.6 of the IPEEE submittal addresses containment performance for high winds. The section concludes that no vulnerabilities which cause early failures or containment bypass were identified. About 87% of the wind-induced core damage frequency is due to station blackout sequences; in such sequences all containment pressure suppression and heat removal systems are lost. If these functions are not regained, these sequences would likely lead to long term containment overpressure and failure, but the conditional probability of early containment failure (e.g., by direct containment heating) would be no more likely than for long term station blackout sequences resulting from internal events initiators.

#### Internal Flooding

No explicit discussion of containment performance is given in the IPEEE internal flooding analysis. However, internal flooding sources which result in a loss of primary or secondary reactor coolant outside the containment (for example, interfacing system LOCAs or steam line breaks with failure to isolate) are treated in the Individual Plant Examination (IPE), not the IPEEE. Looking at the dominant contributors to the internal flooding CDF, as given in the IPEEE, it appears that these are equivalent to station blackout core damage sequences. They

may lead to long term overpressurization of the containment and containment failure, but the conditional probability of early containment failure (e.g., by direct containment heating), would be no more likely than for long term station blackout sequences resulting from internal events initiators.

#### Assessment of Licensee's Containment Performance Analysis

The licensee's containment performance analyses for seismic, fire, high winds, and internal flooding events appears to have considered the important severe accident phenomena and are consistent with the intent of Supplement 4 to Generic Letter 88-20.

#### Generic Safety Issues

As a part of the IPEEE, a set of generic and unresolved safety issues (USI A-45, GSI-131, GSI-103, GSI-57, and the Sandia Fire Risk Scoping Study (FRSS) issues) were identified in Supplement 4 to GL 88-20 and its associated guidance in NUREG-1407 as needing to be addressed in the IPEEE. The staff's evaluation of these issues is provided below.

##### **1. USI A-45, "Shutdown Decay Heat Removal Requirements"**

The licensee performed a seismic PRA, a fire PRA, and a PRA for high winds. These are capable of finding vulnerabilities which involve loss of decay heat removal capability. No such vulnerabilities were found. The screening analysis done by the licensee for HFO events other than high winds is capable of finding vulnerabilities associated with loss of decay heat removal capability. Since the staff judges that the process used by the licensee is capable of finding decay heat removal vulnerabilities, and no vulnerabilities were found, the staff considers that the external events aspects of USI A-45 are resolved for Indian Point Unit 2.

##### **2. GSI-131, "Potential Seismic Interaction Involving the Movable In-Core Flux Mapping System used in Westinghouse Plants"**

The flux monitoring cart which is the subject of GSI-131 is seismically robust, with a high confidence low probability of failure (HCLPF) value in excess of 0.5g. (That is, there is 95% confidence that the probability of failure of the cart is less than 5% for a peak ground acceleration of 0.5g). The cart had been previously modified in response to Information Notice 85-45, which had identified the issue.

Since the IPEEE determined that there was no vulnerability with respect to the flux monitoring cart, using acceptable techniques, the staff considers this issue to be closed for Indian Point Unit 2.

##### **3. GSI-103, "Design for Probable Maximum Precipitation"**

The licensee has assessed the effects of the potential for increased plant area flood runoff depth and increased roof loads as a result of the revised Probable Maximum Precipitation (PMP). (See Generic Letter 89-22.) This issue is discussed in Section 6.2.2.3 of NUREG-1407. The staff finds that the licensee's procedure for evaluating

GSI-103 is capable of identifying severe accident sequences resulting from onsite flooding and roof ponding when the revised PMP criteria are used. Some plant improvements were made, as a result of the PMP analysis. These are discussed below, under the heading "Unique Plant Features, Potential Vulnerabilities, and Improvements." On the basis that the licensee's procedure for identifying severe accident sequences associated with the PMP is satisfactory, and on the basis of the improvements that were made, the staff considers that GSI-103 is resolved for Indian Point Unit 2.

**4. GSI-57, "Effects of Fire Protection System Actuation on Safety-Related Equipment"**

The IPEEE submittal, in its discussion of seismic actuation of fire suppression systems (p. 4-43 of the submittal), notes that "fixed fire suppression systems have not been installed where their operation or failure could cause unacceptable damage to safety-related equipment." The submittal also notes, on p. 4-43, that a Con Edison review of Information Notice 83-41 issues concluded that adequate consideration of suppression system actuation effects on safety-related equipment has been integrated into the existing Fire Hazards analysis. The staff finds that the licensee's GSI-57 evaluation is consistent with the guidance provided in EPRI's Fire-Induced Vulnerability Evaluation (FIVE), which was accepted by the NRC staff, and therefore, the staff considers this issue resolved.

**5. Fire Risk Scoping Study (FRSS) Issues**

As noted in the attached TER on the IPEEE submittal, the licensee closely followed the FIVE methodology in addressing the FRSS issues. The FIVE methodology has been accepted by the staff. However, FIVE does not give guidance on the treatment of smoke-induced misdirected manual fire suppression activities, and its potential for failing equipment. The Fire Risk Scoping Study (NUREG/CR-5088) discusses this issue on p.37ff.

The licensee has not provided any discussion in the submittal on smoke-induced misdirection of manual fire suppression efforts. (See Section 2.4.2 of the attached TER.) The staff considers the FRSS issues, except for the effects of misdirected manual fire suppression activities, resolved for Indian Point Unit 2, on the basis that the licensee has used the FIVE methodology for addressing them, and the FIVE methodology has been accepted by the staff.

In addition to those safety issues discussed above that were explicitly requested in Supplement 4 to GL 88-20, four generic safety issues were not specifically identified as issues to be resolved under the IPEEE program; thus, they were not explicitly discussed in Supplement 4 to GL 88-20 or NUREG-1407. However, subsequent to the issuance of the generic letter, the NRC evaluated the scope and the specific information requested in the generic letter and the associated IPEEE guidance, and concluded that the plant-specific analyses being requested in the IPEEE program could also be used, through a satisfactory IPEEE submittal review, to resolve the external event aspects of these four safety issues. The

following discussions summarize the staff's evaluation of these safety issues at Indian Point Unit 2:

**1. GSI-147, "Fire-Induced Alternate Shutdown/Control Room Panel Interactions"**

The licensee has followed the guidance provided in FIVE concerning control systems interactions. Additional details are provided in Section 2.4.1 of the attached TER on the IPEEE submittal.

Because the FIVE methodology has been accepted by the staff, the analysis of this issue by the licensee is considered acceptable, and the staff considers this issue resolved.

**2. GSI-148, "Smoke Control and Manual Fire-Fighting Effectiveness"**

As noted above, under the discussion of the FRSS issues, the particular aspect of this issue associated with misdirected manual fire suppression because of smoke-induced loss of visibility was not addressed by the licensee in the IPEEE, and is not resolved. Other aspects of operator action effectiveness are addressed (see Section 4.8.5.3 of the IPEEE submittal), and the hindering of short-term (less than 4 hours) operator recovery actions were considered (see the attached TER, Section 2.4.2)

**3. GSI-156, "Systematic Evaluation Program (SEP)"**

The SEP issues are a set of issues associated with plants that were licensed prior to the time the 1975 Standard Review Plan was issued.

- **Settlement of Foundations and Buried Equipment**

The Indian Point Unit 2 site is a rock site, and there are no foundation settlement concerns. As noted in Section 2.4.3 of the attached TER on the IPEEE, buried equipment is not expected to be of concern.

- **Dam Integrity and Site Flooding**

The 1982-1983 Indian Point Probabilistic Safety Study evaluated the frequency of probable maximum precipitation and failure of an upstream dam leading to flooding at the plant site to be less than  $1E-8$  per year. The attached TER notes that the IPEEE submittal does not discuss seismically-induced dam failure. However, during the licensing of Indian Point Unit 3, as noted in Section 6.3 of the Indian Point Unit 2 IPEEE submittal, an analysis concluded that the maximum sustained water surface elevation at the plant is 14.0 feet based on the combined effect of a Hudson River maximum flood, probable maximum precipitation over the Esopus Creek Basin resulting in failure of the Ashokan Dam, and a hurricane at New York Bay. The minimum critical flood height at Indian Point Unit 2 is at 15 feet 6 inches, so that the analyzed flood does not threaten the plant. The event analyzed bounds the seismically-induced failure of the Ashokan Dam.



- **Site Hydrology and Ability to Withstand Floods**

The Indian Point IPEEE submittal includes a satisfactory screening analysis of external floods, consistent with NUREG-1407 guidelines, and also satisfactorily analyzed the PMP event (see GSI-103 discussion, above).

- **Industrial Hazards**

The IPEEE contains, in its HFO analysis, a satisfactory treatment of these hazards.

- **Tornado Missiles**

The effects of tornado missiles were satisfactorily considered in the HFO analysis.

- **Severe Weather Effects on Structures**

The effects of high winds and floods were satisfactorily analyzed in the HFO section of the IPEEE.

- **Design Codes, Criteria, and Load Combinations**

Since the IPEEE presents a satisfactory analysis of seismic and HFO events, and found no vulnerabilities, it can be inferred that the Category I structures have adequate capacity.

- **Seismic Design of Structures, Systems, and Components (SSCs)**

Since the IPEEE presents a satisfactory analysis of seismic and HFO events, and found no vulnerabilities, it can be inferred that the seismic design of SSCs is adequate.

- **Shutdown Systems and Electrical Instrumentation and Control Features**

A satisfactory IPEEE analysis, as was done by the licensee for Indian Point Unit 2, automatically includes the study of systems required to remove decay heat, and the instrumentation and control systems required for safe shutdown.

Based on the overall results of the IPEEE submittal review, the staff considers that the licensee's process is capable of identifying potential vulnerabilities associated with GSI-156. Although seismically-induced dam failures were not explicitly considered, a scenario which bounds the effects of seismically induced failure of the Ashokan dam was considered. On the basis that no potential vulnerability associated with these issues was identified in the IPEEE submittal, the staff considers the IPEEE-related aspects of these issues resolved.

#### **4. GSI-172, "Multiple System Responses Program (MSRP)"**

- **Effects of fire protection system actuation on safety-related equipment**

This is issue GSI-57, and is discussed under that heading. See also the attached TER, Section 2.4.4.

- Seismically induced fire suppression system actuations

This is a FRSS issue, and is discussed as such in Section 4.8.2 of the IPEEE submittal.

- Seismically induced fires

This is a FRSS issue. Seismically induced fires were addressed in the seismic capability walkdowns performed as part of the seismic IPEEE; the walkdowns are discussed in Section 3.1.3 of the IPEEE submittal. They were also discussed in Section 4.8.2 of the submittal, as part of the discussion of the FRSS issues.

- Effects of hydrogen line ruptures

The effects of earthquakes on gas lines is addressed in the seismic capability walkdowns, discussed in Section 3.1.3 of the IPEEE, and, in particular, in the discussion of seismic/fire interactions. Hydrogen fire sources are discussed in Section 4.3.2.2 of the submittal (see, in particular p. 4-25 of the submittal).

- The IPEEE-related aspects of common cause failures associated with human errors

With respect to fire, the impact of fires on human actions after a fire initiator is addressed by the IPEEE, in Section 4.6.1.2. Human errors were included in the seismic PRA models (see Section 3.1.6.3 of the IPEEE), and contributed less than 5% to the seismic CDF. As for HFO events, screening analyses were used for all HFO events other than high winds, and no assessment of human error probability was required. For high winds, the methodology developed "wind damage states" which acted as entries to IPE internal events models. These IPE internal events models included the effects of human error.

- Non-safety-related control system/safety-related system dependencies

As far as the IPEEE is concerned, this issue reduces to that of seismically induced spatial and functional interactions, a MSRP issue already discussed above, and GSI-147, on fire-induced alternate shutdown and control room panel interactions, which has also already been discussed.

- Effects of flooding and/or moisture intrusion on non-safety related and safety-related equipment

Flooding from external floods is discussed in the HFO analysis in the IPEEE; a screening analysis was used. Flooding from the actuations of fire protection systems is a GSI-57 issue, and is discussed under that heading. Internal flooding is discussed in Chapter 5 of the IPEEE submittal, and the internal flooding core damage frequency, dominant sequences and containment performance are discussed above.

- Seismically induced spatial and functional interactions

Seismically induced spatial interactions were addressed in the seismic capability walkdowns performed as part of the Indian Point Unit 2 seismic IPEEE, discussed in Section 3.1.3 of the submittal. Seismic functional interactions are addressed as part of the seismic PRA process used by the licensee.

- Seismically induced flooding

Seismically induced flooding was addressed in the seismic capability walkdowns performed as part of the seismic IPEEE, and is discussed in Section 3.1.3 of the submittal.

- Seismically-induced relay chatter

Seismically-induced relay chatter was addressed in Section 3.3 of the IPEEE.

- Evaluation of earthquakes greater than the SSE

The seismic analysis in the IPEEE was a PRA, which automatically includes the effects of earthquakes greater than the SSE.

Based on the overall results of the IPEEE submittal review, the staff considers that the licensee's process is capable of identifying potential vulnerabilities associated with GSI-172. On the basis that no potential vulnerability associated with these issues was identified in the IPEEE submittal, the staff considers the IPEEE-related aspects of these issues resolved.

#### **Unique Plant Features, Potential Vulnerabilities, and Improvements**

Unique safety features are described in Section 8.1 of the IPEEE. Those which specifically refer to external events are:

- The Alternate Safe Shutdown System was modified as a result of the original Indian Point Probabilistic Safety Study to more quickly and easily allow power to be provided to key shutdown equipment using power sources which bypass the Indian Point Unit 2 control building areas which contain those buses. This capability is not only useful for fire sequences but also other events such as flooding which may threaten the 480 V buses.
- In addition to the three emergency diesel generators, Indian Point Unit 2 has three gas turbine generators. Since two of the three gas turbines are located some distance from the site, they represent an additional recovery potential for some localized tornado sequences.

The IPEEE used the guidelines provided in the Nuclear Energy Institute (NEI) Severe Accident Closure Guidelines NEI 91-04 to determine whether there were any vulnerabilities which merited physical modification or immediate procedural changes. The IPEEE did not identify any vulnerabilities. However, some improvements in the seismic and HFO areas were made. In particular:

- The hold down bolts for the component cooling water surge tank were replaced by higher tensile strength bolts, reducing the estimated seismic core damage frequency by 29%.
- For the probable maximum precipitation event, a drain flapper valve, located in the manhole to which the control building drains flow, has been added to the preventive maintenance surveillance inspection program.
- In addition, for the probable maximum precipitation event, weather stripping was to be added to the doors leading into the switchgear room from the transformer area to reduce the bottom door gap, and screens are being placed on the equipment hub drains located in the 480V switchgear room to preclude foreign material intrusion. Also, a drain flapper valve, located in the manhole to which the control building drains flow, has been added to the preventive maintenance surveillance inspection program.

### III. CONCLUSIONS

On the basis of the overall review findings, the staff concludes that: (1) the licensee's IPEEE is complete with regard to the information requested by Supplement 4 to Generic Letter 88-20 (and associated guidance in NUREG-1407), and (2) the IPEEE results are reasonable given the Indian Point Unit 2 design, operation, and history. Therefore, the staff concludes that the licensee's IPEEE process is capable of identifying the most likely severe accidents and severe accident vulnerabilities, and therefore, that the Indian Point Unit 2 IPEEE has met the intent of Supplement 4 to Generic Letter 88-20 and the resolution of specific generic safety issues discussed in this SER, with the exception of the FRSS issue associated with equipment damage caused by operators misdirecting manual fire suppression actions because of smoke. This is also part of GSI-148, "Smoke Control and Manual Fire Fighting Effectiveness." The need for any additional assessment or actions related to the resolution of this FRSS issue and GSI-148 will be addressed by the NRC staff separately from the IPEEE program.

It should be noted that the staff focused its review primarily on the licensee's ability to examine Indian Point Unit 2 for severe accident vulnerabilities. Although certain aspects of the IPEEE were explored in more detail than others, the review was not intended to validate the accuracy of the licensee's detailed findings (or quantification estimates) that underlie or stemmed from the examination. Therefore, this SER does not constitute NRC approval or endorsement of any IPEEE material for purposes other than those associated with meeting the intent of Supplement 4 to GL 88-20 and the resolution of specific generic safety issues discussed in this SER.

**Attachment 1**

**INDIAN POINT UNIT 2**

**INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS (IPEEE)**

**TECHNICAL EVALUATION REPORT**

TECHNICAL EVALUATION REPORT ON THE  
"SUBMITTAL-ONLY" REVIEW OF THE  
INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS  
AT THE INDIAN POINT UNIT 2 NUCLEAR GENERATING STATION

FINAL REPORT

October 1998

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## EXECUTIVE SUMMARY

This technical evaluation report (TER) documents a "submittal-only" review of the individual plant examination of external events (IPEEE) conducted for the Indian Point Unit 2 Nuclear Generating Station (IP2). This technical evaluation review was performed by Energy Research, Inc. (ERI) on behalf of the U.S. Nuclear Regulatory Commission (NRC). The submittal-only review process consists of the following tasks:

- Examine and evaluate the licensee's IPEEE submittal and directly relevant available documentation.
- Develop requests for additional information (RAIs) to supplement or clarify the licensee's IPEEE submittal, as necessary.
- Examine and evaluate the licensee's responses to RAIs.
- Conduct a final assessment of the strengths and weaknesses of the IPEEE submittal, and develop review conclusions.

This TER documents ERI's qualitative assessment of the IP2 IPEEE submittal, particularly with respect to the objectives described in Generic Letter (GL) 88-20, Supplement No. 4, and the guidance presented in NUREG-1407.

The IP2 IPEEE was conducted by Consolidated Edison Company of New York, with some contractor assistance. The IP2 IPEEE submittal considers seismic; fire; and high winds, floods and other (HFO) initiators for the external events analysis. The seismic IPEEE process was a seismic probabilistic risk assessment (SPRA), with screening based on seismic margin and Seismic Qualification Utility Group (SQUG) methods; the fire IPEEE was based on the Electric Power Research Institute's (EPRI's) fire-induced vulnerability evaluation (FIVE) methodology for screening and on probabilistic risk assessment (PRA) methodology for detailed evaluation; and HFO events were evaluated using the screening approach from NUREG-1407 and GL 88-20, Supplement 4, and a PRA for high winds/tornadoes. The IP2 IPEEE was performed in accordance with quality assurance procedures. In addition, the submittal notes that all portions of the IPEEE received several levels of review.

### Licensee's IPEEE Process

For the IP2 IPEEE, the licensee had previously completed the Indian Point Probabilistic Safety Study (IPPSS), a Level-3 PRA, in the 1982-1983 time frame. That study was the subject of a detailed technical review by the NRC and Sandia National Laboratories (SNL), as well as the subject of an extensive adjudicatory hearing before a special NRC licensing board panel. In 1989, the licensee updated the Level-1 plant model to reflect changes in systems, equipment, and procedures since completion of the IPPSS. The data analysis was also updated. In 1992, the licensee submitted its Individual Plant Examination (IPE) of internal events, which included model improvements and accounted for plant changes since 1989. The IPEEE submittal builds on these earlier efforts.

The NRC binned IP2 as a 0.3g full-scope plant. The licensee elected to perform a Level-1 SPRA, with a qualitative seismic containment performance analysis. The SPRA generally follows the overall methodology described in NUREG-1407. Plant seismic walkdowns were conducted using the procedures described in

EPRI NP-6041-SL and in the Generic Implementation Procedure (GIP), with screening based on a high confidence of low probability of failure (HCLPF) of 0.5g peak ground acceleration. Walkdown efforts were coordinated for evaluations pertaining to the IPEEE and to Unresolved Safety Issue (USI) A-46. Seismic Evaluation Work Sheets (SEWSs) were completed as part of the equipment reviews. A seismic event tree was developed to model strictly seismic failures, and this tree was then integrated with the existing IPE Level-1 logic models (slightly modified) to incorporate the effects of random (non-seismic) failures and human actions. The study also includes evaluations of relay chatter, seismic-fire interactions, and applicable generic issues (GIs) and USIs. The IPEEE freeze date for plant seismic configuration and procedures was November 1994.

As regards fire-related initiators, the licensee has used FIVE methodology for both qualitative and quantitative screening, and PRA methodology to determine the core damage frequency (CDF). The fire scenarios evaluated as part of the PRA were identified source by source. COMPBRN and FIVE methods were used to determine equipment damage, time to damage, and time to suppression. Fire source frequencies in the FIVE manual were used. The IPE model was modified to reflect the calculated equipment damage of each scenario. The RISKMAN code was used to combine the fire scenario with the plant response to obtain a CDF. Operator actions and post-fire recovery actions were included in the model using the Human Cognitive Reliability (HCR) method. Special sensitivity studies for hot shorts, propagation of fire from high voltage cabinets, control room abandonment probability, and cross zone fire spread were included. Several plant walkdowns were performed during the conduct of the study to obtain data and verify documented data for the screening and PRA phases, as well as for the Fire Risk Scoping Study (FRSS) issues.

The IP2 HFO events IPEEE submittal is based primarily on the screening approach described in Supplement 4 to Generic Letter 88-20. The examination process involved: (1) a review of plant-specific hazard data and plant licensing-basis information; (2) implementation of a qualitative and quantitative screening process; and, (3) a PRA analysis for high winds/tornadoes.

### **Key IPEEE Findings**

The mean seismic CDF was reported as  $1.16 \times 10^{-5}/\text{ry}$  for the Lawrence Livermore National Laboratory (LLNL) hazard input; with EPRI seismic hazard input, the mean CDF was about 10% lower. One modification implemented on the component cooling water (CCW) surge tank supports lowered the mean seismic CDF to  $1.1 \times 10^{-5}/\text{ry}$ . The main contributors to the seismic CDF are four scenarios involving interaction of the turbine building or Unit 1 superheater stack with the control building. These potential structural failures would lead to loss of instrumentation and control or loss of CCW, and correlated equipment failures leading to loss of alternating current (AC) power or loss of service water. Non-seismic failures and human actions accounted for less than 5% of the seismic CDF, which included the effect of increased human error rates after the occurrence of earthquakes.

For the fire IPEEE, the licensee has concluded that there are no significant fire vulnerabilities at IP2. The total fire CDF from "unscreened" scenarios is estimated to be  $1.8 \times 10^{-5}/\text{ry}$ . The main contributors to the fire CDF are the control room, cable spreading room, and a switchgear room. The frequency of core damage and findings of critical plant areas are typical of results from similar nuclear power plants (NPPs).

For HFO events, with the exception of high winds/tornadoes, all other initiators were either qualitatively or quantitatively screened. The contribution to CDF from tornadoes and extratropical cyclones is  $1.7 \times 10^{-5}/\text{ry}$  and  $1.1 \times 10^{-5}/\text{ry}$ , respectively. Hurricane events contribute  $2.4 \times 10^{-6}/\text{ry}$ .

## Generic Issues and Unresolved Safety Issues

The seismic IPEEE addressed USI A-45, "Shutdown Decay Heat Removal Requirements" and GI-131, "Potential Seismic Interaction Involving the Movable In-Core Flux Mapping System Used in Westinghouse Plants." The seismic IPEEE also addressed the Charleston Earthquake Issue and coordination efforts with USI A-46, "Verification of Seismic Adequacy of Equipment in Operating Plants," as well as the seismic spatial interactions aspects of USI A-17, "Systems Interactions in Nuclear Power Plants," and USI A-40, "Seismic Design Criteria: Seismic Capability of Large Safety-Related Above-Ground Tanks." For USI A-45, no vulnerabilities were identified related to decay heat removal. For GI-131, seismic upgrades had previously been implemented for the flux monitoring cart, and the seismic IPEEE fragility analysis screened these components as high capacity components.

For the fire IPEEE, all of the Sandia Fire Risk Scoping Study (FRSS) issues and USI A-45 issues have been addressed. For both cases, the licensee has concluded that there are no outstanding problem areas. The licensee has presented discussion for each issue, and plant walkdowns have been undertaken to assist in resolution of these issues. Seismic-fire interaction issues were addressed by examination of the potential for an earthquake-induced fire event, for inadvertent seismic actuation of the fire suppression system and resulting adverse effects on safety equipment, and for seismic-induced failure of the fire protection systems. The licensee concluded that there are no areas in the plant where inadvertent actuation of fire suppression systems could lead to safety equipment damage. Specific inspection and testing procedures have been instituted to verify the integrity of penetration seals, fire barriers, and fire dampers. Regarding USI A-45, heat removal capabilities have been addressed in detail in the fire analysis via the IPE models used for CDF evaluation. The model gives credit to the possibility of bleed-and-feed cooling.

The submittal discusses the effects of the probable maximum precipitation (PMP) on the plant (GI-103). The HFO IPEEE submittal does not describe the formal analysis of any other safety issues. It does, however, state that some GIs and USIs were addressed and are considered closed. The submittal considers the following issues to be closed:

- USI A-45, "Shutdown Decay Heat Removal Requirements"
- USI A-17, "System Interactions in Nuclear Plants"
- GI-103, "Design for Probable Maximum Precipitation (PMP)"

Some information is also supplied in the IPEEE submittal which pertains to generic safety issues (GSIs) 147, 148, 156, and 172.

## Vulnerabilities and Plant Improvements

No seismic-related vulnerabilities have been identified for IP2. One improvement related to higher tensile strength hold-down bolts for the CCW surge tank was implemented; no other improvement or commitments related to seismic issues were identified in the submittal.

No fire-related vulnerabilities have been identified from the IPEEE. The licensee has used the Nuclear Energy Institute's (NEI's) severe accident closure guidelines (NEI 91-04) to evaluate the need for plant improvements. No improvements or commitments were deemed necessary to further reduce the fire risk at IP2.

The IPEEE for IP2 has identified no vulnerabilities and no needed plant improvements with respect to severe accident risk from any HFO initiators.

### Observations

Judged on the basis of the submittal, this review concludes that the licensee's seismic IPEEE methodology is capable of identifying severe accident vulnerabilities. It appears that the licensee understands the plant and seismic PRA techniques, and has conscientiously applied this knowledge to produce the seismic IPEEE submittal. The IP2 seismic IPEEE is comprehensive with respect to the important points of GL 88-20 and NUREG-1407. The strengths of the submittal are its (1) development of a comprehensive equipment list, (2) systematic and comprehensive walkdown, including structure and component screening, and consideration of interaction issues, (3) implementation of seismic PRA technology, and (4) relay chatter evaluation in coordination with its USI A-46 study.

For the evaluation of fire initiators, the licensee demonstrated detailed knowledge of the plant and fire PRA methodology, and has made a conscientious application of this knowledge. The licensee has employed proper methodology (i.e., the EPRI FIVE methodology for screening, and a PRA methodology for CDF quantification), and has employed proper data bases and calculational methods for fire occurrence and suppression system failure rates. The many low contribution scenarios are typical of the ignition source driven PRA method used. Notable strengths of the submittal include: (1) assumptions, sensitivity studies and uncertainties are well presented, (2) the inter-compartment fire propagation analysis was unusually thorough, and (3) the hot short analysis was far more comprehensive than is typical for an IPEEE. The final conclusions of the submittal are reasonable, and are within the range of results expected for a pressurized water reactor (PWR). The licensee's fire IPEEE process is capable of identifying severe accident vulnerabilities and none were found.

The HFO evaluation implemented the progressive screening method of NUREG-1407. Because IP2 generally does not meet the SRP, additional analyses were performed, as needed. Hazard screening and verification walkdowns were done appropriately, and changes since issuance of the OL were noted. Good use was made of earlier PRA work. The state-of-the-art wind PRA is particularly noteworthy. The analysis was comprehensive per NUREG-1407. No significant weaknesses were noted during this review.

## PREFACE

The Energy Research, Inc., team members responsible for the present IPEEE review documented herein, include:

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This work was performed under the auspices of the United States Nuclear Regulatory Commission, Office of Nuclear Regulatory Research. The continued technical guidance and support of various NRC staff is acknowledged.

## ABBREVIATIONS

AC	Alternating Current
AFW	Auxiliary Feed Water
ASSS	Alternate Safe Shutdown System
ATWS	Anticipated Transients Without Scram
BOP	Balance of Plant
CCDP	Conditional Core Damage Probability
CCF	Common Cause Failure
CCW	Component Cooling Water
CDF	Core Damage Frequency
CST	Condensate Storage Tank
DBE	Design Basis Earthquake
DC	Direct Current
DHR	Decay Heat Removal
EDG/GT	Emergency Diesel Generator/Gas Turbine
EPRI	Electric Power Research Institute
ERI	Energy Research, Inc.
ERPG-2	Emergency Response Planning Guidelines-2
FIVE	Fire Induced Vulnerability Evaluation Method
FPS	Fire Protection System
FRSS	Fire Risk Scoping Study
GI	Generic Issue
GIP	Generic Implementation Procedure
GL	Generic Letter
GS1	Generic Safety Issue
HCLPF	High Confidence of Low Probability of Failure (capacity)
HCR	Human Cognitive Reliability
HEP	Human Error Probability
HFO	High Winds, Floods and Other (external initiators)
HVAC	Heating, Ventilation and Air Conditioning
IP2	Indian Point Unit 2
IP3	Indian Point Unit 3
IPE	Individual Plant Examination
IPEEF	Individual Plant Examination of External Events
IPPSS	Indian Point Probabilistic Safety Study
LLNL	Lawrence Livermore National Laboratory
LOCA	Loss of Coolant Accident
LOSP	Loss of Offsite Power
MCC	Motor Control Center
MFW	Main Feed Water
MSIV	Main Steam Isolation Valve
MSL	Mean Sea Level
MSRP	Multiple System Responses Program
NEI	Nuclear Energy Institute
NPP	Nuclear Power Plant



NRC	U. S. Nuclear Regulatory Commission
NSSS	Nuclear Steam Supply System
OL	Operating License
PGA	Peak Ground Acceleration
P&ID	Piping and Instrument Diagram
PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
PORV	Power Operated Relief Valve
PRA	Probabilistic Risk Assessment
PSA	Probabilistic Safety Assessment
PWR	Pressurized Water Reactor
RAI	Request for Additional Information
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RWST	Refueling Water Storage Tank
SCBA	Self-Contained Breathing Apparatus
SDS	Seismic Damage State
SEL	Seismic Equipment List
SEP	Systematic Evaluation Program
SET	Seismic Event Tree
SEWS	Seismic Evaluation Work Sheet
SI	Safety Injection
SLOCA	Small-break Loss of Coolant Accident
SMA	Seismic Margin Assessment
SNL	Sandia National Laboratories
SPRA	Seismic Probabilistic Risk Assessment
SQUG	Seismic Qualification Utility Group
SRP	Standard Review Plan
SSE	Safe Shutdown Earthquake
SSEL	Safe Shutdown Equipment List
TER	Technical Evaluation Report
UE&C	United Engineers and Constructors Corporation
UFSAR	Updated Final Safety Analysis Report
UHS	Uniform Hazard Spectrum
USI	Unresolved Safety Issue

## 1 INTRODUCTION

This technical evaluation report (TER) documents the results of the "submittal-only" review of the individual plant examination of external events (IPEEE) for the Indian Point Unit 2 Nuclear Generating Station (IP2) [1]. This technical evaluation review, conducted by Energy Research, Inc. (ERI), has considered various external initiators, including seismic events; fires; and high winds, floods, and other (HFO) external events.

The U. S. Nuclear Regulatory Commission (NRC) objective for this review is to determine the extent to which the IPEEE process used by the licensee, Consolidated Edison Company of New York, meets the intent of Generic Letter (GL) 88-20, Supplement No. 4 [2]. Insights gained from the ERI review of the IPEEE submittal are intended to provide a reliable perspective that assists in making such a determination. This review involves a qualitative evaluation of the licensee's IPEEE submittal, development of requests for additional information (RAIs), evaluation of the licensee responses to these RAIs, and finalization of the TER.

The emphasis of this review is on describing the strengths and weaknesses of the IPEEE submittal, particularly in reference to the guidelines established in NUREG-1407 [3]. Numerical results are verified for reasonableness, not for accuracy; however, when encountered, numerical inconsistencies are reported.

The remainder of this section of the TER describes the plant configuration and presents an overview of the licensee's IPEEE process and insights, as well as the review process employed for evaluation of the seismic, fire, and HFO events sections of the IP2 IPEEE submittal. Sections 2.1 to 2.3 of this report present ERI's detailed findings related to the seismic, fire, and HFO events reviews, respectively. Section 2.4 identifies the locations in the IPEEE submittal where information having potential relevance to generic safety issues (GSIs) 147, 148, 156 and 172 may be found. Sections 3.1 to 3.3 summarize ERI's overall evaluation and conclusions from the seismic, fire, and HFO events reviews, respectively. Section 4 summarizes the IPEEE insights, improvements, and licensee commitments. Section 5 includes completed IPEEE data summary and entry sheets. Finally, Section 6 provides a list of the references cited in the TER.

### 1.1 Plant Characterization

IP2 is a four-loop, pressurized water reactor (PWR) with a Westinghouse-designed nuclear steam supply system (NSSS). The unit is rated at 3071.4 Mw thermal and is enclosed in a steel-reinforced, cylindrical, large, dry containment structure. The balance of plant (BOP) systems were designed by United Engineers and Constructors (UE&C) Corporation. The plant site is located on the east bank of the Hudson River, within the village of Buchanan, in upper Westchester County, New York. The site is about 24 miles north of the New York City boundary line. The nearest city is Peekskill, 2.5 miles northeast of IP2.

The major plant structures are the primary auxiliary building, the containment building, the control building, the turbine building, and the emergency diesel generator building. The principal safety systems of IP2 are three safety injection (SI) system pumps (pump shutoff head is below the power operated relief valve [PORV] setpoint), four accumulators, two residual heat removal (RHR) pumps for low pressure injection (and heat exchangers for primary decay heat removal), two low pressure recirculation pumps, two containment spray pumps, five containment fan coolers, four steam generators supplied from two motor-driven auxiliary feed water (AFW) pumps (each feeding two steam generators) and one turbine-driven AFW pump (feeding all four steam generators), three emergency diesel generators feeding four 480 V alternating current (AC) buses, three gas turbine generators with blackstart capability, and four direct current (DC) buses

fed from battery chargers or four battery banks. Support systems include component cooling water (CCW) (three pumps and two heat exchangers, cooled by the service water system) and service water systems (both essential and non-essential, with three pumps on each system).

IP2 is co-located on the site with Indian Point Unit 3 (IP3), operated by the New York Power Authority, and the older, decommissioned Unit 1. Co-location with Unit 1 is significant because (a) one of the important seismic sequences occurs because of interaction with the Unit 1 superheater stack and the Unit 2 control building, and (b) the Unit 2 Alternate Safe Shutdown System (ASSS) relies on Unit 1 auxiliary equipment.

## **1.2 Overview of Licensee's IPEEE Process and Important Insights**

### **1.2.1 Seismic**

As documented in NUREG-1407, IP2 is binned into the 0.3g full-scope seismic review category. Consolidated Edison undertook a Level-1 seismic probabilistic risk assessment (SPRA), with a qualitative seismic containment performance assessment, for the IP2 seismic IPEEE. The IPEEE submittal was an update of the Indian Point Probabilistic Safety Study (IPSS) [4] which was one of the first modern, full-scope probabilistic risk assessments (PRAs) performed in the early 1980s. The seismic IPEEE analysis updated that analysis with a state-of-the-art seismic hazard analysis, a wider scope of initiators, more detailed analysis, and much more detailed seismic walkdowns than were performed for the IPSS effort.

The specific elements of the IP2 seismic IPEEE, as described in the submittal report, include:

- Hazard Analysis
- Compilation of Seismic Equipment List (SEL)
- Walkdowns (A-46 Generic Implementation Procedure [GIP] and Electric Power Research Institute [EPRI] NP-6041, Rev. 1)
- Analysis of Plant System and Structural Response
- Evaluation of Fragilities and Failure Modes
- Analysis of Plant Systems and Sequences
- Evaluation of Containment Performance
- Low Ruggedness Relay Chatter Evaluation
- Review of Unresolved Safety Issue (USI) A-45, Generic Issue (GI)-131, and Other Seismic Safety Issues

The SPRA methodology followed the guidance in NUREG-1407 and GL 88-20. The SEL considered the A-46 evaluation, and the SEL was used to guide the scope of the walkdowns and low ruggedness relay evaluation; approximately 800 components were placed on the SEL. Walkdowns followed the EPRI seismic margin assessment (SMA) guidelines [5] and the Seismic Qualification Utility Group (SQUG) GIP [6]. A seismic event tree (SET) was developed to identify seismic scenarios which were described as "seismic damage states" (SDSs). The frequencies of these damage states were quantified by convolving the mean hazard curve with the structural and equipment fragility curves. For scenarios requiring random (non-seismic) failures, the individual plant examination (IPE) internal events model was used to develop conditional core damage probabilities (CCDPs). The plant logic models include seismic, random, and human failure events.

To calculate the seismic demand on structures and components, estimates of structural response were scaled from the new design basis earthquake (DBE) spectra developed for the A-46 evaluations. A structural response factor of safety was estimated by comparing the spectral accelerations for the A-46 spectra and damping to the uniform hazard spectrum (UHS) and median centered damping used for the SPRA. This factor and its variability were used to scale design loads and spectra and to define the uncertainty in these loads and spectra. For structures and components that were not screened out based on the seismic capacity walkdowns, progressively more detailed calculations were performed to estimate the seismic capacity. For structures, existing calculations performed for the 1982 IPPSS analysis were updated to reflect the use of the UHS spectral shape for defining ground motion, and to incorporate refinements in the methodology used since the IPPSS analysis was performed. For equipment, a combination of updated IPPSS calculations, generic calculations, and extrapolations of A-46 calculations, was used to determine fragilities. A surrogate fragility (high confidence of low probability of failure [HCLPF] of 0.50g, median fragility of 1.5g,  $\beta_R = 0.30$ ,  $\beta_I = 0.36$ ) was defined for all screened out components. This surrogate fragility, when convolved with the mean seismic hazard, results in a frequency of seismic failure of less than  $1.0 \times 10^{-3}/\text{ry}$ .

The SEISMIC code was used to quantify the frequency of SDSs. SEISMIC uses a Monte Carlo sampling process at each seismic magnitude interval to combine the hazard and fragility information for each structure/component in the SDS equation. The code repeats the process for each seismic magnitude interval, and then sums the results to obtain the SDS frequency. The process is repeated for each SDS equation until all equations are quantified.

The seismic core damage frequency (CDF) was evaluated to be  $1.46 \times 10^{-3}/\text{ry}$  using Lawrence Livermore National Laboratory (LLNL) seismic hazard input; use of the EPRI seismic hazard input resulted in a 10% reduction in overall seismic CDF. As a result of the IPEEE analysis, it was determined that the capacity of the CCW surge tank was limited by the capacity of the hold down bolts. These hold down bolts were replaced with higher tensile strength bolts, and the seismic model was requantified, resulting in an updated seismic CDF estimate of  $1.1 \times 10^{-3}/\text{ry}$ .

Additional details pertaining to the various major aspects of the seismic IPEEE process and findings are provided in Section 2.1.

### 1.2.2 Fire

The licensee has used FIVE methodology for both qualitative and quantitative screening, and PRA methodology to determine the core damage frequency (CDF). The fire scenarios evaluated as part of the PRA were identified source by source. COMPBRN and FIVE [7] methods were used to determine equipment damage, time to damage, and time to suppression. Fire source frequencies in the FIVE manual were used. The IPE model was modified to reflect the calculated equipment damage of each scenario. The RISKMAN code was used to combine the fire scenario with the plant response to obtain a CDF. Operator actions and post-fire recovery actions were included in the model using the Human Cognitive Reliability (HCR) method. Special sensitivity studies for hot shorts, propagation of fire from high voltage cabinets, control room abandonment probability, and cross zone fire spread were included. Several plant walkdowns were performed during the conduct of the study to obtain data and verify documented data for the screening and PRA phases, as well for the Fire Risk Scoping Study (FRSS) issues [8].

The licensee has assessed the overall fire CDF for "unscreened" scenarios to be  $1.8 \times 10^{-3}/\text{ry}$ . The main contributors to the fire CDF are the control room, cable spreading room, and a switchgear room.

The FRSS issues have been considered by closely following the methodology recommended by FIVE. Also considered was the adequacy of decay heat removal (USI-A45). The licensee has concluded in both cases that there are no outstanding problem areas. The licensee has also concluded that there are no significant fire vulnerabilities at IP2, and has used the Nuclear Energy Institute (NEI) severe accident closure guidelines [9] to evaluate the need for plant improvements. No improvements or commitments were identified as being necessary to further reduce the fire risk at IP2.

### 1.2.3 HFO Events

The licensee has conducted a detailed analysis of HFO events. Most events have been screened utilizing qualitative and quantitative arguments. The contribution to CDF from tornadoes and extratropical cyclones is  $1.7 \times 10^{-3}/\text{ry}$  and  $1.1 \times 10^{-3}/\text{ry}$ , respectively. Hurricane events contribute  $2.4 \times 10^{-4}/\text{ry}$ . Based on an analogy to NEI guidance with respect to severe accident closure, the IP2 IPEEE submittal reports no vulnerabilities with respect to HFO events.

## 1.3 Overview of Review Process and Activities

In its qualitative review of the IP2 IPEEE, ERI focused on the study's completeness in reference to NUREG-1407 guidance; its ability to achieve the intent and objectives of GL 88-20, Supplement No. 4; its strengths and weaknesses with respect to the state-of-the-art; and the robustness of its conclusions. This review did not emphasize confirmation of numerical accuracy of submittal results; however, any numerical errors that were obvious to the reviewers are noted in the review findings. The review process included the following major activities:

- Completely examine the IPEEE and related documents.
- Develop a preliminary TER and RAIs.
- Examine responses to the RAIs.
- Finalize this TER and its findings.

Because these activities were performed in the context of a submittal-only review, ERI did not perform a site visit or an audit of either plant configuration or detailed supporting IPEEE analyses and data. Consequently, it is important to note that the ERI review team did not verify whether or not the data presented in the IPEEE matches the actual conditions at the plant, and whether or not the programs or procedures described by the licensee are indeed implemented at IP2:

### 1.3.1 Seismic

In conducting the seismic review, ERI generally followed the emphasis and guidelines described in the report, *Individual Plant Examination of External Events: Review Guidance* [10], for review of a seismic PRA, and the guidance provided in the NRC report, *IPEEE Step 1 Review Guidance Document* [11]. In addition, on the basis of the IP2 IPEEE submittal, ERI completed data entry tables developed in the LLNL document entitled *IPEEE Database Data Entry Sheet Package* [12].

In its IP2 seismic review, ERI examined Sections 1, 2, 3, 4.8.2, 7, 8, and 9 of the IPEEE submittal for IP2 [1]. The checklist of items identified in Reference [10] was generally consulted in conducting the seismic review. Some of the primary considerations in the seismic review have included (among others) the following items:

1. Were appropriate walkdown procedures implemented, and was the walkdown effort sufficient to accomplish the objectives of the seismic IPEEE?
2. Was the plant logic analysis performed in a manner consistent with state-of-the-art practices? Were random and human failures properly included in such analysis?
3. Were component demands assessed in an appropriate manner, using valid seismic motion input and structural response modeling?
4. Were fragility calculations performed for a meaningful set of components, and are the fragility results reasonable?
5. Has the surrogate element been used in such a manner so as to not obscure dominant risk contributors and to produce a valid numerical estimate of CDF?
6. Was the approach to seismic risk quantification appropriate, and are the results meaningful?
7. Does the submittal's discussion of qualitative assessments (e.g., containment performance analysis, seismic-fire evaluation) reflect reasonable engineering judgment, and have all relevant concerns been addressed?
8. Has the seismic IPEEE produced meaningful findings, has the licensee proposed valid plant improvements, and have all seismic risk outliers been addressed?

In some instances, quick calculations have been performed as part of the seismic review in order to check the implications of various intermediate and final results.

### 1.3.2 Fire

During this technical evaluation, ERI reviewed the fire events portion of the IPEEE for completeness and consistency with past experience. This review was based on Sections 1, 2, 4, 5, 7, 8, and 9 of Reference [1]. The guidance provided in References [10,11] was used to formulate the review process and organize this TER. The data entry sheets provided in Section 5 are taken from Reference [12].

The process implemented for ERI's review of the fire IPEEE included an examination of the licensee's methodology, relevant data, and results. ERI reviewed the methodology for consistency with currently accepted and state-of-the-art methods, paying special attention to the screening methodology and to the procedure used for estimating the frequency of occurrence of a fire scenario, to ensure that no fire scenarios were prematurely eliminated. The data element of a fire IPEEE includes, among others, such items as:

- cable routing
- fire zone/area partitioning
- fire occurrence frequencies
- event sequences
- fire detection and suppression capabilities

The conditions described, and information provided, by the licensee were evaluated to determine their reasonableness, and their similarity with other fire PRAs. For a few fire zones/areas that were deemed

important. ERI also verified the logical development of the screening justifications/arguments (especially in the case of fire-zone screening) and the computations for fire occurrence and CDF.

### 1.3.3 HFO Events

The review process for HFO events closely followed the guidance provided in Reference [11]. This process involved examinations of the methodology, the data used, and the results and conclusions derived in the submittal. The IPEEE methodology was reviewed for consistency with currently accepted practices and NRC recommended procedures. Special attention was focused on evaluating the adequacy of data used to estimate the frequency of HFO events, and on confirming that any analysis of 1975 Standard Review Plan (SRP) conformance was appropriately executed. In addition, the validity of the licensee's conclusions, in consideration of the results reported in the IPEEE submittal, was assessed. Also, in some instances, computations of frequencies of occurrence of hazards, fragility values, and failure probabilities were spot checked. Review team experience was relied upon to evaluate the reasonableness of the licensee's evaluation.

## 2 CONTRACTOR REVIEW FINDINGS

### 2.1 Seismic

A summary of the licensee's seismic IPEEE process has been described in Section 1.2. Here, the licensee's seismic evaluation is described in detail, and discussion is provided regarding significant observations encountered in the present review.

#### 2.1.1 Overview and Relevance of the Seismic IPEEE Process

##### a. *Seismic Review Category*

As documented in NUREG-1407, IP2 is binned as a 0.3g full-scope plant.

##### b. *Seismic IPEEE Process*

The licensee updated the earlier IPPSS analysis to perform the SPRA, together with a qualitative evaluation of containment performance, for the IPEEE of IP2. The SPRA has made use of the IPE, which is also an update of an existing PRA study. The seismic IPEEE was extensively coordinated with the licensee's USI A-46 evaluation, particularly with respect to plant walkdowns and relay ruggedness evaluation. The analysis was a joint utility, NUS, and EQE evaluation, with utility personnel involved in all aspects of the study.

##### c. *Review Findings*

The seismic IPEEE methodology is appropriate and relevant to severe accident analysis and vulnerability assessment. The licensee had a meaningful participation in the study.

#### 2.1.2 Logic Models

The plant logic analysis for IP2 includes the following three major aspects: (a) seismic initiating events analysis, (b) event tree development, and (c) fault tree development.

##### a. *Seismic Initiating Events Analysis*

The IPE loss of offsite power (LOSP) event tree was used as the initial model for the seismic PRA. Based on guidance in NRC and EPRI seismic margin procedures, large loss of coolant accidents (LOCAs), intermediate LOCAs, main steam line breaks (up to the main steam isolation valves [MSIVs]), main feed water (MFW) line breaks inside containment, and seismically-induced steam generator tube ruptures were screened from further consideration.

An SET was developed and used to identify the potential successes and failures that could occur as a result of a seismic event. Seismically-induced failures incorporated into the SET were obtained from seismic fragility evaluations. Seismically-induced failures of redundant components were assumed to be completely correlated by treating redundant components as though they were a single component in the SET model. The SET includes only seismically-induced impacts. Non-seismic, random failures and operator errors were addressed separately from the SET.



Some components and systems were not included in the SET and were conservatively assumed to be unavailable as a result of an earthquake. Examples of such components and systems include the city water system (which can be used to supply cooling to charging pump seals if CCW is lost), the primary water system (which can be used to supply cooling to the charging pumps), and the three gas turbine generators (which can provide an alternate station power source). In addition, if the superheater stack collapses onto the control building, or the turbine building impacts the control building, causing failure of plant instrumentation and control, it may be possible to control the plant from the Alternate Safe Shutdown System (ASSS). Due to the potential impact on plant operations personnel from such events, however, the ASSS was not credited in the SPRA.

*b Event Tree Modeling*

Boolean equations were developed for each of the SET top events based on the logic and seismic fragility information. The equations represent seismic failures and successes of structures and components. Each seismic sequence equation represents the Boolean logic associated with its corresponding SDS. Using the SEISMIC code, the SET was quantified without fan cooler failures. For SDSs with frequencies greater than  $1.0 \times 10^{-7}/\text{ry}$ , the branch point for fan cooler failures was then addressed by adding two equations, one with fan cooler failure and one with fan cooler success. (Some SDSs do not address fan cooler failure because the failure of the fan coolers is guaranteed, e.g., loss of all AC power.)

The internal events IPE model was used to calculate the impact of non-seismic failures and human errors for each of the non-negligible SDSs. Some changes were made to the IPE logic model as follows:

- Emergency diesel generator and fuel oil pump run times were increased from 6 to 24 hours to reflect the increased difficulty of restoring offsite power and making repairs following an earthquake.
- The gas turbines were assumed to fail if offsite power failed (due to relatively low capacity).
- Loss of CCW was assumed to result in a non-recoverable reactor coolant pump (RCP) seal LOCA and consequential core damage (because alternate sources of water such as city water and primary water are assumed to be unavailable after an earthquake).
- City water to the AFW pumps was assumed to be unavailable.
- For SDSs with a frequency less than  $1.0 \times 10^{-7}/\text{ry}$ , the fan coolers were conservatively assumed to be unavailable.
- For anticipated transients without scram (ATWS) events, emergency boration and manual scram were assumed to be unavailable.

*c. Fault Tree Modeling*

The fault tree modeling of the SET was handled with Boolean equations representing the combinations of failure events. These combinations were assembled, together with success events, into expressions which were evaluated for the SDSs. Random failures and operator errors are represented in the revised IPE fault trees as basic events.

d. *Review Findings*

The logic modeling process for the IP2 SPRA appears to be an acceptable approach that is adequate with respect to NUREG-1407 guidelines.

2.1.3 Non-Seismic Failures and Human Actions

The plant logic models incorporate non-seismic failures and human actions in addition to seismic failures. Non-seismic failure rates are the same as those used for the internal events analysis.

Operator error probabilities were adjusted to reflect seismic impacts. For operator actions which can be taken at later than one hour after the seismic initiating event, the human error probability (HEP) from the IPE models is used. For operator actions which have to be taken in less than an hour, HEPs were adjusted to account for the confusion, distraction, and potential difficulty in movement associated with earthquakes. The adjustments were based on the IPE HEP values as follows:

<u>IPE HEP Range</u>	<u>Adjustment Factor (Multiplier)</u>
0.1 to 1.0	2 (maximum HEP of 1.0)
0.01 to 0.1	5 (maximum HEP of 0.2)
<0.01	10

No unique operator errors were added to the model for the seismic PRA. Some operator actions were not possible after an earthquake, and were therefore excluded from the model (e.g., action to use city water).

This review notes that there is no research, data or other technical basis for earthquake related HEP adjustment factors. Nevertheless, the licensee made an effort to judgementally assess the effects of an earthquake on operator action. The values noted above are consistent with adjustment factors used in other seismic IPEEE studies. The licensee reported that non-seismic failure and human actions were not among the most significant contributors to CDF.

In summary, it is judged that non-seismic failures and human actions have been addressed in a manner consistent with the guidelines of NUREG-1407.

2.1.4 Seismic Input (Ground Motion Hazard and Spectral Shape)

The revised LLNL seismic hazard estimates for IP2 (NUREG-1488) were used for the baseline frequency calculations. The IPEEE submittal observed that the EPRI seismic hazard estimates are essentially the same as the revised LLNL estimates.

The seismic hazard was truncated before 1.5g; the explicit mean hazard from NUREG-1488 was used, which extends only to 1.0g. The IPEEE submittal points out that the maximum increase in seismic CDF from extrapolating the hazard to 1.5g or beyond would be  $1.75 \times 10^{-6}/\text{ry}$  (which is the exceedance frequency of the 1.0g acceleration). This would contribute about 10% compared to the overall seismic CDF calculated in the study. Examination of the impact of truncating the curve at 1.0g indicated that the ranking of dominant sequences and their dominant contributors remains the same. Thus, no additional insights would be available from extending the hazard curve by extrapolation into the range beyond 1.0g.

The spectral shape used in the IP2 analysis considered the EPRI UHS.

In summary, the IPEEE's use of EPRI and LLNL hazard curves is appropriate. Since NUREG-1407 allows the use of the EPRI UHS shape, the seismic input spectrum and ground motion hazard used for the IP2 SPRA are acceptable.

#### 2.1.5 Structural Responses and Component Demands

Structural response for plant structures was originally analyzed during the design stage of IP2. As part of its response to the A-46 issue, the licensee contracted with Altran Corporation to reanalyze the structural response for the design basis earthquake and develop in-structure spectra. No new analyses were performed for the IPEEE; rather, the Altran analysis was scaled to develop loads and spectra for use in the IPEEE. A structural response factor of safety was developed by comparison of the spectral accelerations for the DBE design analysis spectra and damping to the UHS and median centered damping used for the IPEEE. This factor and its variability were used to scale design loads and spectra, and to define the uncertainty in these loads and spectra. A similar scaling process was used for equipment. However, slightly different response factors were used for structure and equipment fragility evaluations, because a time history record was used to generate the in-structure response spectra for equipment, while a response spectrum analysis was conducted for the development of structural loads. The structural response factor for equipment is greater than for structures as a result of the fact that the response spectrum of the time history exceeds the response spectrum used to determine loading in the buildings. The median factor of safety, as well as random variability and uncertainty, were estimated for each of the parameters affecting the capacity and response. These estimates were then combined to obtain an overall median factor of safety and variability estimates. The structural response factors for equipment are summarized in Table 3.1-1 of the submittal.

In summary, the development of structural responses and component demands in the IP2 seismic IPEEE appears to be consistent with the relevant guidelines presented in NUREG-1407.

#### 2.1.6 Screening Criteria

The EPRI SMA screening criteria described in EPRI NP-6041, Rev. 1 [5], define the framework used in making screening decisions. All components meeting the screening criteria and caveats associated with a HCLPF level of 0.5g peak ground acceleration (PGA) were screened out. The submittal also notes that the GIP screening criteria [6] were applied for evaluation of components.

The screening criteria and procedures used in the IP2 seismic IPEEE are consistent with NUREG-1407 guidelines.

#### 2.1.7 Plant Walkdown Process

The components included in the walkdown were those on the SEL. The SEL began with the IPE list of equipment. The following steps were performed to update that list:

- Determine potential initiating events that could occur with a seismic event (either due to the earthquake or due to random or consequential events).

- Determine which safety functions would be required to respond to these initiating events, and which systems provide these safety functions to mitigate the events.
- Remove systems and equipment from the IPE list which are either not required or not available.
- Remove generically rugged, passive components (e.g., check valves and manual valves).
- Add components for pressure boundary integrity.
- Add components for containment performance.
- Add electrical panels, cabinets, and instrument racks.
- Review LOSP emergency procedures, and add equipment and instrumentation which would be needed after an earthquake.
- Add unique IP2 equipment or features.
- Cross-check and verify with the A-46 equipment list.

A seismic systems walkdown (pre-walkdown) was performed to identify any cabinets or equipment that should be included in the SEL, but was not identified from the systems analysis or piping and instrument diagrams (P&IDs); to identify multiple equipment items mounted on a skid; to identify obvious spatial interactions, in order to alert the fragilities analysts; and to identify any seismic/fire or seismic/flood interactions for analysis by fragility experts. Using these steps, about 800 components were placed on the SEL for the seismic walkdowns. All structures housing critical equipment, as well as other structures adjacent to these critical structures that could potentially interact with the critical structures, were added to the SEL.

Many components in the IPEEE walkdown were also on the A-46 Safe Shutdown Equipment List (SSEL). The A-46 SSEL components were walked down prior to the IPEEE seismic capability walkdowns. Because the screening rules for A-46 (per the GIP) are similar to the rules for the seismic margin walkdown under EPRI NP-6041, Rev. 1, the components which are common to A-46 and IPEEE did not require a second detailed walkdown for the IPEEE. The IPEEE seismic capability team reviewed the A-46 equipment data files and did a "walk by" of the equipment to evaluate seismic/fire, seismic/flood, and spatial interactions applicable to beyond DBEs. There were members of the IPEEE walkdown team in common with the A-46 walkdown team who were familiar with the equipment.

The IPEEE submittal describes the expertise collectively present in the walkdown teams, but does not provide details concerning the teams' composition. The submittal contains a summary of the walkdown procedure, but little detail about specific insights gained by the walkdown. The walkdowns were conducted in two parts. Components inside the containment were inspected in February 1993 during a refueling outage, concurrently with the A-46 review. The remaining components were inspected in July 1993, with a small number of follow-up items resolved during the 1995 refueling outage. Photographs were used to supplement the seismic evaluation work sheets (SEWSs) generated during the walkdowns.

In summary, the submittal presents a well-structured description of the walkdown process. A pre-screening of structures was undertaken, followed by a walkdown verification of screening decisions. The approach taken for identifying IPEEE equipment and other PRA components is consistent with applicable guidance. Systems engineers were consulted, from the beginning of the IPEEE process, in developing this list. The IPEEE SEL was cross-walked with the A-46 SSEL to ensure comprehensiveness in the IPEEE evaluation. The submittal's description of plant seismic walkdowns suggests that a well-structured, comprehensive, detailed, and effective approach was employed. The IPEEE walkdown process is thus judged to be relevant to severe accident evaluation of IP2.

#### 2.1.8 Fragility Analysis

Fragilities were not developed for all structures and equipment. Rather, only components estimated to have a median capacity of less than 1.5g PGA, or a HCLPF capacity of less than 0.5g, were considered. Structures and components which were screened out are represented by surrogate fragilities.

The fragility analysis followed the guidance and procedures in EPRI TR-103059 [13]. For structures, the original IPPSS calculations were revised to reflect the use of UHS for defining the ground motion spectral shape, and to incorporate refinements in methodology since the IPPSS calculations were performed. For equipment, a combination of methods was used. Some of the original IPPSS calculations were updated to reflect the use of a UHS. Most components on the SSEL were screened out based on generic calculations, review of A-46 calculations, review of test reports, or by judgment based on the walkdown observations and generic ruggedness. For most cases where fragility calculations had to be performed, the A-46 calculations served as the basis for development of fragilities. Fragility calculations are summarized in Table 3.1-3 of the submittal.

In summary, a logical and efficient methodology has been implemented for fragility analysis of screened-in components. Screened-out components have been assigned a surrogate-element fragility, which is a lower bound capacity derived from seismic margin screening limits and the site-specific spectral shape. Since the surrogate element turns out not to be a dominant contributor in the IP2 IPEEE (and hence, does not mask seismic vulnerabilities), its use appears appropriate. The fragility analysis is judged to be relevant to severe accident evaluation at IP2 and consistent with the guidelines in NUREG-1407.

#### 2.1.9 Accident Frequency Estimates

The mean seismic hazard curve (LLNL, NUREG-1488), structural/equipment fragilities, and SDS equations were input to the SEISMIC code to quantify the frequency of the SDSs. The SEISMIC code uses a Monte Carlo sampling process at each seismic magnitude interval to combine the hazard and fragility information for the SDS equation. The code repeats this process for each seismic magnitude and SDS equation, and sums the results to obtain the SDS frequencies. The core damage and plant damage state frequency from each non-negligible SDS was quantified by modifying the plant logic model in the RISKMAN software to account for the frequency of each SDS and the associated structural or equipment damage.

The base case quantification used the mean LLNL hazard curve, resulting in a mean seismic CDF of  $1.46 \times 10^{-5}/\text{ry}$ . Sensitivity results were calculated for several cases. A modification to the CCW surge tank supports was performed with higher tensile strength bolts, with a reduction in seismic CDF to  $1.1 \times 10^{-5}/\text{ry}$ . In addition, the small LOCA median capacity was reduced from 1.5g (conservative) to 0.92g (based on NUREG/CR-

4840), with a calculated 4% increase in seismic CDF, indicating that overall seismic CDF is not very sensitive to the selection of small LOCA fragility parameters.

Only a few significant SDS sequences required additional non-seismic failures or human errors to result in core damage. These SDS sequences contribute less than 5% of overall seismic CDF, thus the base case seismic CDF result is not very sensitive to changes in modeling parameters. In addition, use of the EPRI mean hazard curve was found to result in a small (10%) reduction in seismic CDF.

In summary, the IP2 seismic IPEEE evaluates the CDF contribution for SDSs as opposed to determining accident sequence frequencies. Several sensitivity calculations and evaluations were performed to illuminate the impact of different assumptions on the CDF results.

#### 2.1.10 Evaluation of Dominant Risk Contributors

Four SDSs were found to contribute about 92% of the seismic CDF. These SDSs are: (a) loss of instrumentation and control (due to structural failures of the turbine building frame and the Unit 1 superheater stack); (b) loss of CCW (due to failure of the CCW surge tank or failure of the steel superstructure of the fuel storage building); (c) loss of 480 V AC electric power (due to seismic failure of cable trays and the seismic failure of 480 V AC motor control centers [MCCs]); and (d) loss of service water (due to seismic failure of the pumps or heat exchangers, and sliding failure of the intake structure). A seismically-initiated LOSP together with non-seismic failures results in about 3% of the seismic CDF. Other SDSs contributing about 1% each are loss of the condensate storage and refueling water storage tanks (RWSTs), ATWS caused by failure of reactor internals, and ATWS with seismic failure of the RWST. None of these latter sequences contributes more than  $5.0 \times 10^{-7}$ /ry to seismic CDF, and none is considered to be a significant contributor to seismic CDF.

In summary, the seismic IPEEE provides a meaningful description of seismic failures dominating CDF. Random failures and human errors have not been specifically identified; however, the submittal makes it clear that these non-seismic failures contribute less than 5% of the seismic CDF.

#### 2.1.11 Relay Chatter Evaluation

In addition to performing an A-46 relay review, the licensee performed a low ruggedness ("bad actor") relay review for those relays that are associated with IPEEE-only equipment (i.e., equipment not on the A-46 SSEL). The review consisted of identifying IPEEE-only components, identifying the relays and contacts in their primary control and power circuits, evaluating the impact of chatter in secondary circuits, performing a bad-actor review by comparing the relays to the low capacity relay list in Appendix D of EPRI NP-7148-SL [14], and dispositioning any bad actors identified.

A total of 170 IPEEE-only components were identified. Following further review, only 83 components were found to employ relays in their control and/or actuation circuits. A total of 116 primary circuit relay coils were identified, none of which contained any bad-actor relay coils. In addition, 201 secondary circuit (interlock/actuation) contact pairs were identified in the primary circuits. Four of the contacts were found to originate from bad actor relays (all Westinghouse SC over-current relays used for protection of the station auxiliary transformer). Since chatter of these relays would at most result in a recoverable LOSP which would be lost for other reasons anyway during a significant seismic event, no remedial action was considered to be necessary.

In summary, the IP2 seismic IPEEE has involved an adequate bad-actor relay evaluation consistent with the guidelines of NUREG-1407. Although four bad actor relays were identified, these involved a recoverable LOSP which would be lost for other reasons during significant earthquakes.

#### 2.1.12 Soil Failure Analysis

The potential for soil liquefaction and slope stability issues was addressed in the IP2 IPEEE by using the EPRI NP-6041, Rev. 1, procedures. IP2 is a rock site, and plant structures founded on rock were screened based on the EPRI guidance. Buried pipelines and tanks were specifically evaluated. While buried pipelines were found to be adequately protected, the diesel fuel oil tanks were found to be vulnerable to failure due to hold down strap failure and failure of grouted rock anchors. These failure modes were included in the seismic fragility evaluation.

A special review was performed of natural gas pipelines and "pig stations" located near IP2. As a conservative step, three potential failure impacts were evaluated: (a) a fire at the pipeline; (b) a potential explosion; and (c) transport of a vapor cloud and fire at the plant site. A fire at the pipeline was evaluated and determined not to impact IP2 because there is a 100-foot-wide firebreak around the plant. There is an old stack at the plant site which could collapse on the control room, but the IPEEE submittal indicates that natural gas does not detonate unless confined, and that therefore a severe shock wave at the plant site is not credible. Finally, the nearest point of approach of the pipeline is 1,200 feet from IP2. Natural gas is lighter than air and readily rises and disperses into the atmosphere. The IPEEE states that it is unlikely that weather conditions would form to support a gas cloud which could travel 1,200 feet and still support combustion or asphyxiation. A conservative bounding frequency calculation indicates that the frequency of an ignition of such a vapor cloud at IP2 is less than  $6.0 \times 10^{-7}/\text{yr}$ . The scenario was screened from further analysis based on this result and on the understanding that redundant and diverse systems would have to fail for the scenario to result in core damage.

In summary, the IPEEE submittal adequately addresses soil failure concerns. The conservative analysis of natural gas pipeline issues provides further support to the conclusion that no credible scenario exists.

#### 2.1.13 Containment Performance Analysis

The IP2 IPEEE submittal follows the NUREG-1407 guidance concerning the seismic containment performance analysis. The major structures and systems whose failure could result in early containment failure or bypass were evaluated in the plant walkdowns and fragility evaluations. Containment penetrations were reviewed, and it was found that no isolation valves depend on air to provide closure capability. The containment personnel and equipment hatches were reviewed; no inflatable seals exist on the hatches. All sensors, transmitters, logic and relay cabinets, and power supplies for the containment isolation actuation system were included in the walkdowns and found to have high capacity. These components were therefore screened from the analysis. The seismic PRA results indicate that about 65% of the seismic CDF results in plant damage states with initial loss of containment pressure suppression and heat removal functions. If these functions are not regained, long-term overpressure failure of the containment could result. None of these sequences leads directly to early containment failure or bypass.

In summary, the containment performance assessment has examined all major failure modes, interaction issues, and other areas of concern. No vulnerabilities to early containment failure or bypass were noted in the assessment.

#### 2.1.14 Seismic-Fire Interaction and Seismically Induced Flood Evaluations

The walkdowns performed as part of the IPEEE process were used to evaluate the potential for seismic-fire interactions. Sources of flammable gases and liquids were identified by systems engineers prior to the walkdown and from previous fire walkdown experience, and the seismic capacity of these flammable sources was evaluated by judgment. Seismic interactions which could affect these sources were also evaluated for seismic capacity.

Only two seismic-fire interactions could not be screened on the basis of the walkdown. The adequacy of the RCP lube oil collection tank seismic anchorage could not be confirmed. The tank provides standby capacity and does not normally contain large amounts of lube oil. Subsequent to the walkdown, it was determined that the anchorage of the tank was adequate. The second interaction not screened during the walkdown involved storage of hydrogen bottles near the alternate shutdown panel. Since alternate shutdown is not credited in the seismic analysis, this interaction was not considered to be significant.

The potential for seismically induced flooding and spray interactions was handled in an analogous manner. Special consideration was given to fire protection sprinkler heads in proximity to structural steel or other hard objects. Consideration of flooding from non-seismically designed tanks was based on input from the systems engineers and the internal flooding analysis. No potential interactions were identified as needing further consideration.

In summary, the seismic-fire and seismic-flooding interaction analysis in the IP2 IPEEE has addressed the major areas of concern.

#### 2.1.15 Treatment of USI A-45

IP2 safety-related decay heat removal systems include the AFW system, the charging, SI, RHR, and recirculation systems, and the PORV system. Support systems include electric power, cooling water (service water and CCW), air/nitrogen, and room cooling and ventilation. Containment heat removal and pressure suppression are performed by the containment spray and fan cooler systems.

Each of these systems was included in the seismic PRA. All of the AFW equipment screened out of the seismic PRA except for the condensate storage tank (CST), which has a median fragility of 1.13g. Bleed-and-feed (use of PORVs to bleed primary coolant, and high pressure makeup to provide injection), a backup means of decay heat removal, was also evaluated. The front-line equipment associated with bleed-and-feed has high capacity except for the RWST, which has a median capacity of 0.61g. Sequences with seismic failure of the CST and combined with failure of the RWST or other bleed-and-feed failures, are estimated to contribute  $3.0 \times 10^{-7}$ /ry to seismic CDF (about 2% of the total).

Based on the relatively low CDF from earthquakes at IP2, conservatism in the seismic modeling process, and the largest single contributor having a CDF of about  $3.0 \times 10^{-7}$ /ry, the licensee determined that no vulnerabilities in decay heat removal systems exist at IP2.

In summary, the seismic IPEEE has examined the capability of decay heat removal functions relevant to USI A-45. No vulnerabilities were identified. The evaluation approach addresses all of the major relevant seismic issues, and hence, the IPEEE's treatment of USI A-45 is judged to be appropriate and relevant to evaluation of decay heat removal concerns at IP2.



#### 2.1.16 Treatment of GI-131

The IP-2 flux monitoring cart that is the subject of GI-131 has been modified to brace the cart in two directions. The flux monitoring cart was determined as part of the SPRA to have a HCLPF in excess of 0.5g. In accordance with the screening procedures used on the IP2 SPRA, the flux monitoring cart was screened from the analysis as seismically robust. On the basis of high seismic capacity, this issue may be considered to be resolved for IP2. As such, the IPEEE's treatment of GI-131 has adequately addressed the relevant concerns.

#### 2.1.17 Other Safety Issues

The IP2 seismic IPEEE used both the EPRI and revised LLNL seismic hazard curves. These hazard curves directly address the Eastern U.S. Seismicity Issue. Thus, the IPEEE has followed the guidelines for resolving this issue.

With regard to USI A-46, the submittal notes several coordination efforts that improved the effectiveness of the IPEEE study. The submittal indicates that some of the same seismic experts were used for walkdowns in the A-46 and IPEEE studies; that system engineers provided systems expertise to the A-46 team and identified a list of "IPEEE-only" components; the USI A-46 team passed walkdown insights to the IPEEE program; and fragility calculations from A-46 were an important information resource for the IPEEE study. USI A-46 is being resolved separately from the seismic IPEEE. It should be noted that the scope of the A-46 program included the seismic spatial interaction aspects of USI A-17, as did the IPEEE seismic PRA walkdowns. In addition, it should be noted that the scope of USI A-46 included the USI A-40 concerns regarding the seismic capability of large safety-related above-ground tanks. The tanks (CST and RWST) were included in the SPRA as well, and no vulnerabilities were noted in this regard.

In summary, the Charleston Earthquake Issue, coordination of the IPEEE with USI A-46, the seismic spatial interactions aspect of USI A-17, and the seismic capacity of large above-ground tanks issue of US A-40 have all been appropriately treated in the seismic IPEEE.

#### 2.1.18 Process to Identify, Eliminate, or Reduce Vulnerabilities

Although no formal definition for vulnerability was proposed in the IPEEE submittal, the submittal does reference the NEI severe accident closure guidelines [9]. The seismic IPEEE process has been thorough and generally well-executed in a search for vulnerabilities. None have been identified.

Overall, it may be stated that the IPEEE is capable of finding seismic-related severe accident vulnerabilities, but that none were identified as a result of a thorough review.

#### 2.1.19 Peer Review Process

A formal project plan, task plans, and a quality assurance plan were incorporated into the project scope to help ensure the technical adequacy of the analysis and the validity of the work performed. Work products were reviewed at each stage by project team members, as well as by personnel other than those performing the task.

Two independent peer reviews were also incorporated into the licensee's IPEEE process. An independent review was performed by an in-house team which drew on experienced personnel (independent from the project team). A peer review by a team of industry experts was also performed. Seismic walkdowns were performed as part of the outside expert review to help further assure the validity of the analyses.

In conclusion, the IP2 seismic IPEEE has apparently been subjected to a meaningful peer review process.

## 2.2 Fire

A summary of the licensee's fire IPEEE process has been described in Section 1.2. In this section, the licensee's fire evaluation is described in detail, and discussion is provided regarding significant observations.

### 2.2.1 Overview and Relevance of the Fire IPEEE Process

#### a. *Method Selected for Fire IPEEE*

The IPEEE submittal includes extensive discussions regarding the methods and data used in conducting the fire analysis. The fire analysis was conducted using a PRA approach to examine all fire scenarios which were determined to be potentially risk-significant based on a progressive screening approach. The screening was performed using FIVE methodology. Each scenario was then treated as a separate initiating event and propagated through the plant model, which was modified to reflect the fire-induced equipment failures associated with the respective scenario. This allowed fire failures to be combined with random failures.

#### b. *Key Assumptions Used in Performing Fire IPEEE*

The submittal lacks explicit discussion of the key assumptions used in performing the fire analysis. However, the following assumptions have been identified during the review:

1. Reactor sub-criticality is assumed to be successful in all cases.
2. Fire propagation was assumed not to occur from low voltage enclosed cabinets with continuous conduit cable entry. However, a study to demonstrate the effect of propagation from high voltage (greater than 440V) cabinets was performed. The contribution to CDF was approximately  $2 \times 10^{-6}/\text{ry}$ .
3. Welding fires damaging fixed combustibles and cable junction box fires were eliminated from consideration because the walkdown showed that no significant amounts of exposed combustibles are near junction boxes, and open flame welding is prohibited in critical fire zones.
4. If the mean damage time fell within the range of drill response times, a 50% probability of successful manual suppression was assigned.

#### c. *Status of Appendix R Modifications*

The licensee states that all Appendix R modifications at IP2 have been completed and uses Appendix R definitions in the IPEEE fire analysis. For example, the definitions of fire areas and compartments are used per Appendix R guidelines. To define the safety component list, the IPE model has been used.

d. *New or Existing PRA*

The IPEEE is a new fire study employing both the FIVE and PRA methodologies.

2.2.2 Review of Plant Information and Walkdown

a. *Walkdown Team Composition*

Several plant walkdowns were performed for the IP2 fire analysis. The main objective of these walkdowns was to gather plant data which could not be readily derived from documented sources, in order to perform the screening and detailed analyses, as well as complete the evaluation of the FRSS issues. The licensee describes in some detail the qualifications of the personnel involved in the analysis, and the participation of the licensee's in-house personnel in the preparation of the fire IPEEE. The team was composed of experienced engineers and analysts.

b. *Significant Walkdown Findings*

The scope of the walkdowns includes a wide variety of considerations. The submittal does not indicate that the walkdown team discovered any fire vulnerabilities as a result of the plant walkdowns.

c. *Significant Plant Features*

IP2 has installed an Alternate Safe Shutdown System to mitigate the potential effects of fire, particularly those that disable the 480V buses. This system is able to take power from black-start gas turbines (1,2 or 3) which would normally supply power to Unit 1 auxiliaries. However, transfer switches have been installed which redirect this power to selected Unit 2 components. Instrumentation needed to operate the plant if the control room must be abandoned is distributed throughout the plant.

2.2.3 Fire-Induced Initiating Events

a. *Were Initiating Events Other than Reactor Trip Considered?*

Components and initiators modeled in the IPE have been used in the fire IPEEE. The analysis utilizes the IP2 IPE initiating event categorization, except for those initiating events which cannot be induced as a result of fire (e.g., steam generator tube rupture or steam line break). The categories of fire-induced initiating events which were evaluated include:

- General transient
- LOSP
- Small-break loss of coolant accident (SLOCA)

b. *Were the Initiating Events Analyzed Properly?*

The initiating events (IPE initiators) have been addressed in the IPEEE. The list of initiating events considered significant is typical of past PRAs for similarly configured plants.

#### 2.2.4 Screening of Fire Zones

##### a. *Was Proper Screening Methodology Employed?*

Screening of fire zones appears to have been performed properly, albeit with the qualitative criterion found in the original FIVE study. Screening has been conducted in multiple stages, using the protocol prescribed as part of the FIVE methodology.

In the first qualitative stage, all safe shutdown equipment located in the compartment were considered failed, and the normal alternate shutdown equipment was considered unavailable. Given these conditions, if there is both a requirement for plant trip and the shutdown requires the use of equipment assumed to be damaged, then the area was retained for further analysis.

In the second stage, the CDF threshold of  $1.0 \times 10^{-6}/\text{ry}$  was applied. Using the fire occurrence frequency for each compartment, together with the CCDP, assuming loss of all cables and components in the compartment, the CDF contribution for the compartment was computed. Only one compartment was screened out in the second stage.

The submittal could have benefitted from more explanation with respect to definition of initiating events and justification for screening out the diesel generator building and RHR pump room.

##### b. *Have the Cable Spreading Room and Control Room Been Screened Out?*

Neither the cable spreading room nor the control room has been screened out of the analysis. The control room was subjected to a detailed analysis in which various panels were explored for potential fire occurrence, and the response of the operators to the fire event was considered.

##### c. *Were There Any Fire Zones/Areas That Have Been Improperly Screened Out?*

No improperly screened fire areas/zones could be identified. This review finding was based on the information provided in the submittal. A random check of the frequencies and information on the type of equipment/cables present also revealed no errors or inconsistencies. The final results seem to be reasonable, and are within the expected range of results for PWR plants.

#### 2.2.5 Fire Hazard Analysis

The FIVE methodology and data, along with a plant walkdown, have been used to estimate fire frequencies for individual compartments and fire areas. Weighting factors have been applied to apportion the overall fire frequency to the specific fire zones. Plant-specific fire occurrence data have not been used.

#### 2.2.6 Fire Growth and Propagation

##### a. *Treatment of Cross-Zone Fire Spread and Associated Major Assumptions*

The submittal considered the potential for inter-area fire propagation from all compartments with fire loading greater than 20,000 BTU and into target compartments that could receive hot gases from the source compartment. After including a severity factor (the fraction of fires that are large enough to cause a

significant hot gas layer) and assuming that suppression does not occur, the contribution to CDF was calculated to be approximately  $7 \times 10^{-6}/\text{ry}$ .

*b. Assumptions Associated with Detection and Suppression*

Automatic fire suppression failure rates were taken from FIVE. Specific consideration was given to detector and sprinkler spacing to ensure actuation prior to cable damage.

Manual fire suppression, prior to damage, was credited if the manual response during unannounced IP2 fire drills was shorter than the COMPBRN predicted time for cable damage. If the maximum drill time was less than the mean damage time, the success probability for manual suppression was assigned a value of 0.9. If the mean damage time fell within the range of the drill response times, the success probability for manual suppression was assumed to be 0.5.

*c. Treatment of Suppression-Induced Damage to Equipment, if Available*

The submittal reports that fixed fire suppression systems have not been installed where their operation or failure could cause unacceptable damage to safety-related equipment. A quantitative risk analysis performed as part of the GI 57 study [15] confirms the licensee's qualitative analysis.

*d. Computer Code Used, if Applicable*

The COMPBRN fire code [16] has been used in the fire propagation analysis.

**2.2.7 Evaluation of Component Fragilities and Failure Modes**

*a. Definition of Fire-Induced Failures*

A detailed analysis of fire induced hot shorts in control boxes was provided. This analysis applied to boxes that contain multi-wired control cables. As is typically the case, hot shorts in power supply lines were not considered credible.

*b. Method Used to Determine Component Capacities*

Component capacities were assigned for cables, sensitive electrical components, electric motors, and relays/switches. The following damage temperatures were employed:

- Cables: 623° K
- Sensitive electrical components: 339° K
- Electric motors: 339° K
- Relays, switches: 433° K

The damage threshold temperatures utilized by the licensee are consistent with those employed in past fire PRAs.

c. *Generic Fragilities*

As discussed above, fragilities have been subdivided for four classes of equipment. All fragilities were expressed in terms of a damage threshold temperature.

d. *Plant-Specific Fragilities*

No plant-specific fragilities have been mentioned in the submittal.

e. *Technique Used to Treat Operator Recovery Actions*

The following five categories of operator action were considered:

- Short-term control room actions (within the first four hours)
- Short-term local recovery actions
- Long-term operator actions in the control room modeled in the IPE
- Short-term local actions added to account for specific, post-fire recovery
- Long-term actions added to account for specific, post-fire recovery

Each short-term action was checked to ensure that the action is not prohibited by the presence of fire. For long-term operator recovery actions, the licensee assumed that modification of IPE recovery probabilities was unnecessary given that most actions did not require execution in less than 10 hours.

## 2.2.8 Fire Detection and Suppression

Fire detection and suppression were modeled explicitly for many fire scenarios. The combined time of detection and suppression was examined with respect to potential equipment and cable damage. Manual fire-fighting, and the effect of fixed fire suppression systems on the formation of a hot gas layer, have been considered.

## 2.2.9 Analysis of Plant Systems and Sequences

a. *Key Assumptions Including Success Criteria and Associated Bases*

The success criteria are taken directly from the IPE analysis and have not been modified for the fire analysis.

b. *Event Trees (Functional or Systemic)*

Each fire scenario was identified as an initiating event and the IPE event tree was requantified setting the probability of failure of the damaged equipment to 1.0.

c. *Dependency Matrix, if it is Different from Seismic Events*

No dependency matrix has been provided in the submittal.

d. *Plant-Unique System Dependencies*

The submittal does not present any unique system dependencies.

e. *Most Significant Human Actions*

Human actions, as discussed above, have been considered as an integral part of the fire scenario quantification. The submittal does not summarize the most significant human actions. The Human Cognitive Reliability (HCR) model was used to evaluate operator actions and post-fire recovery actions.

2.2.10 Fire Scenarios and Core Damage Frequency Evaluation

Using a PRA methodology, several fire scenarios have been identified and analyzed. The analyses have taken into account numerous relevant issues, including the list of equipment and components failed by a fire, the CCDP given damage caused by the fire, and the conditional probability of failure to suppress the fire. A large number of fire areas and compartments have been considered, and a summary of the analysis is presented in the submittal. The control room was analyzed in detail—the possibility of operators abandoning the control room was explicitly considered and modeled.

CDF was the principal parameter used for quantitative screening in the fire analysis. Plant damage models (i.e., IPE models) have been used in the analysis. Fire ignition, propagation, detection, and damage have been quantified. The IPEEE submittal provides sufficient detail to allow verification of a chain of computations, and presents numerous tables and figures that assist in this regard.

2.2.11 Analysis of Containment Performance

a. *Significant Containment Performance Insights*

Containment performance was evaluated for the potential of fire-induced containment bypass and failure of containment isolation. Mechanical or spurious valve operation due to control and power circuit damage was evaluated, and the licensee found no significant fire-induced bypass or failure of isolation mechanisms. The fire analysis did not evaluate containment pressure suppression and heat removal system status.

b. *Plant-Unique Phenomenology Considered*

No containment-related event trees have been used in any of the screening phases, nor in evaluating the unscreened fire zones.

2.2.12 Treatment of Fire Risk Scoping Study Issues

a. *Assumptions Used to Address Fire Risk Scoping Study Issues*

All of the Sandia FRSS issues have been addressed closely following the methodology described in FIVE. The licensee has presented a discussion pertaining to each issue, as summarized below.

1. Seismic-fire interaction has been addressed by examinations of the potential for: (a) a fire event resulting from an earthquake; (b) inadvertent seismic actuation of the fire suppression systems and resulting effects on safety equipment; and (c) seismically induced failure of the fire protection

system. A walkdown of the plant has been undertaken for these examinations. The licensee did not identify any potential vulnerabilities.

2. The submittal concludes that the potential for fire barrier failure is not risk-significant, based upon periodic surveillance programs.
3. In the assessment of manual suppression effectiveness, the submittal states that a program is in place to indoctrinate selected plant personnel in the administrative procedures that implement the IP2 fire protection program. Orientation of plant personnel in the use of fire extinguishers is provided by general employee training. Also, the fire brigade conforms with the Appendix R requirements.
4. The licensee concludes that the potential effects of non-thermal products of combustion on safety equipment are insignificant. Regarding operator effectiveness, self-contained breathing apparatus (SCBA) equipment is provided, as well as emergency lighting units.
5. An assessment of IP2 post-fire alternative shutdown features was performed to determine the design/operational characteristics applied to the normal and alternative equipment trains. Particular attention was given to any alternative trains that rely on a control transfer and/or shared equipment scheme. The licensee concluded that the design of the IP2 alternative shutdown capabilities is "generally immune" to the effects of control system interactions.

*b. Significant Findings*

The following are the significant findings associated with the ERSS issues:

1. The suppression systems do not have a significant potential to adversely affect safety systems.
2. Procedures are available that address fire-related issues.
3. Existence of an alternative shutdown capability, and the provision for isolating this capability, minimize the potential for control systems interaction.

2.2.13 USI A-45 Issue

*a. Methods of Removing Decay Heat*

The IPEEE fire analysis uses logic models developed for the IPE, which include the entire array of heat removal capabilities of the plant.

*b. Ability of the Plant to Feed and Bleed*

The IPE model used in the IPEEE includes the provision for feed and bleed cooling.

*c. Credit Taken for Feed and Bleed*

Credit has been taken for feed and bleed capability.



d. *Presence of Thermo-Lag*

The submittal provides no information concerning the presence of Thermo-lag.

### 2.3 HFO Events

Based on an analogy to NEI guidance with respect to severe accident closure, the IP2 IPEEE submittal reports no vulnerabilities with respect to HFO events. The submittal indicates that implementation of the screening approach described in Supplement 4 to GL 88-20, and in the guidance of NUREG-1407, has formed the basis for the conclusion that the plant is not vulnerable to HFO events.

The general methodology that has been implemented for the HFO events analysis makes use of the following screening steps:

1. High winds, external floods, and transportation and nearby facility accidents have been considered using the approach described in NUREG-1407. Other plant external hazards have been considered using the screening methods described in the PRA Procedures Guide [17].
2. For high winds, external floods, and transportation and nearby facility accidents, any changes that have taken place since the time the operating license (OL) was issued have been identified.
3. For high winds, external floods, and transportation and nearby facility accidents, a quick screening has been performed to identify whether or not the plant meets the 1975 SRP criteria. As a result, further analysis was performed for winds, floods and some of the transportation and nearby facility accidents.
4. The resulting HFO events analysis has been documented in the IPEEE submittal report.

The licensee conducted a walkdown with the objective of collecting information on HFO events. Concurrent with the walkdown activities, a review was made of plant design documents, including the Updated Final Safety Analysis Report (UFSAR), the IPPSS, and recent meteorological data collected by the licensee. The walkdown and survey of the area within 5 miles of the plant was performed to confirm that no significant changes to the plant, and in the site region, have occurred since the issuance of the OL and the IPPSS. The walkdown concentrated on outdoor facilities that could be affected by the external events addressed in this section (with emphasis on high winds and onsite storage of hazardous materials), and on offsite developments. The walkdown was performed following procedures developed specifically for the IPEEE, and included engineering and technical personnel from both the utility (four representatives) and the contractor team (three representatives).

Due to the importance of high winds identified in the original IPPSS, the onsite walkdown concentrated on outdoor tanks and equipment; entrances to concrete buildings; openings in buildings such as air intakes, diesel exhaust stacks, and louvers; block walls in structures with openings; structures which could collapse and impact buildings containing safety-related equipment; and availability of objects which could become missiles in a tornado or hurricane. The main purpose of the walkdown was to obtain an overall appreciation of the plant layout, location of structures, and the types of construction, and generally confirm the validity of structural drawings for tanks and buildings from which most of the information for wind fragility evaluation was obtained. The walkdown activities also included inspection of the area surrounding the

immediate site, and contact with cognizant non-utility personnel with knowledge of current conditions and activities which could impact the examination.

### 2.3.1 High Winds and Tornadoes

#### 2.3.1.1 General Methodology

IP2 structures and systems were designed to the wind loading requirements of the building codes in effect in the early 1970s. They predate, and do not meet, the 1975 SRP criteria. Also, some of the structures at IP2 housing safety-related equipment are metal-sided steel structures offering limited resistance to tornado missiles. The extreme wind hazard analysis done in the IPPSS indicated that high winds could not be screened out on the basis of low frequencies of occurrence. Therefore, utilizing the NUREG-1407 screening approach, the licensee concluded that a detailed PRA was needed to address the impact of high wind events at IP2.

#### 2.3.1.2 Plant-Specific Hazard Data and Licensing Basis

The wind hazard and building fragility analysis performed in the IPPSS analysis was reviewed and updated. An event-tree-based approach was used to define a set of unique wind-induced plant damage states.

In the IPPSS, simplified fault tree models were developed to represent the various combinations of wind-initiated events (including hurricanes, extratropical cyclones, tornadoes and tornado missiles) and resulting equipment failures which may lead to core damage. Three types of scenarios were initially considered: transients coupled with failure of decay heat removal, loss of RCP seal cooling (resulting in seal LOCA) coupled with failure of SI, and large LOCA coupled with failure of SI. Wind-induced large LOCAs were subsequently ruled out.

Data on occurrence of tornadoes, hurricanes, extratropical cyclones, and thunderstorms were taken from the IPPSS. As a check, the IPEEE analysis reviewed the tornado occurrence rate data. Since, based upon a preliminary quantification by the licensee, tornado-induced mean frequency of core damage was significantly greater than that induced by hurricanes, qualitative review of the IPPSS hurricane hazard analysis was deemed sufficient.

#### 2.3.1.3 Significant Changes Since Issuance of the Operating License

The submittal states that a walkdown was performed to ensure that no significant changes have occurred since the time of issuance of the OL.

#### 2.3.1.4 Significant Findings and Plant-Unique Features

The submittal states that equipment located inside concrete buildings (i.e., reactor building and lower portion of the primary auxiliary building and auxiliary feed pump building) are generally protected from wind loading and missile penetration. Equipment located within sheet metal clad structures are partially protected (i.e., top portions of the primary auxiliary building, AFW structure, turbine generator building, and gas turbine generator building). Equipment in the yard (e.g., CST, service water pump) are not protected from tornado- or hurricane-induced missiles.

### 2.3.1.5 Hazard Frequency

The IPEEE analysis separates the effects of hurricanes from those of tornadoes and extratropical cyclones. At each wind speed, the wind speed exceedance probabilities for tornado and extratropical cyclones were added to obtain wind hazard curves for the combined extratropical cyclone and tornado event. The submittal presents median capacities for the key structures at IP2. The median capacities vary from 83 mph (e.g., gas turbine shelters) to 222 mph (e.g., auxiliary feed pump building). For wind speeds of 100 mph or less, the wind speed exceedance frequency is dominated by hurricanes ( $4.0 \times 10^{-6}/\text{yr}$  and greater), while for wind speeds of 125 mph or greater, the wind speed exceedance probability is dominated by tornadoes ( $3.0 \times 10^{-6}/\text{yr}$  and less).

### 2.3.1.6 Bounding Analysis

The IPEEE study has used a PRA analysis to further analyze tornado, extratropical cyclone, and hurricane events. Therefore, bounding analyses were not performed.

### 2.3.1.7 PRA Analysis

The PRA analysis determined the CDFs resulting from each wind damage state, taking into account equipment loss due to wind-related structural damage and tornado missile damage, as well as unrelated coincident-random equipment failures. Within the internal events model, the general transient event tree was selected by the licensee for the purpose of modeling accident sequences resulting from wind-induced initiating events. The model included the potential for, and mitigation of, consequential LOCA events resulting from loss of RCP seal cooling or a stuck-open PORV. LOSP was reflected in the support systems logic, as was the recovery of power from the gas turbines.

The total contribution to CDF from all three wind hazard types is  $3.0 \times 10^{-5}/\text{ry}$ . The containment analysis found that 87% of wind CDF leads to station blackout, loss of all containment heat removal, and long term containment failure (if no recovery). The contribution to CDF from each wind damage state and wind hazard type is given in the submittal. Tornadoes and extratropical cyclones are the major HFO contributors to CDF, contributing  $1.7 \times 10^{-5}/\text{ry}$  and  $1.1 \times 10^{-5}/\text{ry}$ , respectively. Hurricane events contribute  $2.4 \times 10^{-6}/\text{ry}$ .

The dominant sequences for tornado and extratropical cyclones occur due to wind damage state "w02." In the case of tornadoes, failure of the turbine building (leading to consequential failure of the control building), the control building itself, and the combination of emergency diesel generator/gas turbine (EDG/GT) building failure all contribute significantly. In the case of extratropical cyclones, the EDG building failures are more important. Due to the resulting station blackout, RCP seal cooling is lost, resulting in a seal LOCA with no reactor coolant system (RCS) make-up capability.

There is also some contribution to core damage from scenarios which include missile damage (principally on the control and EDG buildings) and/or coincident random equipment failures (principally the gas turbines). In the case of tornadoes, this contribution is  $3.8 \times 10^{-6}/\text{ry}$ , whereas the contribution from extratropical cyclones is  $3.5 \times 10^{-6}/\text{ry}$ .

The contribution to CDF from hurricane events ( $2.4 \times 10^{-6}/\text{ry}$ ) is less significant compared with the other two wind hazards. This is the case for two reasons. First, and of greater significance, the frequencies associated with hurricane wind speeds in the range which could cause severe plant damage are substantially lower than

those associated with tornadoes and extratropical cyclones. Second, and of lesser significance, the implementation of the IP2 hurricane technical specification and implementing procedure requires the plant to be in a cold shutdown condition prior to the hurricane reaching the site. In this condition, the likelihood of an RCP seal LOCA is reduced, and the plant may be maintained in a stable condition using the turbine-driven AFW pump and pneumatic instrumentation.

### 2.3.2 External Flooding

#### 2.3.2.1 General Methodology

The grade elevation at the plant embankment adjoining the river is 14.0 feet, and rises above this level at all other plant buildings and structures. The minimum critical flood height for IP2 is in the 480 V Switchgear Room, at elevation 15.5 feet. The probable maximum flood (PMF) analysis conducted in 1971-73, during licensing of the adjoining IP3 facility, concluded that the maximum sustained water surface elevation at the plant is 14.0 feet, based on the combination of a Hudson River maximum flood, probable maximum precipitation over the Esopus Creek Basin resulting in failure of the Ashokan Dam, and a hurricane at New York Bay.

Probable maximum precipitation (PMP) was evaluated for six storm events, one of which was a 100-year, 24-hour storm event. The PMP analysis provides the locations and maximum depths of ponds which form on the roofs of various site structures and in various areas around the site. The roofs were evaluated by converting the water depth to a loading, and comparing the calculated loading with the allowable roof loadings.

#### 2.3.2.2 Plant-Specific Hazard Data and Licensing Basis

The plant has not experienced flooding from the Hudson River that has exceeded the plant grade elevation. Information obtained from the U.S. Army Corps of Engineers by the licensee has confirmed that there is a stream gage on the Hudson River (at Greenland), and that the water level does not exceed 14.0 feet above mean sea level (MSL). Since the river is very wide, its water depth does not fluctuate much. The walkdown and review of the surrounding site showed that no major construction has taken place that may change the river regime upstream of the Hudson River since the IPPSS, nor has there been any major changes to the terrain around the plant. Therefore, the licensee concluded that the response of the terrain to a hazard which could cause river flooding, as evaluated in the IPPSS, is still valid.

With regard to hurricane-induced river flooding, more recent hurricane inundation maps for Westchester County developed by the U.S. Army Corps of Engineers and the Federal Emergency Management Agency show that the maximum hurricane surge elevation for a Category 4 hurricane, were it to occur close to Indian Point, could reach 13.5 feet. This maximum surge could only occur for the Category 4 hurricanes with wind speeds at the upper end of the range for the category.

#### 2.3.2.3 Significant Changes Since Issuance of the Operating License

The submittal states that a walkdown was performed to ensure that no significant changes have occurred since the time of issuance of the OL.

#### 2.3.2.4 Significant Findings and Plant-Unique Features

No significant findings related to flood events were reported.

### 2.3.2.5 Hazard Frequency

External flooding was screened out due to the elevation of IP2. The IPPSS study estimated the annual frequency of the combination of extreme events leading to the PMF to be in the range of  $1.0 \times 10^{-8}$  to  $1.0 \times 10^{-12}/\text{ry}$ . Therefore, the licensee concluded that the contribution of external flooding to CDF at IP2 is extremely small.

In consideration of the PMP, the buildings which contain safety-related equipment and which were also considered to be susceptible to ponding are the primary auxiliary building, AFW building, turbine building, and control building. Using the maximum allowable live loading for these buildings, an equivalent maximum allowable height of water accumulation was calculated and compared against the maximum height of accumulated rainfall on those buildings. Only the turbine building could experience loads at, or close to, yield. However, given the conservatism in the hazard calculation and the remaining margin between yield and actual failure stress, the licensee judged that the structure would remain intact.

### 2.3.3 Transportation and Nearby Facility Accidents

#### 2.3.3.1 Methodology

The IP2 IPEEE submittal has addressed aircraft crashes, as well as water, rail, and highway transportation accidents. Also, the submittal considers potential impacts of on-site hazardous material inventories.

Airports and airfields within approximately 25 miles of Indian Point were considered in the IPPSS study. The three closest airports were identified as Mahopac, Ramapo Valley and Peekskill Seaplane Base, out of which the Peekskill Seaplane Base was judged to pose the greatest hazard to the plant. Using the annual number of landing and take-off operations at the Seaplane Base, and general aviation accident statistics, the annual probability of an aircraft hitting any of the plant structures was estimated as  $2.4 \times 10^{-7}/\text{ry}$ . Federal airways in the vicinity of the plant were also examined. The annual frequency of an aircraft using the federal airways in the vicinity of the plant and accidentally hitting IP2 structures was estimated by the licensee to be  $4.6 \times 10^{-9}/\text{ry}$ .

The nearest rail facilities are located approximately 0.9 miles west and 0.6 miles east of the plant site. The closest distance to the rail lines from the plant is larger than the stand-off distance. Therefore, the licensee concluded that IP2 meets the 1975 SRP requirements for rail transportation.

The nearest major road is New York Highway 9 extending north/south and located between one to two miles east of the plant site. The distance to the road is much larger than the stand-off distance. Therefore, the licensee concluded that IP2 meets the 1975 SRP requirements for road transportation.

The potential consequences of accidents involving barges on the Hudson River are overpressure on the structures due to explosion, fire at the shoreline, and release of toxic chemicals. The annual frequency of a large, rapid spill resulting in a fire at the shoreline was estimated by the licensee to range from  $1.0 \times 10^{-6}/\text{ry}$  to  $1.0 \times 10^{-9}/\text{ry}$ . With respect to potential damage due to detonation of explosive gases, IP2 is located on the shore of the Hudson River and therefore cannot be screened using the safe stand-off distance criteria. The frequency of barge accidents resulting in overpressures exceeding 1 psi was determined to be  $3.9 \times 10^{-6}/\text{ry}$ .

There are two underground natural gas transmission lines (26-inch and 30-inch diameter) passing through the IP2 site about 1,000 feet from the closest plant structures. The frequency of failure of these pipelines which could pose a hazard to the plant was stated in the submittal to be about  $5.0 \times 10^{-7}/\text{ry}$ .

A number of toxic chemicals stored at IP2 were identified by the licensee. The major potential hazardous chemical emission sources are a 10-ton  $\text{CO}_2$  cylinder at IP3, and a 1-ton chlorine cylinder at Peekskill Sewage Disposal Plant. The control room ventilation intake has quick response chlorine detectors. Using "worst case" chemical release conditions, the estimated maximum control room gas concentrations were determined to be less than 1%  $\text{CO}_2$ , and less than 1 ppm chlorine.

#### 2.3.3.2 Plant-Specific Hazard Data and Licensing Basis

For aircraft crashes, the IPPSS study was used to determine the frequency of a crash. The submittal is organized and systematic in the analysis. Some data on the frequency of flights from nearby airports is reported.

For the analysis of land and water transportation events, most were screened based on stand-off distance criteria. In the case of barge traffic, the licensee states that the conditional probability of core damage, given a 1-psi overpressure, is 0.1. Therefore, barge accidents were eliminated from further consideration.

Toxic chemical accidents have been evaluated in detail using "worst case" meteorological conditions. Toxic gas concentrations in the control room (even without ventilation system isolation) were stated to be less than Emergency Response Planning Guidelines-2 (ERPG-2) concentrations.

Natural gas pipeline accidents were screened based upon the frequency of such accidents which could pose a hazard to the plant.

#### 2.3.3.3 Significant Changes Since Issuance of the Operating License

The submittal states that there have not been any significant developments that affect the original design condition with regard to transportation and nearby facility accidents since the issuance of the OL.

#### 2.3.3.4 Significant Findings and Plant-Unique Features

All these hazards screen out.

#### 2.3.3.5 Hazard Frequency

For aircraft crash, barge overpressure, and pipeline accidents, hazard frequency arguments have been utilized to screen these events from further consideration. Some details of the hazard frequency determination are provided. Based upon separation distance, the aircraft crash and natural gas pipeline accident analyses are considered reasonable. In the case of barge accidents, sufficient detail is provided by the submittal to support the conclusion that this hazard screens.

## 2.3.4 Other HFO Events

### 2.3.4.1 General Methodology

The screening process followed in NUREG-1407 was reviewed by the licensee in light of IP2-specific information. In addition, any known external hazards that may have the potential to damage IP2 were examined. The external hazards and the screening criteria listed in Reference [17] were used. A standard table describing the rationale for screening of each "other" external hazard is provided in the submittal. The licensee concluded that there were no other plant-unique external events which pose a significant hazard to the plant.

### 2.3.4.2 Plant-Specific Hazard Data and Licensing Basis

The IPPSS study was utilized to screen most "other" external events. Also, if the external event could, at most, result in a LOSP, it was eliminated from further consideration.

### 2.3.4.3 Significant Changes Since Issuance of the Operating License

The submittal states that a walkdown was performed to ensure that no significant changes have occurred since the time of issuance of the operating license.

### 2.3.4.4 Significant Findings and Plant-Unique Features

No significant findings are discussed in the submittal for "other" HFO events.

### 2.3.4.5 Hazard Frequency

In a few cases, hazard frequencies derived in the IPPSS study are utilized to screen some "other" HFO events. For most "other" HFO events, PRA Procedure Guide criteria are employed for screening.

## 2.4 Additional Generic Issues (GSI-147, GSI-148, GSI-156, GSI-172)

### 2.4.1 GSI-147, "Fire-Induced Alternate Shutdown/Control Panel Interaction"

GSI-147 addresses the scenario of fire occurring in a plant (e.g., in the control room), and conditions which could develop that may create a number of potential control system vulnerabilities. Control system interactions can impact plant risk in the following ways:

- Electrical independence of remote shutdown control systems
- Loss of control power before transfer
- Total loss of system function
- Spurious actuation of components

The submittal has followed the guidance provided in FIVE concerning control system interactions. A detailed assessment was performed by the licensee to determine the design/operational characteristics applied to the normal and alternative trains. Particular attention was given to any alternative trains that rely on a control transfer and/or shared equipment scheme.

#### 2.4.2 GSI-148, "Smoke Control and Manual Fire-Fighting Effectiveness"

GSI-148 addresses the effectiveness of manual fire-fighting in the presence of smoke. Smoke can impact plant risk in the following ways:

- By reducing manual fire-fighting effectiveness and causing misdirected suppression efforts
- Electronic equipment can be damaged or degraded
- By hampering the operator's ability to safely shutdown the plant
- By initiating automatic fire protection systems in areas away from the fire

Reference [18] identifies possible reduction of manual fire-fighting effectiveness and causing misdirected suppression efforts as the central issue in GSI-148. Manual fire-fighting was credited in the analysis. The hindering of short-term (less than four hours) operator recovery actions due to smoke was considered, and IPE recovery probabilities were modified as appropriate. No discussion is provided in the submittal regarding either smoke-induced misdirection of manual suppression efforts or actuation of automatic FPSs in areas away from the fire.

#### 2.4.3 GSI-156, "Systematic Evaluation Program (SEP)"

GSI-156 addresses issues encountered at plants that were licensed prior to the time the 1975 Standard Review Plan (SRP) was issued. Among other concerns, GSI-156 issues relate to seismic; fire; and high winds, floods, and other (HFO) external events. Reference [18] provides the description of each SEP issue stated below, and delineates the scope of information that may be reported in an IPEEE submittal relevant to each such issue. The objective of this subsection is only to identify the location in the IPEEE submittal where information having potential relevance to GSI-156 may be found.

##### *Settlement of Foundations and Buried Equipment*

Description of the Issue [18]: The objective of this SEP issue is to assure that safety-related structures, systems and components are adequately protected against excessive settlement. The scope of this issue includes review of subsurface materials and foundations, in order to assess the potential static and seismically induced settlement of all safety-related structures and buried equipment. Excessive settlement or collapse of foundations could result in failures of structures, interconnecting piping, or control systems, such that the capability to safely shutdown the plant or mitigate the consequences of an accident could be comprised. This issue, applicable mainly to soil sites, involves two specific concerns:

- potential impact of static settlements of foundations and buried equipment where the soil might not have been properly prepared, and
- seismically induced settlement and potential soil liquefaction following a postulated seismic event.

Static settlements are not believed to be a concern, and the focus of this issue (when considering relevant information in IPEEEs) should be on seismically induced settlements and soil liquefaction. It is anticipated that full-scope seismic IPEEEs will address these concerns, following the guidance in EPRI NP-6041.

Section 3.1.3.5 of the Indian Point Unit 2 IPEEE submittal provides a discussion of this issue. IP2 is a rock site and as such does not have associated with it any soil failure issues. The plant was screened for such



issues during the seismic capability walkdowns. Buried pipelines inside the plant fence are run in trenches excavated from rock and backfilled. Some settlement could occur, but the amount of backfill beneath the pipe is expected to be small, and any seismically-induced settlement would not be of sufficient magnitude to fail the buried pipes. The only important buried tanks are the diesel fuel oil tanks, and these tanks were not considered to be of concern for the same reasons as the buried piping.

#### *Dam Integrity and Site Flooding*

Description of the Issue [18]: The objective of this issue is to ensure the ability of a dam to prevent site flooding and to ensure a cooling water supply. The safety functions would normally include remaining stable under all conditions of reservoir operation, controlling seepage to prevent excessive uplifting water pressures or erosion of soil materials, and providing sufficient freeboard and outlet capacity to prevent overtopping. Therefore, the focus is to assure that adequate safety margins are available under all loading conditions, and uncontrolled releases of retained water are prevented. The concern of site flooding resulting from non-seismic failure of an upstream dam (i.e., caused by high winds, flooding, and other events) is addressed as part of the SEP issue "site hydrology and ability to withstand floods." The concerns of site flooding resulting from the seismic failure of an upstream dam and loss of the ultimate heat sink caused by the seismically induced failure of a downstream dam should be addressed in the seismic portion of the IPEEE. The guidance for performing such evaluations is provided in Section 7 of EPRI NP-6041. As requested in NUREG-1407, the licensee's IPEEE submittal should provide specific information addressing this issue, if applicable to its plant. Information included for resolution of USI A-45 is also applicable to this concern.

The 1982-1983 IPPSS study evaluated the frequency of PMP and failure of an upstream dam leading to flooding at the plant site to be less than  $1.0 \times 10^{-8}/\text{ry}$  (Section 6.3 of the submittal). There is no discussion in the submittal, however, of seismically-induced dam failure.

#### *Site Hydrology and Ability to Withstand Floods*

Description of the Issue [18]: The objective of this issue is to identify the site hydrologic characteristics, in order to ensure the capability of safety-related structures to withstand flooding, to ensure adequate cooling water supply, and to ensure in-service inspection of water-control structures. This issue involves assessing the following:

- Hydrologic conditions - to assure that plant design reflects appropriate hydrologic conditions.
- Flooding potential and protection - to assure that the plant is adequately protected against floods.
- Ultimate heat sink - to assure an appropriate supply of cooling water during normal and emergency shutdown.

As requested in NUREG-1407, the licensee's IPEEE submittal should provide information addressing these concerns. The concern related to in-service inspection of water-control structures, a compliance issue, is not being covered in the IPEEE.

The Indian Point IPEEE submittal includes a discussion of external floods, including the effects of storm surge and probable maximum precipitation, in Sections 6.3 and 6.6.

### *Industrial Hazards*

Description of the Issue [18]: The objective of this issue is to ensure that the integrity of safety-related structures, systems, and components would not be jeopardized due to accident hazards from nearby facilities. Such hazards include: shock waves from nearby explosions, releases of hazardous gases, or chemicals resulting in fires or explosions, aircraft impacts, and missiles resulting from nearby explosions. As requested in NUREG-1407, the licensee's IPEEE submittal should provide information addressing this issue.

The Indian Point IPEEE submittal (Section 6.4) includes the following information of relevance to this issue: Section 6.4.1 discusses aircraft accidents; Section 6.4.2 discusses other transportation accidents; Section 6.4.3 discusses gas pipeline accidents; and Section 6.4.4 discusses release of toxic chemicals.

### *Tornado Missiles*

Description of the Issue [18]: The objective of this issue is to assure that plants constructed prior to 1972 (SEP plants) are adequately protected against tornadoes. Safety-related structures, systems, and components need to be able to withstand the impact of an appropriate postulated spectrum of tornado-generated missiles. As requested in NUREG-1407, the licensee's IPEEE submittal should provide information addressing this issue.

The Indian Point IPEEE has involved an evaluation of tornadoes, including tornado-induced missiles, and a detailed discussion is provided in Section 6.2 of the submittal.

### *Severe Weather Effects on Structures*

Description of the Issue [18]: The objective of this issue is to assure that safety-related structures, systems, and components are designed to function under all severe weather conditions to which they may be exposed. Meteorological phenomena to be considered include: straight wind loads, tornadoes, snow and ice loads, and other phenomena judged to be significant for a particular site. As requested in NUREG-1407, the licensee's IPEEE submittal should provide information specifically addressing high winds and floods. Other severe weather conditions (i.e., snow and ice loads) were determined to have insignificant effects on structures (see Chapter 2 of NUREG-1407).

The Indian Point IPEEE has included evaluations of high winds (straight wind loads, hurricanes, and tornadoes) and external floods. Submittal Section 6.2 discusses high winds, and Section 6.3 discusses external flooding.

### *Design Codes, Criteria, and Load Combinations*

Description of the Issue [18]: The objective of this issue is to assure that structures important to safety should be designed, fabricated, erected, and tested to quality standards commensurate with their safety function. All structures, classified as Seismic Category I, are required to withstand the appropriate design conditions without impairment of structural integrity or the performance of required safety functions. Due to the evolutionary nature of design codes and standards, operating plants may have been designed to codes and criteria which differ from those currently used for evaluating new plants. Therefore, the focus of this issue is to assure that plant Category I structures will withstand the appropriate design conditions (i.e., against seismic, high winds, and floods) without impairment of structural integrity or the performance of required

safety function. As part of the IPEEE, licensees are expected to perform analyses to identify potential severe accident vulnerabilities associated with external events (i.e., assess the seismic capacities of their plants either by performing seismic PRAs or SMAs).

No discussion of design codes, criteria, and load combinations is provided in the IP2 IPEEE submittal.

#### *Seismic Design of Structures, Systems, and Components*

Description of the Issue [18]: The objective of this SEP issue is to review and evaluate the original seismic design of safety-related structures, systems, and components, to ensure the capability of the plant to withstand the effects of a Safe Shutdown Earthquake (SSE).

The IP2 seismic IPEEE includes an evaluation of seismic capability of plant structures and equipment. See Section 3.1.4 of the submittal for details.

#### *Shutdown Systems and Electrical Instrumentation and Control Features*

Description of the Issue [18]: The issue on shutdown systems is to address the capacity of plants to ensure reliable shutdown using safety-grade equipment. The issue on electrical instrumentation and control is to assess the functional capabilities of electrical instrumentation and control features of systems required for safe shutdown, including support systems. These systems should be designed, fabricated, installed, and tested to quality standards, and remain functional following external events. In IPEEEs, licensees were requested to address USI A-45, "Shutdown Decay Heat Removal (DHR) Requirements," and to identify potential vulnerabilities associated with DHR systems following the occurrence of external events. The resolution of USI A-45 should address these two issues.

This issue was addressed as part of the IP2 IPEEE, and pertinent information is provided in Sections 3.2.1 and 4.9 of the submittal.

#### **2.4.4 GSI-172, "Multiple System Responses Program (MSRP)"**

Reference [18] provides the description of each MSRP issue stated below, and delineates the scope of information that may be reported in an IPEEE submittal relevant to each such issue. The objective of this subsection is only to identify the location in the IPEEE submittal where information having potential relevance to GSI-172 may be found.

#### *Common Cause Failures Related to Human Errors*

Description of the Issue [18]: Common cause failures (CCFs) resulting from human errors include operator acts of commission or omission that could be initiating events, or could affect redundant safety-related trains needed to mitigate the events. Other human errors that could initiate CCFs include: manufacturing errors in components that affect redundant trains; and installation, maintenance or testing errors that are repeated on redundant trains. In IPEEEs, licensees were requested to address only the human errors involving operator recovery actions following the occurrence of external initiating events.

No discussion on the potential for human-error-caused common cause failures (CCFs) unique to external events is highlighted in the IP2 IPEEE submittal. Human errors were included in the PRA models, but were

limited to errors of omission (which is consistent with typical PRA practice). Human errors (together with random hardware failures) were found to be insignificant contributors to the seismic CDF (less than 5%). For fire events, treatment of human errors is discussed in Section 4.6.1.2 of the IPEEE submittal.

#### *Non-Safety-Related Control System/Safety-Related Protection System Dependencies*

Description of the Issue [18]: Multiple failures in non-safety-related control systems may have an adverse impact on safety-related protection systems, as a result of potential unrecognized dependencies between control and protection systems. The concern is that plant-specific implementation of the regulations regarding separation and independence of control and protection systems may be inadequate. The licensee's IPE process should provide a framework for systematic evaluation of interdependence between safety-related and non-safety-related systems, and should identify potential sources of vulnerabilities. The dependencies between safety-related and non-safety-related systems resulting from external events -- i.e., concerns related to spatial and functional interactions -- are addressed as part of "fire-induced alternate shutdown and control room panel interactions," GSI-147, for fire events, and "seismically induced spatial and functional interactions" for seismic events.

Control system dependencies were treated directly in the PRA models for seismic and fire events. No control system dependencies were identified as contributing to risk for HFO events. Control system dependencies were also addressed in the USI A-46 program. Information provided in the IP2 IPEEE submittal pertaining to seismically induced spatial and functional interactions is identified below (under the heading *Seismically Induced Spatial and Functional Interactions*), whereas information pertaining to fire-induced alternate shutdown and control panel interactions has already been identified in Section 2.4.1 of this TER.

#### *Heat/Smoke/Water Propagation Effects from Fires*

Description of the Issue [18]: Fire can damage one train of equipment in one fire zone, while a redundant train could potentially be damaged in one of following ways:

- Heat, smoke, and water may propagate (e.g., through heating, ventilation and air conditioning (HVAC) ducts or electrical conduit) into a second fire zone, and damage a redundant train of equipment.
- A random failure, not related to the fire, could damage a redundant train.
- Multiple non-safety-related control systems could be damaged by the fire, and their failures could affect safety-related protection equipment for a redundant train in a second zone.

A fire can cause unintended operation of equipment due to hot shorts, open circuits, and shorts to ground. Consequently, components could be energized or de-energized, valves could fail open or closed, pumps could continue to run or fail to run, and electrical breakers could fail open or closed. The concern of water propagation effects resulting from fire is partially addressed in GI-57, "Effects of Fire Protection System Actuation on Safety-Related Equipment." The concern of smoke propagation effects is addressed in GSI-148. The concern of alternate shutdown/control room interactions (i.e., hot shorts and other items just mentioned) is addressed in GSI-147.

Information provided in the Indian Point IPEEE submittal pertaining to GSI-147 and GSI-148 has already been identified in Sections 2.4.1 and 2.4.2 of this TER.

#### *Effects of Fire Suppression System Actuation on Non-Safety-Related and Safety-Related Equipment*

Description of the Issue [18]: Fire suppression system actuation events can have an adverse effect on safety-related components, either through direct contact with suppression agents or through indirect interaction with non-safety related components.

This issue was addressed in the seismic capability walkdowns (Section 3.1.3 of the IPEEE submittal). In addition, Section 4.8.5 of the IPEEE submittal states that fire suppression systems have not been installed where operation or failure could cause unacceptable damage to safety-related equipment. A quantitative risk analysis was performed as part of the GSI-57 study [15], which confirms the licensee's qualitative analysis.

#### *Effects of Flooding and/or Moisture Intrusion on Non-Safety-Related and Safety-Related Equipment*

Description of the Issue [18]: Flooding and water intrusion events can affect safety-related equipment either directly or indirectly through flooding or moisture intrusion of multiple trains of non-safety-related equipment. This type of event can result from external flooding events, tank and pipe ruptures, actuations of fire suppression systems, or backflow through parts of the plant drainage system. The IPE process addresses the concerns of moisture intrusion and internal flooding (i.e., tank and pipe ruptures or backflow through part of the plant drainage system). The guidance for addressing the concern of external flooding is provided in Chapter 5 of NUREG-1407, and the concern of actuations of fire suppression systems is provided in Chapter 4 of NUREG-1407.

The Indian Point IPEEE submittal discusses external flooding in Section 6.3.

#### *Seismically Induced Spatial and Functional Interactions*

Description of the Issue [18]: Seismic events have the potential to cause multiple failures of safety-related systems through spatial and functional interactions. Some particular sources of concern include: ruptures in small piping that may disable essential plant shutdown systems; direct impact of non-seismically qualified structures, systems, and components that may cause small piping failures; seismic functional interactions of control and safety-related protection systems via multiple non-safety-related control systems' failures; and indirect impacts, such as dust generation, disabling essential plant shutdown systems. As part of the IPEEE, it was specifically requested that seismically induced spatial interactions be addressed during plant walkdowns. The guidance for performing such walkdowns can be found in EPRI NP-6041.

Seismically induced spatial and functional interactions were addressed in the seismic capability walkdowns performed as part of the IP2 seismic IPEEE. The walkdowns are discussed in Section 3.1.3 of the submittal.

#### *Seismically Induced Fires*

Description of the Issue [18]: Seismically induced fires may cause multiple failures of safety-related systems. The occurrence of a seismic event could create fires in multiple locations, simultaneously degrade fire suppression capability, and prevent mitigation of fire damage to multiple safety-related systems. Seismically induced fires is one aspect of seismic-fire interaction concerns, which is addressed as part of the Fire Risk

Scoping Study (FRSS) issues. (IPEEE guidance specifically requested licensees to evaluate FRSS issues.) In IPEEEs, seismically induced fires should be addressed by means of a focused seismic-fire interactions walkdown that follows the guidance of EPRI NP-6041.

Seismically induced fires were addressed in the seismic capability walkdowns performed as part of the IP2 seismic IPEEE. The walkdowns are discussed in Section 3.1.3 of the submittal. Seismically induced fires were also discussed as part of the Fire Risk Scoping Study issues in Section 4.8.2 of the IPEEE submittal.

#### *Seismically Induced Fire Suppression System Actuation*

Description of the Issue [18]: Seismic events can potentially cause multiple fire suppression system actuations which, in turn, may cause failures of redundant trains of safety-related systems. Analyses currently required by fire protection regulations generally only examine inadvertent actuations of fire suppression systems as single, independent events, whereas a seismic event could cause multiple actuations of fire suppression systems in various areas.

Seismically induced fire suppression system actuation was addressed in the seismic capability walkdowns performed as part of the IP2 seismic IPEEE. The walkdowns are discussed in Section 3.1.3 of the submittal. Seismically induced fire suppression system actuation was also addressed as part of the Fire Risk Scoping Study Issues in Section 4.8.2 of the IPEEE submittal.

#### *Seismically Induced Flooding*

Description of the Issue [18]: Seismically induced flooding events can potentially cause multiple failures of safety-related systems. Rupture of small piping could provide flood sources that could potentially affect multiple safety-related components simultaneously. Similarly, non-seismically qualified tanks are a potential flood source of concern. IPEEE guidance specifically requested licensees to address this issue.

Seismically induced flooding was addressed in the seismic capability walkdowns performed as part of the IP2 seismic IPEEE. The walkdowns are discussed in Section 3.1.3 of the submittal.

#### *Seismically Induced Relay Chatter*

Description of the Issue [18]: Essential relays must operate during and after an earthquake, and must meet one of the following conditions:

- remain functional (i.e., without occurrence of contact chattering);
- be seismically qualified; or
- be chatter acceptable.

It is possible that contact chatter of relays not required to operate during seismic events may produce some unanalyzed faulting mode that may affect the operability of equipment required to mitigate the event. IPEEE guidance specifically requested licensees to address the issue of relay chatter.

Seismically induced relay chatter was addressed in Section 3.3 of the IP2 IPEEE submittal.

#### *Evaluation of Earthquake Magnitudes Greater than the Safe Shutdown Earthquake*

Description of the Issue [18]: The concern of this issue is that adequate margin may not have been included in the design of some safety-related equipment. As part of the IPEEE, all licensees are expected to identify potential seismic vulnerabilities or assess the seismic capacities of their plants either by performing seismic PRAs or seismic margins assessments (SMAs). The licensee's evaluation for potential vulnerabilities (or unusually low plant seismic capacity) due to seismic events should address this issue.

The IP2 IPEEE documents the performance of a seismic probabilistic safety assessment (PSA). The seismic input for the PSA is provided and discussed in Section 3.1.1 of the submittal. Section 3.1.6 of the submittal includes a table summarizing the contribution to seismic CDF of various acceleration ranges, indicating that earthquakes with horizontal PGA from 0.05g-0.25g contribute only 6% of the seismic CDF.

#### *Effects of Hydrogen Line Ruptures*

Description of the Issue [18]: Hydrogen is used in electrical generators at nuclear plants to reduce windage losses, and as a heat transfer agent. It is also used in some tanks (e.g., volume control tanks) as a cover gas. Leaks or breaks in hydrogen supply piping could result in the accumulation of a combustible mixture of air and hydrogen in vital areas, resulting in a fire and/or an explosion that could damage vital safety-related systems in the plants. It should be anticipated that the licensee will treat the hydrogen lines and tanks as potential fixed fire sources as described in EPRI's FIVE guide, assess the effects of hydrogen line and tank ruptures, and report the results in the fire portion of the IPEEE submittal.

The effects of earthquakes on gas lines was addressed in the seismic capability walkdowns performed as part of the IP2 seismic IPEEE. The walkdowns are discussed in Section 3.1.3 of the submittal. Hydrogen fire sources are discussed in the fire portion of the submittal in Section 4.3.2.2.

### 3 OVERALL EVALUATION AND CONCLUSIONS

#### 3.1 Seismic

Judged on the basis of the submittal, this review concludes that the licensee's seismic IPEEE methodology is capable of identifying severe accident vulnerabilities. It appears that the licensee understands the plant and seismic PRA techniques, and has conscientiously applied this knowledge to produce the seismic IPEEE submittal. The IP2 seismic IPEEE is comprehensive with respect to the important points of GL 88-20 and NUREG-1407. Based on this submittal-only review, the following strengths of the IPEEE submittal for IP2 were identified (no significant weaknesses were identified):

##### Strengths

- (1) The licensee demonstrated a good grasp of the application of seismic PRA technology.
- (2) The equipment list was comprehensive.
- (3) The relay chatter study was thorough and well coordinated with USI A-46.
- (4) The plant familiarity and walkdown processes were well-structured and well-coordinated with USI A-46.

##### Weaknesses

None.

#### 3.2 Fire

For the evaluation of fire initiators, the licensee demonstrated detailed knowledge of the plant and fire PRA methodology, and has made a conscientious application of this knowledge. The licensee has employed proper methodology (i.e., the EPRI FIVE methodology for screening, and a PRA methodology for CDF quantification), and has employed proper data bases and calculational methods for fire occurrence and suppression system failure rates. No scenario contributes more than 10% of the total CDF. The many low contribution scenarios are typical of the ignition source driven PRA method used. Notable strengths of the submittal include the following (no significant weaknesses were identified):

##### Strengths

- (1) Assumptions, sensitivity studies and uncertainties are well presented.
- (2) The inter-compartment fire propagation analysis was unusually thorough.
- (3) The hot short analysis was far more comprehensive than is typical for an IPEEE.

The final conclusions of the submittal are reasonable, and are within the range of results expected for a pressurized water reactor (PWR). The licensee's fire IPEEE process is capable of identifying severe accident vulnerabilities and none were found.



### Weaknesses

None.

### 3.3 HFO Events

The licensee's HFO evaluation implemented the progressive screening method of NUREG-1407. Because IP2 generally does not meet the SRP, additional analyses were performed, as needed. Hazard screening and verification walkdowns were done appropriately, and changes since issuance of the OL were noted. Good use was made of earlier PRA work. The analysis was comprehensive per NUREG-1407. No significant weaknesses were noted during this review. Noteworthy strengths are as follows:

### Strengths

- (1) A state-of-the-art wind PRA was performed.
- (2) A good bounding analysis demonstrated that the PMF was less than grade.

### Weaknesses

None.

## **4 IPEEE INSIGHTS, IMPROVEMENTS, AND COMMITMENTS**

### **4.1 Seismic**

The IP2 plant seismic mean CDF was estimated at  $1.46 \times 10^{-3}/\text{ry}$  (for the LLNL hazard input). The dominant seismic failure modes involved structural failures (turbine building or superheater stack) which are assumed to cause failure of plant instrumentation and control systems. Non-seismic (random) failures and human actions were included in the analysis (indeed, human error rates were increased to attempt to account for seismic effects on human reliability), but were not significant contributors to the CDF. The containment performance analysis identified no unique seismic failure modes. The low ruggedness relay evaluation demonstrated that potential relay chatter does not have adverse effects on plant equipment. Although the study resulted in the conclusion that there are no seismic vulnerabilities, the licensee nevertheless increased the strength of the CCW surge tank anchor bolts, which was one of the dominant risk contributors. Following this upgrade, the mean CDF was calculated to be  $1.1 \times 10^{-3}/\text{ry}$ .

### **4.2 Fire**

The total fire CDF from "unscreened" scenarios is estimated at  $1.8 \times 10^{-3}/\text{ry}$ . This frequency is within the range of fire-induced CDFs obtained for other nuclear power plants (NPPs). The dominant contributors to the fire CDF are the control room, cable spreading room, and a switchgear room, though each contributes 10% or less to the total CDF.

The licensee has concluded that there are no significant fire vulnerabilities at IP2. The licensee has used NEI's severe accident closure guidelines [9] to evaluate the need for plant improvements. No improvements or commitments were identified as being necessary to further reduce the fire risk at IP2.

### **4.3 HFO Events**

The licensee has concluded that there are no significant HFO vulnerabilities at IP2. No improvements or commitments were identified as being necessary to further reduce the HFO risk at IP2. The licensee has used NEI's severe accident closure guidelines to evaluate the need for plant improvements.

## **5 IPEEE EVALUATION AND DATA SUMMARY SHEETS**

Completed IPEEE evaluations and data summary sheets for the IP2 IPEEE are provided in Tables 5.1 to 5.8. These tables have been completed in accordance with the descriptions in Reference [11]. Table 5.1 lists the overall external events results, and Table 5.2 summarizes the important seismic fragility values. Tables 5.3 to 5.5 provide PWR Accident Sequence Overview Tables for seismic, fire, and high winds events, respectively. Tables 5.6 to 5.8 provide the PWR Accident Sequence Detailed Tables for seismic, fire, and high winds events, respectively. Note, for Tables 5.3 to 5.8, the submittal does not provide sufficient detail to fully complete these tables.

**Table 5.1**  
**External Events Results**

**Plant Name:** Indian Point Unit 2

Event	Screening	CDF	Plant HCLPF(g)	Notes
External Flooding	O			
Extreme Winds	S	Tornadoes: $1.7 \cdot 10^{-4}/\text{ry}$ Extratropical Cyclone: $1.1 \cdot 10^{-4}/\text{ry}$ Hurricane: $2.4 \cdot 10^{-4}/\text{ry}$		
Internal Fire	S	$1.8 \cdot 10^{-4}/\text{ry}$		
Nearby Facility Accidents	O			
Seismic Activity	S	Before CCW Fix: $1.46 \cdot 10^{-4}/\text{ry}$ After CCW Fix: $1.1 \cdot 10^{-4}/\text{ry}$		LLNL hazard input
Transportation Accidents	O			
Others	O			

Screening: S = Plant specific analysis; O = Screened out; SO = Bounding analysis

**Table 5.2**  
**PRA Seismic Fragility**

Plant Name: Indian Point Unit 2

SSE: Horizontal not identified (g)

SSE: Vertical not identified (g)

Hazard parameter: not identified (PGA, Spectral Velocity)

Hazard Assessment: LLNL (EPRI sensitivity) (LLNL, EPRI, Site Specific)

Spectral Shape: 10,000 year EPRI median UHS (10,000 year LLNL median UHS, site specific or other)

Cutoff "g": 1.0g

List components and equipments with lowest seismic capacities (less than 10) which contribute to system failure:

Component	Median Capacity (g)	$\beta_R$	$\beta_U$	$\beta_C$	HCLPF (g)	Seismic Sequence Description	Seismic Success Path Description
Switchyard	0.30	0.25	0.50	n/a	0.09		
Refueling Water Storage Tank	0.61	0.29	0.32	n/a	0.22		
Emergency Diesel Generator Control Panels	0.65	0.28	0.44	n/a	0.20		
Unit 1 Superheater Building Stack	0.73	0.62	0.21	n/a	0.19		
Boric Acid Storage Tank	0.80	0.28	0.30	n/a	0.31		
Component Cooling Water Surge Tank	0.90	0.30	0.37	n/a	0.30		
Reactor Vessel Internals	1.08	0.24	0.30	n/a	0.47		
Containment Fan Coolers	1.11	0.31	0.21	n/a	0.47		
Condensate Storage Tank	1.13	0.29	0.32	n/a	0.41		
Service Water Pumps	1.23	0.26	0.33	n/a	0.46		
Cable Trays	1.23	0.30	0.28	n/a	0.31		

**Table 5.3**  
**PWR Accident Sequence Overview Table**

**Plant Name:** Indian Point Unit 2

**For Seismic PRA Only**

1 Sheet of 1

#	Sequence	PDS	CDF	Init. Event	Lost Supports	Failed Functions	Attributes
1	OP-IC		$6.2 \cdot 10^{-6}/\text{ry}$	T-LOOP	Instrumentation & Control	All	RCP seal LOCA
2	OP-CW		$2.7 \cdot 10^{-6}/\text{ry}$	T-LOOP	CCW	CCW	RCP seal LOCA
3	OP-EP		$1.1 \cdot 10^{-6}/\text{ry}$	T-LOOP	EAC	All	SBO, RCP seal LOCA
4	OP-SW		$9.6 \cdot 10^{-6}/\text{ry}$	T-LOOP	EAC, ESW	All	SBO, RCP seal LOCA
5	CW		$9.1 \cdot 10^{-6}/\text{ry}$	T-CCW	CCW	CCW	RCP seal LOCA
6	OP-RV-IC		$3.6 \cdot 10^{-6}/\text{ry}$	T-LOOP	Instrumentation & Control	All, scram	ATWS, RCP seal LOCA
7	OP-CT-R		$2.1 \cdot 10^{-6}/\text{ry}$	T-LOOP		AFW	TIL
8	OP-RV-EP		$2.0 \cdot 10^{-6}/\text{ry}$	T-LOOP	EAC	scram, All	ATWS, SBO
9	OP-RV		$2.0 \cdot 10^{-6}/\text{ry}$	T-LOOP		scram	ATWS

**Init. Event (Initiator):** One of the following: S1, S2, S3, A, V (-xx), T-LOOP, T-RX, T-TT, T-ATWS, T-UHS, T-RCP, T-LNML, T-LMEW, T-EXFW, T-SUBOX, T-SUBIC, T-SGTR, T-SORV/DRV, T-SSI, T-(Other), or T-(Support System)

(-xx) refers to optional supplementary material

**Lost Supports:** At most two of the following: AC, ACBU1, ACBU2, ACBU3, AUXC2, AUXC3, AUXC4, CCW, DC, EAC, EDC, ESAS1, ESAS2, ESW, HVAC1, HVAC2, HVAC3, IA, NIT, OAS, OAS4, SA, STM, SW2, SW3, SW4, VAC (Field may be blank)

**Failed Functions:** At most three of the following: SINT, SDEP, SSMU, RCS-BOR, RCS-INT, RCS-DEP, HPI, HPR, LPI, LPR, CPSI, CPSR, CIE, VENT (If a 4th and/or 5th are necessary, use the "Notes" field)

**Attributes:** At most three of the following: ATWS, BYPASS, TIL, IND-SGTR, SBO, OR HUM (Field may be blank)

**Table 5.4**  
**PWR Accident Sequence Overview Table**

**Plant Name: Indian Point Unit 2**

**For Fire PRA Only**

1 Sheet of 1

#	Sequence	PDS	CDF	Init. Event	Lost Supports	Failed Functions	Attributes
1	Control Room		$7.1 \cdot 10^{-6}/\text{ry}$	T-AC	EAC		
2	Cable Spreading Room		$4.3 \cdot 10^{-6}/\text{ry}$	T-AC			
3	Switchgear Room		$3.8 \cdot 10^{-6}/\text{ry}$	T-AC	EAC	AFW	
4	Electrical Penetration Area		$1.1 \cdot 10^{-6}/\text{ry}$	S2		AFW	
5	Primary Water Makeup Area		$1.1 \cdot 10^{-6}/\text{ry}$	S2	CCW	HPI	

**Init. Event (Initiator):** One of the following: S1, S2, S3, A, V (-xx), T-LOOP, T-RX, T-TI, T-ATWS, T-UHS, T-RCP, T-INMU, T-LMFV, T-EXFW, T-SLBOC, T-SLBOC, T-SGTR, T-SORV/DORV, T-SS1, T-(Other), or T-(Support System)  
(-xx) refers to optional supplementary material

**Lost Supports:** At most two of the following: AC, ACBU1, ACBU2, ACBU3, AUXC2, AUXC3, AUXC4, CCW, DC, EAC, EDC, ESAS1, ESAS2, ESW, HVAC1, HVAC2, HVAC3, IA, NII, OA3, OA4, SA, STM, SW2, SW3, SW4, VAC (Field may be blank).

**Failed Functions:** At most three of the following: SINT, SDEP, SSMU, RCS-BOR, RCS-INT, RCS-DEP, HPI, HPR, LPI, LPR, CPSI, CPSR, CIE, VENT (If a 4th and/or 5th are necessary, use the "Notes" field)

**Attributes:** At most three of the following: ATWS, BYPASS, FIL, IND-SGTR, SBO, OR HUM (Field may be blank)

**Table 5.5**  
**PWR Accident Sequence Overview Table**

**Plant Name:** Indian Point Unit 2

**For High Winds PRA Only**

1 Sheet of 1

#	Sequence	PDS	CDF	Init. Event	Lost Supports	Failed Functions	Attributes
1	W02		Tornadoes $1.1 \cdot 10^{-3}/\text{ry}$ Hurricanes $1.8 \cdot 10^{-3}/\text{ry}$ Cyclones $7.6 \cdot 10^{-3}/\text{ry}$		EAC		
2	W01		Tornadoes $2.5 \cdot 10^{-3}/\text{ry}$ Hurricanes $3.4 \cdot 10^{-3}/\text{ry}$ Cyclones $1.1 \cdot 10^{-3}/\text{ry}$		EAC	AFW	
3	W18		Tornadoes $1.1 \cdot 10^{-3}/\text{ry}$ Hurricanes $3.4 \cdot 10^{-3}/\text{ry}$ Cyclones $3.8 \cdot 10^{-3}/\text{ry}$				

**Init. Event (Initiator):** One of the following: S1, S2, S3, A, V (-xx), T-LOOP, T-RX, T-TT, T-ATWS, T-UHS, T-RCP, T-LNMT, T-LMFW, T-EXFW, T-SLBOC, T-SLBIC, T-SGTR, T-SORV/IORV, T-SSI, T-(Other), or T-(Support System)  
(-xx) refers to optional supplementary material.

**Lost Supports:** At most two of the following: AC, ACBU1, ACBU2, ACBU3, AUXC2, AUXC3, AUXC4, CCW, DC, EAC, EDC, ESAS1, ESAS2, ESW, HVAC1, HVAC2, HVAC3, IA, NIT, OA3, OA4, SA, STM, SW2, SW3, SW4, VAC (Field may be blank).

**Failed Functions:** At most three of the following: SINT, SDEP, SSMU, RCS-BOR, RCS-INT, RCS-DEP, HPI, HPR, LPI, LPR, CPSI, CPSR, CIE, VENT (If a 4th and/or 5th are necessary, use the "Notes" field)

**Attributes:** At most three of the following: ATWS, BYPASS, TIL, IND-SGTR, SBO, OR HUM (Field may be blank)



**Table 5.6**  
**PWR Accident Sequence Detailed Table**

**Plant Name: Indian Point Unit 2**

**For Seismic PRA Only**

1 Sheet of 1

No.	SEQUENCE	RX		PRIMARY INTEGRITY				PRIMARY INVENTORY INJECTION				PRIMARY INVENTORY RECIRC				SECONDARY INTEGRITY				SECONDARY INVENTORY				CONTAINMENT										NOTES																				
		R P S	B I O R V	P P O R V	P S R V	P A D 1	P A D 2	R C P S	C H P 1	H P 1	I P 1	A C C	A 1 1	A 1 2	C H P R	H P R	I P R	A R 1	A R 2	S G S	S G A	I I	M S I V	I H	S G	M I W	N I S P	A I W	A M 1	A M 2	A M 3	A M 4	C S 1		C S 2	F C 1	F C 2	I C C	C 1 1	C 1 2	I G N	R I	H I M											
1	OP-IC		X					X																																								RCP seal LOCA						
2	OP-CW		X					X																																									RCP seal LOCA					
3	OP-EP		X					X	X	X	X				X	X	X											X					X	X	X	X												SBO, RCP seal LOCA						
4	OP-SW		X					X	X	X	X				X	X	X											X					X	X	X	X													SBO, RCP seal LOCA					
5	CW		X					X																																									RCP seal LOCA					
6	OP-RV-IC	X	X					X																																									ATWS, RCP seal LOCA					
7	OP-CT-R		X	X																																														Transient-induced LOCA				
8	OP-RV-EP	X	X					X	X	X	X				X	X	X											X					X	X	X	X													ATWS, SBO					
9	OP-RV	X	X	X	X																																													ATWS				

**Table 5.7**  
**PWR Accident Sequence Detailed Table**

**Plant Name: Indian Point Unit 2**

**For Fire PRA Only**

1 Sheet of 1

[illegible]

**Table 5.8**  
**PWR Accident Sequence Detailed Table**

**Plant Name: Indian Point Unit 2**

### For High Winds PRA Only

1 Sheet of 1

[illegible]

## 6 REFERENCES

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2. "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities - 10 CFR 50.54(f)," U. S. Nuclear Regulatory Commission, Generic Letter 88-20, Supplement 4, June 28, 1991.
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4. "Indian Point Probabilistic Safety Study and Amendments 1 and 2," Consolidated Edison Company of New York, 1982.
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18. "Staff Guidance of IPEEE Submittal Review on Resolution of Generic or Unresolved Safety Issues (GSI/USI)," U.S. Nuclear Regulatory Commission, August 21, 1997.

**Attachment 2**

**TECHNICAL EVALUATION REPORT**

**INTERNAL FLOOD EVALUATION**

**INDIAN POINT UNIT 2**



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

October 15, 1998

MEMORANDUM FOR:

Mary Drouin, Acting Branch Chief  
Probabilistic Risk Analysis Branch  
Division of Systems Technology  
Office of Nuclear Regulatory Research

FROM:

John C. Lane, Senior Reliability & Risk Engineering  
Risk Based Regulation & Reliability Section  
Probabilistic Risk Analysis Branch  
Division of Systems Technology  
Office of Nuclear Regulatory Research

A handwritten signature in dark ink, appearing to read "John C. Lane", written over the typed name.

SUBJECT:

INTERNAL FLOOD INPUT FOR INDIAN POINT 2 IPE REVIEW

The staff has reviewed Chapter 5 of the Indian Point 2 IPE submittal pertaining to internal floods, as requested in the memorandum from Alan Rubin to Mary Drouin, dated June 5, 1998. The licensee calculated that internal flooding increased core damage frequency by  $6.7E-06$  per reactor year. Based on the review we conclude the internal flood analysis meets the intent of Generic Letter 88-20.

Attached is the staff Technical Evaluation Report which provides additional details and evaluations concerning the flooding analysis. This may be used as input into the Staff Evaluation Report.

cc: M. Cunningham  
T. King  
A. Rubin

~~9905280057 990514~~  
~~CF~~  
~~RES-26-5~~ CF

**Attachment 2**

**TECHNICAL EVALUATION REPORT**

**INTERNAL FLOOD EVALUATION**

**INDIAN POINT UNIT 2**



## **Attachment**

### **Technical Evaluation Report**

#### **Internal Flood Evaluation**

#### **of the Indian Point 2 IPE**

The licensee performed a flooding analysis which consisted of the following steps:

1. Information gathering
2. Determination of the flood areas
3. Determination of the flood sources and damage mechanisms
4. Structural evaluations and penetration integrity checks
5. Screening analysis
6. Analysis of remaining, unscreened flood scenarios.

After screening, the licensee performed a detailed risk evaluation on nine flood scenarios. Based on these, they calculated a total flood induced CDF of  $6.7E-06$  per year.

The three most significant scenarios, taken together, represented about 94 percent of the total flood CDF. The remaining flood scenarios, in total, contributed less than  $1E-06$  per reactor year to core damage.

The largest flood damage state contributor to CDF was a service water system flood attributable to a postulated break in a 3-inch diameter service water pipe located in the emergency switchgear room. Larger break sizes associated with this piping would not be totally accommodated by the drains, and, consequently, damage could result in as early as four minutes after onset of the break, assuming no credit for flood detection or isolation due to the limited time available.

The second highest contributor was based on generic industry flood data for turbine buildings. It consisted of a turbine building flood which resulted in the non-recoverable loss of normal power to the emergency buses due to damage to 6.9 kV buses in that vicinity.

The third highest contributor was based on a fire protection system pipe break in the deluge valve room located in the control building. Flood propagation occurred to the emergency switchgear room via an interconnecting door.

**Information Gathering and Determination of Flood Areas--**The flood analysis team performed a plant walkdown to inspect all accessible flood areas in the major plant buildings (turbine building, primary auxiliary and auxiliary feedwater building, diesel generator building, control building, service water intake structure, and the fuel storage building.) Flood sources within the containment were not considered because their potential for causing core damage was already considered as part of the LOCA analysis. The walkdown included a review of the plant drawings, such as, piping and instrumentation diagrams, system descriptions, known flooding events and prior flooding analyses performed for previous PRAs. The purpose of the walkdown was to define significant flood sources and to note ingress/egress paths for water, protective

features such as sumps, alarms, moats, splash guards, inter-area connections relevant to flood propagation, and vital equipment locations.

**Determination of the Flood Sources and Damage Mechanism**—The licensee defined two potential flood hazard mechanisms: (1) hazard mechanisms associated with the loss of function of the water-filled equipment, and (2) hazard mechanisms resulting from the flood event itself. Flood scenarios which could not be considered benign or bounded by other floods were identified. The associated area was evaluated for susceptible equipment and the potential for the flood to cause an initiating event was determined. The impact on accident mitigating equipment was also examined.

**Structural Evaluations and Penetration Integrity Checks**—The licensee considered flood barrier failure modes including: leakage through unsealed doors and hatches, mechanical failures, and failures of doors and seals due to excessive water head. Leakage through wall seams was disregarded since observed leakage rates were low. In general, the total collapse of walls was not considered a significant issue with respect to flooding.

**Screening Analysis**—In the screening analysis, flood propagation was assumed to occur if a given path existed, unless it required a physical barrier whose failure probability was independent of flood height. In those cases, propagation was assumed to occur with a probability equal to the probability of the barrier failure. Susceptible equipment was assumed to be damaged given that a flood occurred, unless damage could easily be ruled out on the basis of an inadequate maximum flood height and no possibility of spraying. As a result of the screening analysis many potential flood scenarios were screened out because they were not judged to be risk significant, i.e., the core damage frequency was estimated to be much less than  $1E-06$  per year, or the scenario effects were already included in other parts of the internal events PRA.

Scenarios screened out include maintenance induced floods. To estimate the flood frequency from maintenance actions at full power, plant data was used to determine the frequency of major maintenance on pumps and valves that might require the total disassembly of the pumps or valves. The maintenance action was then coupled with the failure to remove power to the associated isolation valve. This was then followed by a coincident demand on the system (or valve rupture), thereby opening the isolation valve thereby initiating the flood. These floods were screened out for one of the following reasons:

1. The pumps were located in buildings containing no safety-related equipment or equipment required for a plant shutdown, e.g., the fire pumps.
2. The systems being maintained were continuously operated and any leakage would be detected quickly, e.g., the charging and component cooling water pumps.
3. The initiating event frequency of the maintenance induced flood was small compared to a very similar scenario initiated by pipe rupture, e.g., failures of the safety injection valves, RHR valves, or core spray valves, resulting in spilling of the RWST inventory in the primary auxiliary building.

**Quantification of Remaining, Unscreened Flood Scenarios**—The approach for the flood-induced core damage frequency quantification consisted of the following steps:

1. Determination of the frequency and size of potentially significant flood sources
2. Definition of flood damage states
3. Evaluation of flood growth
4. Quantification of flood induced accident sequence frequencies

Included in the assessment of individual sources of flooding were pipes, tanks, expansion joint failures, and spurious fire system activation. Component leakage and rupture failures were based upon industry data as was the estimate of fire system actuation frequency of magnitude sufficient to disable plant systems or initiate a plant transient.

The consequences of flooding were analyzed by considering the effects of water accumulation, water spraying, environmental conditions, and flood propagation. The parameters considered for the effects of water accumulation included: the flood area volume, the flood source inventory, the flooding rate, the flood propagation rate, and the drain capacity. For water spraying effects, the parameter considered was the proximity of pipes to safety-related equipment and the protection afforded the equipment against spray effects. The effects of environmental conditions were based on a determination of the effects of high pressure and temperature on nearby safety-related components. The effects of flood propagation were based on the propagation into the adjacent flood areas and the susceptibility of the safety-related equipment in those areas.

Each flood damage state was defined in terms of the time at which it would occur after the initial flooding incident together with the important systems which would be damaged. Damage could occur immediately due to spraying or dripping or could later due to rising flood level (flood growth) or propagation to adjacent areas and equipment.

Finally, the flood damage states and core damage frequencies were quantified. This was accomplished by making modifications to the IPE general transient event tree to reflect the specific flood damage states and the associated impacts on related equipment. As indicated previously, the overall CDF resulting from flood was reported by the licensee to be  $6.7E-06$  per reactor year.

The staff has evaluated the flood analysis provided in the Indian Point 2 IPE submittal. We have determined that the licensee has reasonably assessed the potential effects from internal flooding and therefore conclude that this portion of the IPE meets the intent of Generic Letter 88-20.

**From:** Coe, Doug  
**To:** RES\_DRA  
**Cc:** Lui, Christiana; Correia, Richard  
**Subject:** Congratulations Dan and April!  
**Date:** Tuesday, March 22, 2011 6:59:00 PM

---

<http://www.internal.nrc.gov/announcements/yellow/2011/2011-036.html>

Kevin and I want to congratulate two of our DRA staff members for their selection to the NRC Graduate Fellowship Program. As announced in the Yellow Announcement (above), Dan Hudson and April Smith will start their academic studies this coming Fall. Out of six successful applicants, DRA has two! This is certainly indicative of the quality of our staff here in DRA.

Dan will continue in DRA until he leaves for school and April will be transitioning shortly to NMSS to gain experience in that office before starting her studies.

Please join me in offering both Dan and April our best wishes for success in their upcoming academic pursuits!

**Doug**

Doug Coe  
Deputy Director  
Division of Risk Analysis (DRA)  
Office of Nuclear Regulatory Research (RES)  
U.S. Nuclear Regulatory Commission  
Rockville, MD  
301-251-7914  
doug.coe@nrc.gov

AG/ 736

**From:** [Howard Glaser](#)  
**To:** [Leeds, Eric](#)  
**Cc:** [Batkin, Joshua](#)  
**Subject:** Re:  
**Date:** Tuesday, March 22, 2011 7:01:59 PM

---

Thank you. Hg.

----- Original Message -----

From: Leeds, Eric [<mailto:Eric.Leeds@nrc.gov>]  
Sent: Tuesday, March 22, 2011 05:15 PM  
To: Howard Glaser  
Cc: Batkin, Joshua <[Joshua.Batkin@nrc.gov](mailto:Joshua.Batkin@nrc.gov)>  
Subject: RE:

Understand the issue - it's not where any of us what to be. I spoke with the Chairman right after LTGOV Duffy. Here's the answer to your question:

1 in 1,000 (10<sup>-3</sup>) - requires consideration of immediate action.

So Indian Point is in the range of 10<sup>-4</sup> (1 in 10,000)- which in accordance with our processes means to continue performing prudent regulatory evaluation.

Hope this helps.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Tuesday, March 22, 2011 12:26 PM  
To: Leeds, Eric  
Cc: Batkin, Joshua  
Subject:

Thanks for today. Expedited review is what we all really need. Duffy spoke to Chair.

One point; your guy said one in 13K. But ur report says 1 in 10K at IP. Which is your standard for immediate review.

AG/737

**From:** [Rule Maker Mailbox for Outlook](#)  
**To:** [Case, Michael](#)  
**Subject:** March 2011 Issue of The Rulemaker Resource  
**Date:** Tuesday, March 22, 2011 7:59:49 PM  
**Attachments:** [Volume 4, Issue 2 \(March 2011\).pdf](#)

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Licensing assistants, rulewriters and other rulemaking staff : Attached is the March 2011 issue of The Rulemaker Resource.

AG/738

http://www

# The Rulemaker Resource

March 22, 2011  
Volume 4 Issue 2

U.S. Nuclear Regulatory Commission  
Office of Administration  
Rules, Announcements, and Directives Branch

<http://www.internal.nrc.gov/ADM/DAS/cag/RM01/>

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## From the Chair

by Cindy Bladey, Chair, Rulemaking Coordinating Committee

### Streamlining the Publication Process

First, a quick update on the RCC working group set up to generate titling conventions for Federal Register notices (FRNs). Shortly into their effort, the group decided to expand the scope of the project to include standardization of FRN action statements as well as the FRN titles. The group has been meeting regularly and making good progress.

Two major tools will be developed by the working group for staff to use when preparing NRC FRNs: (1) a list of standardized action statements and titles for recurring/anticipated FRNs; and (2) guidelines for developing FRN action statements and titles in instances where a standard has not already been developed.

I want to thank the working group members for their thoughtful input and steady participation on this project, and their offices for supporting this effort. The tools produced will provide consistency in how the agency titles its notices; this consistency is a needed first step toward a publication process that makes FRNs easier for staff to write and easier for the public to read. Final note: the NRC is in the process of testing digital signing technology that would eliminate the hard copy signature package for FRNs and allow ADM to transmit notices via e-mail to the OFR. --Cindy

## Federal Register Notices—Did You Know...?

### Updated Publication and ADAMS Inventory Checklists and ADDRESSES Inserts

The Rules, Announcements, and Directives Branch (RADB) has updated the FRN publication checklists that should be used when preparing publication packages for general notices, proposed and final rule notices, proposed and final policy statement notices, petition for rulemaking (PRM) notices, and SUNSI/SGI/Order notices. (Helpful Hint: Print and attach the checklist to your publication package to assist you with ensuring your package is complete.) In addition, RADB has updated the ADAMS inventory checklists for general, rulemaking, and PRM notices. These checklists assist you with ensuring that all documents cited in your notice are publicly available or will be publicly available prior to publication in the *Federal Register*. Also, the ADDRESSES inserts for general, rulemaking, and PRM notices have been updated. These inserts assist you with ensuring the required ADDRESSES section language in your notice is correct and consistent with other agency notices.

The updated publication and ADAMS inventory checklists can be found on The NRC Rulemaker Web page at <http://www.internal.nrc.gov/ADM/DAS/cag/RM01/procedures/admcheck.html>. The updated ADDRESSES inserts can be found on The NRC Rulemaker Web page at <http://www.internal.nrc.gov/ADM/DAS/cag/RM01/draft.html>.

## JANUARY 2011 TRACKING REPORT

FR CITE	DATE PUBLISHED	PART/TYPE OF NOTICE	SUBJECT
76 FR 189	1/3/11	RG	Notice of Issuance and Availability of <b>Regulatory Guide 3.71, Revision 2</b> , "Nuclear Criticality Safety Standards for Fuels and Material Facilities" (NRC-2010-0265)
76 FR 1100	1/7/11	Part 40(P)	Implementation Guidance for Distribution of Source Material to Exempt Persons and to General Licensees and Revision of General License and Exemptions; Draft Guidance Document for Comment (NRC-2011-0003)
76 FR 1376	1/10/11	Part 73(P)	Physical Protection of Irradiated Reactor Fuel in Transit; Extension of Comment Period (NRC-2009-0163)
76 FR 2425	1/13/11	RG	Notice of Reissuance and Availability of <b>Draft Regulatory Guide (DG-1229)</b> (NRC-2009-0263)
76 FR 2277	1/13/11	Part 72 (P)	List of Approved Spent Fuel Storage Casks: NUHOMS® HD System Revision 1; Proposed Rule (AI89) (NRC-2011-0002)
76 FR 2243	1/13/11	Part 72 (DFR)	List of Approved Spent Fuel Storage Casks: NUHOMS® HD System Revision 1; Direct Final Rule (AI89) (NRC-2011-0002)

(F) Final rule; (P) Proposed rule; (DF) Direct final rule; (RG) Regulatory guide; (GN) General notice; (PS) Policy statement; (AS) Agreement State notice; (ANPR) Advance notice of proposed rulemaking; (MTG) Meeting; (PRM) Petition for rulemaking; (SOR) System of records; (E.O.) Executive Order



## JANUARY 2011 TRACKING REPORT (continued)

FR CITE	DATE PUBLISHED	PART/TYPE OF NOTICE	SUBJECT
76 FR 2726	1/14/11	RG	Withdrawal of Regulatory Guide 1.154, "Format and Content of Plant-Specific Pressurized Thermal Shock Safety Analysis Reports for Pressurized Water Reactors" (NRC-2011-0010)
76 FR 3540	1/20/11	Part 52 (P)	U.S. Advanced Boiling Water Reactor Aircraft Impact Design Certification Amendment (AI84) (NRC-2010-0134)
76 FR 354	1/20/11	GN	Proposed Generic Communications Reporting for Decommissioning Funding Status Reports (NRC-2010-0366)
76 FR 4390	1/25/11	RG	Notice of Reissuance and Availability of Draft Regulatory Guide (DG-1229); Comment Period Extension and Correction (NRC-2009-0263)
76 FR 5215	1/28/11	RG	Notice of Issuance and Availability of Draft Regulatory Guide, DG-7007, "Administrative Guide for Verifying Compliance with Packaging Requirements for Shipment and Receipt of Radioactive Material" (NRC-2011-0025)
76 FR 5102	1/28/11	NUREG	Draft NUREG-0561, Revision 2; Physical Protection of Shipments of Irradiated Reactor Fuel; Extension of Comment Period (AI64) (NRC-2010-0340)

(F) Final rule; (P) Proposed rule; (DF) Direct final rule; (RG) Regulatory guide; (GN) General notice; (PS) Policy statement; (AS) Agreement State notice; (ANPR) Advance notice of proposed rulemaking; (MTG) Meeting; (PRM) Petition for rulemaking; (SOR) System of records; (E.O.) Executive Order

## FEBRUARY 2011 TRACKING REPORT

FR CITE	DATE PUBLISHED	PART/TYPE OF NOTICE	SUBJECT
76 FR 6085	2/3/11	Part 73 (RG)	Notice Availability of Draft Regulatory Guide Draft Regulatory Guide, <b>DG-5019</b> , "Reporting and Recording Safeguards Events" (AI49) (NRC-2011-0014)
76 FR 6086	2/3/11	Part 73 (RG)	Notice of Availability of Draft Regulatory Guide. Draft Regulatory Guide, <b>DG-5020</b> , "Applying for Enhanced Weapons Authority, Applying for Preemption Authority, and Accomplishing Firearms Background Checks under 10 CFR Part 73" (AI49) (NRC-2011-0015)
76 FR 6087	2/3/11	Part 73	Draft Weapons Safety Assessment on the Use of Enhanced Weapons; Notice of Availability and Request for Comment (AI49) (NRC-2011-0017)
76 FR 6200	2/3/11	Part 73 (P)	Enhanced Weapons, Firearms Background Checks, and Security Event Notifications; Proposed Rule (AI49) (NRC-2011-0018)
76 FR 8872	2/16/11	Part 72 (F)	License and Certificate of Compliance Terms; Final Rule (AI09) (NRC-2008-0361)
76 FR 9381	2/17/11	GN	Notice of Availability of Interim Staff Guidance Documents for Spent Fuel Storage Casks (NRC-2009-0268)

(F) Final rule; (P) Proposed rule; (DF) Direct final rule; (RG) Regulatory guide; (GN) General notice; (PS) Policy statement; (AS) Agreement State notice; (ANPR) Advance notice of proposed rulemaking; (MTG) Meeting; (PRM) Petition for rulemaking; (SOR) System of records; (E.O.) Executive Order

## FEBRUARY 2011 TRACKING REPORT (continued)

FR CITE	DATE PUBLISHED	PART/TYPE OF NOTICE	SUBJECT
76 FR 10269	2/23/11	GN	Proposed Generic Communications; Draft NRC Regulatory Issue Summary 2011-XX, Adequacy of Station Electric Distribution System Voltages; Reopening of Public Comment Period (NRC-2011-0013)
76 FR 10269	2/24/11	Part 52 (P)	AP1000 Design Certification Amendment, (AI81) (NRC-2010-0131)
76 FR 10917	2/28/11	RG	Notice of Issuance and Availability of Draft Regulatory Guide, DG-1254, "Qualification of Connection Assemblies for Nuclear Power Plants" (NRC-2011-0046)
76 FR 10805	2/28/11	PRM-51-13	Dan Kane; Denial of Petition for Rulemaking (NRC-2010-0088)
76 FR 10781	2/28/11	Parts 2, 51, and 54 (P)	Amendments to Adjudicatory Process Rules and Related Requirements (AI43) (NRC-2008-0415)

(F) Final rule; (P) Proposed rule; (DF) Direct final rule; (RG) Regulatory guide; (GN) General notice; (PS) Policy statement; (AS) Agreement State notice; (ANPR) Advance notice of proposed rulemaking; (MTG) Meeting; (PRM) Petition for rulemaking; (SOR) System of records; (E.O.) Executive Order

## Training Opportunities

**TO:** ALL INTERESTED NRC STAFF, SUPERVISORS, AND MANAGERS  
**SUBJECT:** FSME RULEMAKING OVERVIEW COURSE

You are invited to register for the next session of the FSME Rulemaking Overview Course.

**WHO:** Supervisors and staff who are or may potentially become involved with rulemaking activities for their office (e.g., FSME, NMSS, NSIR, OE, OGC, etc.).

**WHEN:** Tuesday, May 24, 2011 **TIME:** 8:30 AM - 3:30 PM

**WHERE:** PDC-Gateway - 7201 Wisconsin Avenue in Bethesda, Maryland

This 6-hour course covers key documents, statutory basis, regulatory basis, NRC policies and procedures, and general aspects of the processes for rulemaking and developing licensing guidance and inspection guidance.

Emphasis will be placed on the roles and responsibilities for managers, team leaders, and working group members who develop and revise NRC rules and guidance products for materials and environmental management programs and for fuel cycle safety and safeguards, spent fuel storage and transportation, high level waste, and security programs.

All staff wanting to participate must register in iLearn by navigating to the Calendar of Offerings, May 24, 2011, FSME Rulemaking Overview Course, Offering Details, and Register.

Staff in the regional offices should contact their supervisor and training coordinator about their interest in participating in this course. The training coordinators will provide the names of those approved to participate to Gwendolyn Davis who will forward their names to be entered into iLearn.

You may contact Gwen Davis at 301-415-8165 (e-mail: [gwendolyn.davis@nrc.gov](mailto:gwendolyn.davis@nrc.gov)) for further information.

### Questions, comments, or suggestions? Contact:

Cindy Bladey  
Chair, Rulemaking Coordinating Committee  
Chief, Rules, Announcements, and Directives Branch  
Room: TWB-5-A01, Mail Stop: TWB-05-B01M  
301-492-3667 [Cindy.Bladey@nrc.gov](mailto:Cindy.Bladey@nrc.gov)

Leslie Terry  
Team Lead, Rules Team  
Room: TWB-5-A02, Mail Stop: TWB-05-B01M  
301-492-3679 [Leslie.Terry@nrc.gov](mailto:Leslie.Terry@nrc.gov)

Angella Love Blair  
Regulations Specialist  
Room: TWB-5-B09, Mail Stop: TWB-05-B01M  
301-492-3671 [Angella.Love-Blair@nrc.gov](mailto:Angella.Love-Blair@nrc.gov)

REF  
From: [NRC Announcement](#)  
To: [NRC Announcement](#)  
Subject: Daily: 3 New Items from Tuesday, March 22, 2011  
Date: Tuesday, March 22, 2011 10:01:13 PM

NRC Daily Announcements



Highlighted Information and Messages



**Tuesday March 22, 2011 -- Headquarters Edition**

**Event: NRC Toastmasters Club Meeting on April 7, 2011**

**Employee Resources: Rotational Opportunity - OPA, Administrative Officer, GG-9/10/11**

**Event: Army Birthday Celebration Planning**

**Event: NRC Toastmasters Club Meeting on April 7, 2011**

The NRC Toastmasters Club cordially invites you to attend its next meeting. The NRC Toastmasters Club supports the NRC mission by providing opportunities for the staff to practice and learn communication and leadership skills in a friendly and supportive environment.

The next NRC Toastmasters Club meeting will be held on April 7, 2011, from 12 noon to 1 p.m. in room T-10A1. The theme for the meeting is "Happily Ever After."

For more information, please contact the Toastmaster of the Day, Wendy Reed (phone 301-251-7965), or the club Vice President for Public Relations, Don Habib (301-415-1035).



(2011-03-22 00:00:00.0)

[View item in a new window](#)

**Employee Resources: Rotational Opportunity - OPA, Administrative Officer, GG-9/10/11**

The **Office of Public Affairs** is soliciting interest for a 3-month rotational assignment for an **Administrative Officer, GG-0341-9/10/11**, to provide office support.

Detailed information is available on the [NRC internal Web page](#).

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If you have difficulty accessing a Web link in this announcement, contact the [NRC Announcement Coordinator](#), Beverly Martin, ADM/DAS, 301-492-3674.



(2011-03-22 00:00:00.0)

[View item in a new window](#)

**Event: Army Birthday Celebration Planning**

AG/739

## March 31 - Army Birthday Celebration Planning

The Army Birthday Celebration Committee is looking for additional volunteers, veterans and family members of veterans, to support the planning and execution of this year's 236<sup>th</sup> Army Birthday Celebration. The next planning meeting is scheduled for Thursday, March 31, 2011, at 9:30 a.m. in T-3 C1. If you are interested, but cannot make the meeting, please contact Susan Bagley at 301-415-2240. Thank you for your support.

Dial-in: 888-469-3184

Passcode: 39670



(2011-03-22 00:00:00.0)

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**From:** [GovExec.com newsletters](#)  
**To:** [Case, Michael](#)  
**Subject:** Govexec Today: Per diem boosts; Reorganization progress; Contracting in Libya  
**Date:** Wednesday, March 23, 2011 5:02:01 AM

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# Today

WEDNESDAY, MARCH 23, 2011

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## HEADLINES

1. **Progress cited on reorganization of government**
2. **Libya operation causing headaches for U.S. contractors, grantees**
3. **GSA boosts per diem rates in major metro areas**
4. **From Nextgov.com: Wisconsin reps try to derail VA/Defense open source health records system**
5. **Issa threatens to subpoena government watchdog officials**
6. **Brown: Don't blame FDA for company drug-pricing**
7. **Fedblog: The Costs of Reorganization**
8. **Executive Coach: Do You Get It or Not? Does It Matter?**
9. **Tech Insider: Cloudburst**
10. **Today's column: Management Matters**
11. **The Earlybird: Today's headlines**
12. **Quote of the Day**

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## **Cybersecurity Report: Updates on the battle to protect data and systems**

Check out Nextgov's cybersecurity blog delivering breaking news and insights on federal cybersecurity efforts. Don't miss the latest cybersecurity updates [click here!](#)

### 1. **Progress cited on reorganization of government**

By Emily Long

OMB's Jeffrey Zients says effort may involve short-term costs to achieve long-term gains.

Full story: [http://www.govexec.com/story\\_page.cfm?articleid=47394&dcn=e\\_gvet](http://www.govexec.com/story_page.cfm?articleid=47394&dcn=e_gvet)

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### 2. **Libya operation causing headaches for U.S. contractors, grantees**

By Robert Brodsky

U.S. government has spent more than \$25 million in recent years to perform an array of work in the now-embattled country.

AG1740

Full story: [http://www.govexec.com/story\\_page.cfm?articleid=47395&dcn=e\\_gvet](http://www.govexec.com/story_page.cfm?articleid=47395&dcn=e_gvet)

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3. **GSA boosts per diem rates in major metro areas**

By Kellie Lunney

Federal employees on business travel to New York City and San Francisco will have more money for hotel expenses from April through September.

Full story: [http://www.govexec.com/story\\_page.cfm?articleid=47392&dcn=e\\_gvet](http://www.govexec.com/story_page.cfm?articleid=47392&dcn=e_gvet)

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4. **From Nextgov.com: Wisconsin reps try to derail VA/Defense open source health records system**

By Bob Brewin

The lawmakers back a commercial approach that could benefit their state's Epic Systems.

Full story: [http://www.govexec.com/story\\_page.cfm?articleid=47396&dcn=e\\_gvet](http://www.govexec.com/story_page.cfm?articleid=47396&dcn=e_gvet)

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5. **Issa threatens to subpoena government watchdog officials**

By Dan Friedman, National Journal

Chairman dismisses executive privilege claim by Office of Special Counsel.

Full story: [http://www.govexec.com/story\\_page.cfm?articleid=47390&dcn=e\\_gvet](http://www.govexec.com/story_page.cfm?articleid=47390&dcn=e_gvet)

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6. **Brown: Don't blame FDA for company drug-pricing**

By Althea Fung, National Journal

Senator says companies, not agency approval, are to blame for cost of pregnancy medication.

Full story: [http://www.govexec.com/story\\_page.cfm?articleid=47391&dcn=e\\_gvet](http://www.govexec.com/story_page.cfm?articleid=47391&dcn=e_gvet)



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**7. Fedblog: The Costs of Reorganization**

By Tom Shoop

*Outside the bureaucracy, looking in.*

**Tuesday, March 22, 10:25 a.m. ET:**

The Obama administration is thinking big about [restructuring government](#), and understands that such an approach comes with costs attached, federal Chief Performance Office Jeffrey Zients said Tuesday. Speaking at a [forum on government performance](#) at the Brookings Institution in Washington, Zients openly compared the administration's effort to the last full-scale overhaul of government, under the [Hoover commission](#).

Read blog: <http://blogs.govexec.com/fedblog/>

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**8. Executive Coach: Do You Get It or Not? Does It Matter?**

By Scott Eblin

*Taking your career to the next level.*

**Tuesday, March 22, 10:11 a.m. ET:**

One of the most e-mailed articles on the *New York Times* website for the past several days has been one titled, "[Don't Call Me, I Won't Call You](#)." My guess is a lot of grown up kids are sending it to their parents to prove that they're not the only ones who don't always answer the phone or respond to voice mail messages. The article describes how phone habits have changed over the past five years as people shift to text messaging, email and Facebook to communicate with their friends, families and colleagues. Nielsen Research notes that spending on cellular voice traffic is trending downward and that text traffic spending will exceed voice in the next three years.

Read blog: <http://blogs.govexec.com/executivecoach/>

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**9. Tech Insider: Cloudburst**

By Tom Shoop

*What's happening and what's being discussed in the federal IT community.*

**Tuesday, March 22, 3:27 p.m. ET:**

It's all cloud, all the time in federal IT these days, especially since the Office of Management and Budget [ordered](#) agencies to take a cloud-first approach to IT projects. Mary Davie, assistant commissioner for the Office of Integrated Technology Services in the General Services Administration's Federal Acquisition Service, provides a reality check on cloud mania today, with a [blog post](#) aimed at busting four myths about cloud computing in the federal sector.

Read blog: <http://techinsider.nextgov.com/>

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10. **Today's column: Management Matters**

**Beyond the Budget**

Senior executives can inspire innovation, even under fiscal constraints.

Full column: <http://www.govexec.com/dailyfed/0311/032311mm.htm>

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11. **The Earlybird: Today's headlines**

Get links to the top news of the day:

<http://www.govexec.com/dailyfed/ebird.htm>

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12. **Quote of the Day**

*The first step is to figure out what we're trying to accomplish. We actually need to have the outcome information in order to have the conversation.*

-- --Shelley Metzenbaum, OMB's associate director for performance and personnel management, on [how to begin](#) reorganizing government.

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**From:** [GovExec.com newsletters](#)  
**To:** [Case, Michael](#)  
**Subject:** GovExec.com Columns: Management Matters  
**Date:** Wednesday, March 23, 2011 6:00:46 AM

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## Management Matters

WEDNESDAY, MARCH 23, 2011

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### Beyond the Budget

By Jennifer Buck and Henry Fischer

In this difficult economy, the American people are increasingly anxious about receiving the services they expect from their government, whether it's food safety, border security, or a range of other vital missions. At the same time, federal employees are operating in an unstable environment of budget constraints, interminable continuing resolutions and threatened government shutdowns as pressure mounts to reduce an explosive increase in the federal debt.

In this climate, how can agency leaders achieve their objectives?

In business, cost-cutting is expected to achieve efficiencies without sacrificing productivity or innovation. The private sector has great incentive to take extraordinary actions to stay in business--the bottom line. When AOL Inc. experienced financial hardships from plummeting subscribership to its Internet business, executives changed their business model. They began offering internet accounts for free, and looked to new revenue streams, such as advertising, to sustain their company.

It is difficult to make the same kind of radical change in government. Budget reductions often are distributed ineffectively through *pro rata* cuts that dilute all initiatives. And restructuring or surgical cuts to ineffective programs can be challenging if those programs have well-entrenched support networks. Yet budget cuts can be absorbed without sacrificing results.

At the Defense Department, for example, reserve component training time was limited by budget constraints, but essential wartime mission training could not be sacrificed. Officials developed an individual computer-based approach to administrative training, freeing up valuable face time needed for unit training requirements. It was a creative way to achieve core objectives while dealing with the realities of budget restrictions.

Senior Executive Service members are in a unique position to achieve extraordinary results, despite significant obstacles. They know the ropes, and political appointees rely on their guidance to meet legislative requirements. A committed leader who inspires others with ongoing conversations about the future--even if it looks gloomy--is an essential part of an organization's viability.

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AG/741

Strong leaders can galvanize an agency and its stakeholders with a common, aligned vision. This requires breakthrough approaches in the following key areas:

- **Focus on outcomes.** Maintain a relentless commitment to measurable results, rather than the completion of tasks or processes that might not achieve the agency's goals.
- **Transform leadership teams.** Ensure that senior leaders are solid in their resolve to deliver clearly defined outcomes that support organizational objectives. Give them permission to risk striving for goals that they don't necessarily know how to achieve. Bring out the best among the workforce by demonstrating how their efforts support the strategic plan.
- **Alter the organizational mind-set.** Producing extraordinary results requires a shift in the fundamental way people think. It means abandoning long-standing assumptions that undermine audacious objectives, and taking actions for which there is no guarantee of success.

Senior executives have received little help from agencies with upgrading their skills to meet 21st century demands. Reducing essential support functions such as training or strategic planning during budget cuts damages an agency's ability to innovate. These choices are as shortsighted as a farmer deciding to cut costs by buying less fertilizer for his crops. In both examples, productivity suffers.

Agencies must give senior executives the green light to adopt new thinking and approaches that can achieve meaningful breakthroughs, despite a budget crisis. Only then will we be able to create the government of the future.

*Jennifer C. Buck, former deputy assistant secretary of Defense for reserve affairs, is executive adviser to Gap International's government practice. Henry Fischer, a retired Marine officer and Gulf War veteran, is director of [Gap International](#).*

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**From:** [Network Bulletin](#)  
**To:** [Network Bulletin](#)  
**Subject:** Network Bulletin: Space and Property Management System Maintenance  
**Date:** Wednesday, March 23, 2011 6:09:01 AM

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**Announcement:** The Space and Property Management System (SPMS) will be down due to routine system maintenance every Friday between 7pm and 8pm Eastern Standard Time (EST) – starting this Friday (3/18/2011).

**Impact:** The Space Planning, Property and Visitor Access Request modules within SPMS will not be available during the scheduled maintenance outages.

**Contact:** [SPMSAdministrators@nrc.gov](mailto:SPMSAdministrators@nrc.gov) or 301-492-3767 SPMS Hotline

AG/742

**From:** Boska, John  
**To:** Coe, Doug  
**Subject:** RE: Outcomes from Meeting With New York State Officials  
**Date:** Wednesday, March 23, 2011 6:37:20 AM

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Thanks Doug.

John Boska  
Indian Point Project Manager, NRR/DORL  
U.S. Nuclear Regulatory Commission  
301-415-2901  
email: john.boska@nrc.gov

---

**From:** Coe, Doug  
**Sent:** Tuesday, March 22, 2011 6:14 PM  
**To:** Boska, John; Beasley, Benjamin; Chokshi, Niles  
**Cc:** Coyne, Kevin; Hiland, Patrick; Munson, Clifford  
**Subject:** RE: Outcomes from Meeting With New York State Officials

John – Some comments and one correction provided in attached (see red text).

Ben – please confirm that you will provide items 1 and 2 in the “items we promised” category.

Niles – please let us know if you concur with the change of responsibility in item 4.

Thanks,  
Doug

---

**From:** Sheron, Brian  
**Sent:** Tuesday, March 22, 2011 2:40 PM  
**To:** Coe, Doug; Beasley, Benjamin  
**Cc:** Uhle, Jennifer  
**Subject:** FW: Outcomes from Meeting With New York State Officials  
**Importance:** High

---


**From:** Boska, John  
**Sent:** Tuesday, March 22, 2011 2:31 PM  
**To:** Leeds, Eric  
**Cc:** Grobe, Jack; Salgado, Nancy; Schwarz, Sherry; Sheron, Brian; Bickett, Brice; Hiland, Patrick; Galloway, Melanie; Salgado, Nancy  
**Subject:** Outcomes from Meeting With New York State Officials  
**Importance:** High

Attached are the agreements and the items we promised during the meeting, with a proposed responsible organization.

John Boska  
Indian Point Project Manager, NRR/DORL  
U.S. Nuclear Regulatory Commission

AB1743





301-415-2901

email: [john.boska@nrc.gov](mailto:john.boska@nrc.gov)

**From:** Case, Michael  
**To:** Grancorvitz, Teresa  
**Subject:** RE: TRAVEL FUNDS CERTIFICATION QUESTION  
**Date:** Wednesday, March 23, 2011 6:39:00 AM

---

Yep. Looks good.

---

**From:** Grancorvitz, Teresa  
**Sent:** Wednesday, March 23, 2011 6:36 AM  
**To:** Case, Michael; Hogan, Rosemary  
**Subject:** FW: TRAVEL FUNDS CERTIFICATION QUESTION

I assume this is the same trip Madhumita is going on and should be approved.

Thanks,  
Teresa

---

**From:** Graves, Herman  
**Sent:** Tuesday, March 22, 2011 6:50 PM  
**To:** Mulgrew, Yvonne  
**Cc:** Pires, Jose; Hogan, Rosemary  
**Subject:** TRAVEL FUNDS CERTIFICATION QUESTION

Hello Yvonne,

I am scheduled to travel to Tampa, FL on April 3, 2011 for the following trip:

<u>Traveler Name</u>	<u>Trip ID</u>	<u>Trip Status</u>
HERMAN GRAVES	2788323	Pending Authorization Approval (RES TA FUNDS CERT - YM/KL/BG/TG)

Any idea of when the funds will be certified for my trip? I need to amend the travel to leave one day earlier.

Thank you very much,

<<Herman>>

<<301.251.7625>>

[mail to: Herman.Graves@nrc.gov](mailto:Herman.Graves@nrc.gov)

AG/744

**From:** Scott, Michael  
**To:** Case, Michael  
**Subject:** Out of Office: RECOMMENDATION: Concurrence on Regulatory Guide 8.2 Rev. 1(final)"Administrative Practices in Radiation Surveys and Monitoring"  
**Date:** Wednesday, March 23, 2011 6:45:12 AM

---

While I am out of the office beginning March 22, 2011, please contact Kathy Gibson or Scott Elkins if you need assistance. (301) 251-7499.

AG/745

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 6:53 AM  
**To:** Ader, Charles  
**Cc:** Mrowca, Lynn; Lombard, Mark; Pohida, Marie; Perkins, Richard  
**Subject:** RE: Appointment of Generic Issue Review Panel Members for Pre-GI-009  
**Attachments:** image001.gif

Thank you. Preparation of the screening analysis has required more time than we anticipated but we now have a completed report and we expect to send it to the screening panel today.

The scope of the screening panel work has not changed. We anticipate something between 5 and 25 hours of time from each panel member over the next 4 to 8 weeks.

Ben

---

**From:** Ader, Charles  
**Sent:** Tuesday, March 22, 2011 11:38 PM  
**To:** Beasley, Benjamin  
**Cc:** Mrowca, Lynn; Lombard, Mark; Pohida, Marie  
**Subject:** RE: Appointment of Generic Issue Review Panel Members for Pre-GI-009

Ben,

I approve of Marie serving on the Pre-GI-009 screening panel if her time commitment is limited, as she works a part time schedule and has scheduling commitments involving her reviews in NRO. I trust that between you, Lynn Mrowca (her Branch Chief) and Marie, a reasonable time commitment can be agreed upon.

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 16, 2011 3:30 PM  
**To:** Ader, Charles; Kokajko, Lawrence  
**Cc:** Perkins, Richard  
**Subject:** Appointment of Generic Issue Review Panel Members for Pre-GI-009

Charlie and Lawrence,

Do you approve of Marie Pohida and Keith Compton serving on the Pre-GI-009 screening panel? We expect to provide the screening analysis report to the panel members within the next few days and intend to call a panel meeting within a week or so.

If you approve of Marie and Keith serving on the screening panel, a reply to this email stating so will be sufficient documentation.

Regards,  
Ben Beasley



Benjamin Beasley, Chief  
Operating Experience and Generic Issues Branch  
Division of Risk Analysis  
Office of Nuclear Regulatory Research

301-251-7676

Benjamin.Beasley@nrc.gov

Generic Issues Program

Operating Experience Databases

**Beasley, Benjamin**

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 6:55 AM  
**To:** Perkins, Richard; Bensi, Michelle  
**Subject:** Screening analysis is okay to send

I made an edit yesterday morning to the file on Shelby's G: drive and saved it with the same name but changed the date (3/22). I have received approval for all the screening panel members. The report is approved to send.

It is an excellent report! Nice work.

Ben

**From:** Homeland Security NewsWire  
**To:** Leeds, Eric  
**Subject:** Libya update | Airport shoe scanning | Visas for dancers  
**Date:** Wednesday, March 23, 2011 7:06:16 AM

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## Insider Threat: Solutions & Technologies by Homeland Security NewsWire at GovSec



Homeland Security News Wire



Vol. 5, no. 68, Wednesday, 23 March 2011

### In Today's Issue

#### Libya update

##### Air dominance is achieved, but confusion of goals deepens

As the coalition forces achieve air dominance over Libya, the lack of clarity over the campaign's goals becomes even more apparent; the Security Council authorized the use of force to prevent Gaddafi from killing a large number of civilians, and U.S. and French planes were thus within the UN mandate when they attacked Libyan ground units trying to attack rebels' positions; but if the rebels go on the attack against the Libyan military, would coalition forces provide close air support? Would the coalition begin to arm and train the rebels -- because if they do not, then Gaddafi will not be dislodged from power; as importantly: the support for Gaddafi comes from certain tribes, and the opposition to him is also tribal, although not exclusively so; we should not delude ourselves: if the rebels gain the upper hand, we should expect massacres and atrocities to be committed by some rebel groups against members of tribes loyal to Gaddafi; what do the coalition forces do then? Their mandate is the prevent the wholesale killing of civilians, but does this mean killing by Gaddafi loyalists only, or is the mandate broader than that?

[Read more](#)

#### Aviation security

##### TSA looking for shoe scanning devices

DHS is seeking companies to which it will award a contract for shoe scanners; according to the Office of Federal Business Opportunities, the Shoe Scanning Device (SSD) system currently sought by the TSA and DHS "will be capable of detecting threat objects concealed in footwear without requiring passengers to remove their footwear as they pass through a security checkpoint. These threat objects include a wide variety of military, commercial, and homemade explosives or explosives devices"

[Read more](#)

#### Port security

##### Authors suggest ways to alleviate L.A. cargo port "constipation"

In January, the port of Los Angeles received more than 330,000 containers; the possibility that one of those 330,000 containers could have contained a dirty bomb, or worse, keeps security experts up at night; experts say that to ensure security and prevent logjams, the best approach to container security would be to replace the current system, which singles out only those containers whose documentation raises questions, with a system which will see terminal operators X-ray every container, regardless of its eventual destination; only those containers flagged during the low-level scan would be subjected to a more thorough search

[Read more](#)

#### Immigration

##### DHS probes dancers for visas

It was a close call for the East Village theater La MaMa: At least three weeks' worth of box-office revenue was on the line when DHS questioned the visa applications submitted by artists in an upcoming performance; although delayed by one week, the show will go on: The Irish Modern Dance Theatre's "Fall and Recover," a dance work inspired by survivors of torture, now opens Friday 25 March

[Read more](#)

#### GAO scrutinizes DHS financial management system

The Government Accountability Office (GAO) has thrown a wrench in DHS's long-running effort to modernize its financial management system, upholding a protest of the department's most recent award; the decision could be significant for agencies reevaluating their IT programs in the wake of a state of Office of Management and Budget (OMB) reviews launched last year

AG/748

[Read more](#)

#### Privatizing security

##### Michigan law enables executives to privatize security

Michigan's new Emergency Manager law, in addition to allowing previously negotiated union contracts to be voided, gives appointees the authority to privatize police services and jails; some are worried that the rush to cut police labor costs will impair public safety; critics say that savings from privatization are illusory

[Read more](#)



#### Disasters

##### California schools seismically unsafe, lack funding for retrofits

Hundreds of thousands of students across California are at risk, as school districts have not retrofitted aging concrete buildings that are susceptible to collapse; the state has identified dozens of structures at schools that are at risk of collapsing in a strong earthquake, but most are still in use and have no plans for repairs; engineers are particularly concerned about old concrete school buildings that were erected before 1976; these structures are constructed with "non-ductile" concrete, a type of material that did not hold up well in the recent earthquake in New Zealand; cash-strapped school districts are hesitant to begin long and expensive retrofitting projects even with state help

[Read more](#)

#### The water we drink

##### After EPA fine, mining company building \$200 million water treatment plant

America's largest underground coal mining company, Consol Energy, is constructing a \$200 million water treatment plant in West Virginia, after being fined \$5.5 million by the Environmental Protection Agency (EPA); in 2009 discharge from Consol's mining operation caused a toxic golden algae bloom that killed aquatic life along thirty miles of Dunkard Creek; the advanced waste water treatment plant will be the largest facility in Appalachia; the plant will be capable of treating 3,500 gallons of water per minute and will remove more than forty-three tons of dissolved solids, including eleven million pounds of chloride

[Read more](#)

##### Drought-prone pasts may foretell New York's and Atlanta's futures

By fall 2007, during the second year of a three-year drought, Atlanta had roughly three months' supply of water remaining while Athens, Georgia was down to approximately fifty days; another drought dramatically lowered New York City reservoirs to 33 percent of capacity in 1981; droughts in those cities and their surrounding regions were typically longer and more frequent centuries ago than they were for most of the twentieth century; a return to historic climate patterns would bring more frequent and prolonged droughts

[Read more](#)

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**From:** [Case, Michael](#)  
**To:** [Richards, Stuart](#)  
**Subject:** RE: G20110177  
**Date:** Wednesday, March 23, 2011 7:12:00 AM

---

Do you think we can get some of this to Andy?

-----Original Message-----

From: Richards, Stuart  
Sent: Tuesday, March 22, 2011 4:13 PM  
To: Pires, Jose  
Cc: Case, Michael  
Subject: RE: G20110177

Jose

Please check with Annie and discuss her workload. We may need to task this to others.

Please let me know what you find out.

Thanks  
Stu

-----Original Message-----

From: Pires, Jose  
Sent: Tuesday, March 22, 2011 3:44 PM  
To: Richards, Stuart  
Subject: FW: G20110177

Stu,  
FYI

Below is a request from Kamal Manoly from NRR/DE for assistance with preparing a reply to a letter from two congressmen that involve seismic questions.

I think that Annie is already working on this since Kamal emailed her.

-----Original Message-----

From: Graves, Herman  
Sent: Tuesday, March 22, 2011 2:46 PM  
To: Pires, Jose  
Subject: FW: G20110177

Jose,

FYI

<<Herman>>  
<<301.251.7625>>  
mail to: Herman.Graves@nrc.gov

-----Original Message-----

From: Manoly, Kamal  
Sent: Tuesday, March 22, 2011 2:21 PM  
To: Graves, Herman  
Subject: FW: G20110177

Herman,

AG/749

FYI; since you are acting for Rosemary. Thanks.  
Kamal

-----Original Message-----

From: Manoly, Kamal  
Sent: Tuesday, March 22, 2011 2:20 PM  
To: Kammerer, Annie; Munson, Clifford  
Cc: Ake, Jon; Chokshi, Nilesh; Hogan, Rosemary; Hiland, Patrick; Skeen, David  
Subject: FW: G20110177

Annie, Cliff,  
Please take a look at question No 2. The contention that there is an 82% probability of a 7.0 magnitude earthquake to occur at the locations of DC and SONGS, and a 37% probability that a 7.5 magnitude earthquake to occur at the same locations is something within your area of expertise that you can address with knowledge. The percentages sound awfully high to me and I don't believe they are right.

Would you please send me a response to this contention that would justify why we don't agree with the contention that we need to retrofit Diablo and SONGS.

I used some of the stuff you prepared in the Qs & As you compiled to develop complete responses to items number 3 & 7.  
Kamal

-----Original Message-----

From: Scales, Kerby  
Sent: Thursday, March 17, 2011 5:55 PM  
To: Mathew, Roy; Meighan, Sean; Manoly, Kamal  
Cc: Hiland, Patrick; Skeen, David; Wilson, George; Khanna, Meena  
Subject: FW: G20110177

Kamal, Roy, Sean,  
Attached is a green ticket assigned to the EDO office with questions on seismic safety features in US operating reactors. The EDO office will respond to these questions but they may seek our assistance. Please be prepared to support the EDO office if they have any questions. Also please discuss your response with your director / division director before responding to the EDO office.

I reviewed the green ticket and I think the question should be distributed to the following divisions:

1. NRR/DORL. I believe the questions has already been answered.
2. NRR/DE & RES. Kamal please coordinate with RES.
3. NRR/DE & RES. Kamal please coordinate with RES.
4. NRR/DE
- 5a. NRR/DORL
- 5b/c. NRR/DE
7. NRR/DE

Thanks,  
kerby

-----Original Message-----

From: RidsNrrMailCenter Resource  
Sent: Wednesday, March 16, 2011 1:26 PM  
To: RidsNrrDe Resource  
Cc: Scales, Kerby  
Subject: G20110177

Green ticket assigned to EDO on Seismic Safety Features in United States Operational Nuclear Reactor. EDO to coordinate with NRR, NSIR and OGC.

Thanks,  
Patti

-----Original Message-----

From: Jaegers, Cathy

Sent: Wednesday, March 16, 2011 10:39 AM

To: Rihm, Roger

Cc: RidsNrrMailCenter Resource; RidsNsirMailCenter Resource; Wimbush, Andrea; RidsOgcMailCenter Resource; Remsburg, Kristy; RidsOcaMailCenter Resource; Belmore, Nancy

Subject: ACTION: G20110177

Attached is the action green ticket for OEDO (Rihm) to coordinate with NRR and NSIR, if required. The ADAMS version will be sent after DPC processes.

**From:** [Case, Michael](#)  
**To:** [Norris, Wallace](#); [Richards, Stuart](#); [Csontos, Aladar](#)  
**Subject:** RE: NDE addendum  
**Date:** Wednesday, March 23, 2011 7:17:00 AM

---

Grrrreat!

---

**From:** Norris, Wallace  
**Sent:** Tuesday, March 22, 2011 3:33 PM  
**To:** Case, Michael; Richards, Stuart; Csontos, Aladar  
**Subject:** FW: NDE addendum

I just received this that the NDE addendum has been signed.

---

**From:** Wilson, Tracy [<mailto:trwilson@epri.com>]  
**Sent:** Tuesday, March 22, 2011 3:23 PM  
**To:** [Wallace.Norris@nrc.gov](mailto:Wallace.Norris@nrc.gov)  
**Cc:** Modeen, David  
**Subject:** RE: NDE addendum

Hi Norris:

The NDE addendum was received and has been signed – please find attached a scanned copy for your review. A copy of the NDE MOU is also being sent to you via US mail.

Please let me know if you have questions or need additional details.

Sincerely,

Tracy E. Wilson

EPRI - Nuclear

1300 West WT Harris Boulevard

Charlotte, NC 28262

[trwilson@epri.com](mailto:trwilson@epri.com)

704-595-2543

704-595-2860 (fax)

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---

**From:** Wilson, Tracy  
**Sent:** Thursday, March 17, 2011 6:15 PM  
**To:** 'Wallace.Norris@nrc.gov'  
**Subject:** Re: NDE addendum

Yes received it - I think will verify in the morning. Neils back in th office tomorrow.

Talk to u later  
Tracy

---

**From:** Norris, Wallace <[Wallace.Norris@nrc.gov](mailto:Wallace.Norris@nrc.gov)>  
**To:** Wilson, Tracy  
**Sent:** Thu Mar 17 14:49:23 2011  
**Subject:** NDE addendum

A6/750

Tracy, I was at EPRI this week. I stopped by to see if you had received the addendum but you were busy. I know that Neil is out of the country and wouldn't have signed it yet but please let me know if it arrived. Thanks, Wally

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 7:21 AM  
**To:** Sheron, Brian; Coe, Doug  
**Cc:** Hayden, Elizabeth; Bonaccorso, Amy  
**Subject:** RE: 27 plants on seismic study  
**Attachments:** image001.gif

**Importance:** High

Beth,

There is not a "list." The Communications Plan (ML 081850477 or [http://www.internal.nrc.gov/RES/projects/GIP/Individual%20GIs/documents/COMMUNICATIONPLANFORGENERICISSUE\\_2\\_.pdf](http://www.internal.nrc.gov/RES/projects/GIP/Individual%20GIs/documents/COMMUNICATIONPLANFORGENERICISSUE_2_.pdf) ) will provide better answers than I can provide here.

Question 23 of the Comm Plan identifies the plants in the "Continue Region." All of the information needed to determine which plants are in the continue region is on the public Web site, <http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML100270582>.

So, yes the information is public, but there is not a list and we intend to evaluate all reactors, not just the 27 in the Continue Region, for the updated seismic hazards.

I will be glad to explain this further if you need. My Blackberry number is 301-873-3070.

Ben Beasley



Benjamin Beasley, Chief  
Operating Experience and Generic Issues Branch  
Division of Risk Analysis  
Office of Nuclear Regulatory Research  
301-251-7676  
[Benjamin.Beasley@nrc.gov](mailto:Benjamin.Beasley@nrc.gov)  
[Generic Issues Program](#)  
[Operating Experience Databases](#)

---

**From:** Sheron, Brian  
**Sent:** Tuesday, March 22, 2011 5:57 PM  
**To:** Coe, Doug; Beasley, Benjamin  
**Cc:** Hayden, Elizabeth; Bonaccorso, Amy  
**Subject:** FW: 27 plants on seismic study

Doug/Ben, please respond to Beth's question..

---

**From:** Hayden, Elizabeth  
**Sent:** Tuesday, March 22, 2011 5:54 PM  
**To:** Sheron, Brian

**Cc:** Bonaccorso, Amy  
**Subject:** FW: 27 plants on seismic study

Is this list public?

---

**From:** Hayden, Elizabeth  
**Sent:** Tuesday, March 22, 2011 5:45 PM  
**To:** Screnci, Diane; Sheehan, Neil  
**Cc:** Kammerer, Annie  
**Subject:** 27 plants on seismic study

Where can I find the list of 27 plants that were found to have higher seismic risk?

*Beth Hayden*  
*Senior Advisor*  
*Office of Public Affairs*  
*U.S. Nuclear Regulatory Commission*  
*--- Protecting People and the Environment*  
*301-415-8202*  
*[elizabeth.hayden@nrc.gov](mailto:elizabeth.hayden@nrc.gov)*

**From:** Case, Michael  
**To:** Kammerer, Annie  
**Subject:** FW: Tsunami Evaluation  
**Date:** Wednesday, March 23, 2011 7:34:00 AM  
**Attachments:** SITAG evaluation of Sewell report manrev2.wpd

---

FYI. This is an interesting one.

---

**From:** Murphy, Andrew  
**Sent:** Tuesday, March 22, 2011 2:25 PM  
**To:** Bagchi, Goutam  
**Cc:** Hogan, Rosemary; Chokshi, Nilesh; Case, Michael  
**Subject:** Tsunami Evaluation

Goutam,

I found your inquiry intriguing so I went back into the SITAG materials and found this report on Dr. Robert Sewell's study for, I believe, the CNWRA. SITAG evaluated and found the uncertainties very large leaving the document unsuitable for regulatory judgment - See the actual wording of the draft SITAG report, which is attached.

Inspired by the Sumatran earthquake and tsunami – also a very large subduction event - Lloyd Cluff and associates undertook preparation of a DC tsunami study, which was not released by the DC who had control of documents sent to the NRC. Today the issue is associated with earthquake induced tsunamis in the Pacific Basin, rather than the landslide induced tsunami – landslides may have been earthquake induced – I do not remember that detail.

Andy

AG/752



Attachment SITAG evaluation of Sewell report manrev2\_1.wpd (38007 Bytes) cannot be converted to PDF format.

**From:** [info@i360gov.com](mailto:info@i360gov.com)@reply.bm23.com on behalf of i360Gov Webinars  
**To:** [Leeds, Eric](#)  
**Subject:** Overcoming Obstacles to HIE Rollouts: A Guide for State and Local Executives  
**Date:** Wednesday, March 23, 2011 7:34:03 AM

---

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## Overcoming Obstacles to HIE Rollouts: A Guide for State and Local Executives

**Webinar: Wednesday, April 13, 2011, 2:00 PM Eastern**

For the last several years, state and local CIOs have worked to foster the exchange of data between medical providers and health insurance plans. However, building out such networks has been a long, painful journey for public sector CIOs, who have encountered complex technical and administrative challenges in implementing them.

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- Solutions to some of the pressing problems government IT leaders face when rolling out HIEs

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AG/753

**From:** [Case, Michael](#)  
**To:** [Rivera-Lugo, Richard](#); [Richards, Stuart](#)  
**Subject:** RE: Follow Up: Review of MDs 3.7 & 3.11  
**Date:** Wednesday, March 23, 2011 7:43:00 AM

---

Hi Richie. Could you get me copies? I think one is on NUREGs. I'd like to address the issue of using proprietary or safeguards titles as references.

---

**From:** Rivera-Lugo, Richard  
**Sent:** Tuesday, March 22, 2011 1:41 PM  
**To:** Case, Michael; Richards, Stuart  
**Subject:** Follow Up: Review of MDs 3.7 & 3.11  
**Importance:** High

Mike and Stu,

Do you have any comments on Management Directives 3.7 & 3.7 to provide to Joe Zabel (due to him this Thursday)?

Richie

*Richard Rivera-Lugo*, EIT, MEM  
Technical Assistant (Acting)  
U.S. Nuclear Regulatory Commission – HQ  
RES/DE  
Ph. 301-251-7652  
Fax 301-251-7420  
Mail M.S. C5C07M  
E-mail [Richard.Rivera-Lugo@nrc.gov](mailto:Richard.Rivera-Lugo@nrc.gov)



Please consider the Environment before printing this e-mail.

AG 1754

**From:** [Siu, Nathan](#)  
**To:** [Coe, Doug](#)  
**Subject:** RE: mid-year input for FO staff  
**Date:** Wednesday, March 23, 2011 7:47:41 AM

---

Doug –

Are you looking for free-form input or is there a specific question/format I might have missed? Also do you want me to provide input on Carolyn?

Nathan

---

**From:** Coe, Doug  
**Sent:** Wednesday, March 23, 2011 7:41 AM  
**To:** Barnes, Valerie; Beasley, Benjamin; Coyne, Kevin; Demoss, Gary; Nicholson, Thomas; Ott, William; Peters, Sean; Salley, MarkHenry; Siu, Nathan; Stutzke, Martin  
**Cc:** Ibarra, Jose; Correia, Richard  
**Subject:** mid-year input for FO staff

DRA BCs/SLS,

In preparation for our mid-year review meeting on Friday, please provide a performance input on our TA, AAs (Carly and Jennene during 1<sup>st</sup> FY qtr, and Carolyn) and MAs (Millie, Jennene, and Sibel). Chon will not have had 120 days yet and I'll pass comments on Sibel to her new supervisor.

Please provide at least one input/example for each person to Jose Ibarra by COB Thursday.

Many thanks,  
Doug

AG1755

**From:** [Leeds, Eric](#)  
**To:** [Holian, Brian](#); [Galloway, Melanie](#)  
**Cc:** [Kuntz, Robert](#); [Wrona, David](#); [Pelton, David](#)  
**Subject:** VY is signed  
**Date:** Monday, March 21, 2011 7:51:00 AM

---

Come on by ~ its sitting on my desk. I'll be tied up all morning with the Commission meeting.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

AG/756

## **Beasley, Benjamin**

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 7:57 AM  
**To:** Hiland, Patrick  
**Cc:** Manoly, Kamal; Kauffman, John  
**Subject:** RE: Question about GI-199 in the news

Pat,

I think Doug has conveyed to you that we feel that the western plants should be included in the Generic Letter. Although different than the CEUS effort, the western plants have updated seismic hazards and those updates should be considered. In our view, only Diablo Canyon has a reason to be excluded from the letter, since they already consider updated seismic hazards as a license condition.

Ben

---

**From:** Hiland, Patrick  
**Sent:** Wednesday, March 23, 2011 7:52 AM  
**To:** KEITHLINE, Kimberly  
**Cc:** Beasley, Benjamin; Manoly, Kamal  
**Subject:** RE: Question about GI-199 in the news

It's still our intent to send out the GL and request information from all facilities in CEUS. Obviously, we would give priority to plants in the 10-5 to 10-4 range. What Scott was trying to convey was that the 27 plants in the "continue region" taken as a whole, was our basis for continuing with this regulatory assessment. I have heard of interest from PG&E to be a "Pilot" in the GI-199 effort, and I'm asking myself why we continue to exclude the 8 western plants? Seems to me, that under current events, industry would have a greater sense of urgency regarding the subject?

---

**From:** KEITHLINE, Kimberly [mailto:kak@nei.org]  
**Sent:** Tuesday, March 22, 2011 9:21 PM  
**To:** Hiland, Patrick  
**Cc:** Beasley, Benjamin; Manoly, Kamal  
**Subject:** Question about GI-199 in the news

Pat,

This showed up in a Platt's new flash. Have you decided to limit your GI-199 review to the top 27 plants (those in the continue zone)?

The NRC will conduct a seismic risk assessment of Entergy's Indian Point plant next year, the first of 27 such reviews of nuclear power units at 17 plants, agency spokeswoman Beth Hayden said March 22.

The units to receive a seismic review next year, the NRC said, are Indian Point-2 and -3; Limerick-1 and -2; Peach Bottom-2 and -3; Seabrook; Crystal River-3; Farley-1 and -2; North Anna-1 and -2; Oconee-1, -2, and -3; St. Lucie-1 and -2; Sequoyah-1 and -2; Summer; Watts Bar 1; Dresden-2 and -3; Duane Arnold; Perry-1; River Bend; and Wolf Creek.

The earthquake risk review is part of a new assessment, a generic issue known as GI-199, that NRC is reviewing based on 2008 revised US Geological Survey data on seismic activity in central and eastern US, NRC spokesman Scott Burnell said in a March 22 interview. The review pre-dates the earthquake and tsunami that struck the Fukushima I nuclear plant in Japan this month.

The NRC is planning to send letters to plant operators late this year directing them to incorporate the USGS data to revise their units' operating plans. "The expectation is this analysis would show where plants could improve what already is an acceptable response to seismic events," Burnell said.

The 27 units selected for review showed the largest increases in seismic risk from risks estimated for those plants in a USGS study conducted in the 1980s, he said.

Kimberly A. Keithline  
Senior Project Manager, New Plant Deployment

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Sent through mail.messaging.microsoft.com

**From:** [Dean Murphy](#)  
**To:** [Leeds, Eric](#)  
**Subject:** Best of U.S. Nuclear Developments: Power Uprates  
**Date:** Wednesday, March 23, 2011 8:01:07 AM

---

Hi

I wanted to fire over a quick email as I have found three articles looking at power uprates in the US that might be interesting for you to read - [www.nuclearenergyinsider.com/news](http://www.nuclearenergyinsider.com/news)

The articles look at the following:

- Exelon to Invest \$5B in Nuclear Uprates, Smart Grid, Coal Plant Closures
- The Best of U.S. Nuclear Developments 2010: Uprates and Loan Guarantees
- Uprates Help Exelon Meet Emission Targets

There are no forms to fill in - I hope that they are of interest to you

Best Regards .

Dean Murphy  
Senior Industry Analyst  
Nuclear Energy Insider

Tel: +44 (0) 207 375 7204  
US TOLL FREE: 1800 814 3459 ext 7204  
Address: 7-9 Fashion St, London, E1 6PX, UK  
Email: [dmurphy@eyeforeenergy.com](mailto:dmurphy@eyeforeenergy.com)  
Website: <http://analysis.nuclearenergyinsider.com/>

To unsubscribe or change your user profile [click here](#)

AG/758



**From:** Federal Computer Week and GCN Magazine  
**To:** Case, Michael  
**Subject:** Leveraging cloud to improve energy efficiency in federal data centers  
**Date:** Wednesday, March 23, 2011 8:01:20 AM

---

Dear Michael,

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A6/759

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 8:02 AM  
**To:** Bamford, Lisa  
**Cc:** Davis, Chon  
**Subject:** Funding for OEGIB Projects

Lisa,

We talked a couple of weeks ago about funding my projects. I owed you a list of the projects and the funding amounts. Our needs are:

N6448 \$370,000 (RFPA already sent to DC)  
N6631 \$50,000  
N6632 \$55,000  
N6884 \$75,000 (RFPA already sent to DC)  
N6890 \$20,000  
N6891 \$10,000

Total \$580,000

These funding amounts will carry us through May. Please let me know if there will be problems with any of this.

Ben

AG/760

**Murphy, Andrew**

---

**From:** Bayssie, Mekonen  
**Sent:** Wednesday, March 23, 2011 8:07 AM  
**To:** RES\_DE  
**Subject:** Caution if When donate your Old Computers

DE,

I know we all do good care at work about personal information but what about if we have some old computers in the basement. If we decide to charity, we need to take some caution as my neighbor told me last night he was in the news because "Personal Information Found On Donated Computers". Here is the link which has they did a story and a DEMO the caution you need to take before donating.

<http://www.wusa9.com/news/local/story.aspx?storyid=139057>

Mekonen

AG1761

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 8:08 AM  
**To:** Salomon, Arthur  
**Subject:** RE: ACTION: Incremental funding actions

You are correct, but those are our directions. Hopefully the CR will be lifted soon and we can fund the projects for the remainder of the year. But at the moment, we (OEGIB) is pushing the limit to fund to the end of May. Generally, other projects are funded to the end of April.

Ben

---

**From:** Salomon, Arthur  
**Sent:** Tuesday, March 22, 2011 4:45 PM  
**To:** Beasley, Benjamin  
**Subject:** RE: ACTION: Incremental funding actions

Ben,

The spreadsheet for N6632 shows \$225,500 in estimated spending for March through May or 2011. The current funds remaining is approximately \$174,800. Providing another \$55,000 will only leave a cushion of about \$4,300. This does not make sense. It just means that if Shawn spends a little more in any month, we will run out of money before the end of May and have to do this all over again.

Thanks,

Art Salomon

---

**From:** Beasley, Benjamin  
**Sent:** Tuesday, March 22, 2011 3:48 PM  
**To:** Salomon, Arthur; Criscione, Lawrence; Lane, John  
**Subject:** ACTION: Incremental funding actions

Guys,

Please prepare incremental funding actions as follows:

N6631 \$50,000  
N6632 \$55,000  
N6890 \$20,000  
N6891 \$10,000

Please prepare the actions this week or early next.

Thanks!

Ben

AG/762

**From:** [Defense Systems](#)  
**To:** [Leeds, Eric](#)  
**Subject:** Can U.S. A&D firms attract new personnel from global marketplace?  
**Date:** Wednesday, March 23, 2011 8:08:42 AM

---

Dear Eric,

The retirement of baby boomer engineers, program and resource managers, and a range of other executives who were inspired by the Cold War and space race to enter the defense and aerospace industries has already begun and is expected to increase in the coming years. The competition for talent is expected to intensify. A paucity of engineers and other A&D managers entering the field in the 1980s and 1990s means few can step up to take the place of those who are retiring. The issue is not simplified by the fact that personnel have to be carefully vetted for security clearance, along with other challenges. In the face of these human resource challenges, how are US A&D firms adapting to cope in a global marketplace?

**Webcast:** [Talent Strategies and the Competitiveness of the US Aerospace and Defense Industry](#)

**Date:** April 28, 2011 at 2:00pm Eastern / 11:00 am Pacific

**Join Defense Systems for this complimentary webcast as experts from Economist Intelligence Unit and Oracle will discuss and demonstrate:**

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- How major A & D corporations are supporting the rise of a new generation of scientists and engineers, and
- How companies can strengthen their teams to be sure they have the essential resources needed to win big contracts.

**Speakers:**

**James Watson**, Consulting Editor, Economist Intelligence Unit

James has worked on a range of bespoke research programs, surveys and reports for the Economist Intelligence Unit's clients covering a variety of industry and management issues over the past 5 years. He is the author of numerous studies, including CEO Briefing and a major study on how companies operate in emerging markets. Prior to joining the Economist Intelligence Unit, James spent eight years working as a journalist and editor in the UK, Singapore and South Africa.

**Stan S. Kuruvilla**, Industry Strategist, Oracle Primavera

Stan focuses on helping aerospace and defense companies understand the value of Enterprise Project Portfolio Management (EPPM) solutions in managing programs and projects. Stan has over 14 years of experience in the technology industry, with a number of those years in consulting and development. Stan has been with Primavera since 2008.

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AG/763

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**From:** Richards, Stuart  
**To:** Uhle, Jennifer  
**Cc:** Case, Michael; Dehn, Jeff  
**Subject:** IRSN POC for CASS  
**Date:** Wednesday, March 23, 2011 8:12:44 AM

---

Jennifer

Did IRSN follow up on our March 11<sup>th</sup> meeting and provide an IRSN point of contact for CASS issues?

Thanks  
Stu

AG/764

## Kauffman, John

---

**From:** Kauffman, John  
**Sent:** Wednesday, March 23, 2011 8:19 AM  
**To:** Beasley, Benjamin  
**Subject:** RE: Status update request for MD 6.4  
**Attachments:** image001.gif; image002.png

I will let you know. JVK

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 8:17 AM  
**To:** Kauffman, John  
**Subject:** RE: Status update request for MD 6.4

John,

Please let me know what answer you get. I want to put our agreed to date in the Op Plan.

Ben

---

**From:** Kauffman, John  
**Sent:** Tuesday, March 22, 2011 7:59 AM  
**To:** Raynor, Kathleen  
**Cc:** Beasley, Benjamin  
**Subject:** RE: Status update request for MD 6.4

Kathleen,

We should be able to have an update by 6/2012. One question though, the latest MD 6.4 revision (it was a major revision) was issued on 11/17/2009. Is it necessary to revise it again so soon, or would a more appropriate date by 11/2014?



*John V. Kauffman*

Senior Reactor Systems Engineer  
US NRC/RES/DRA/OEGIB  
Washington, DC 20555 Mail Stop: C-2A07M  
Phone: 301-251-7465  
Fax: 301-251-7410

Please visit the [internal GIP web page](#) or [external GIP web page](#).

---

**From:** Raynor, Kathleen  
**Sent:** Monday, March 21, 2011 4:48 PM  
**To:** Kauffman, John



**Cc:** Directives Resource

**Subject:** Status update request for MD 6.4

Dear John,

I am reaching out to touch base with you regarding MD 6.4, "Generic Issues Program." The MD 5-year plan due date is June 2012. Please let the Management Directives (MD) team know what the current status of the MD is and if you have any questions or need any assistance while going through the MD revision process. Also, please remember that if you anticipate a problem meeting the 5-year plan date, you may request an extension of up to one year from the MD team.

The MD Web site has a wealth of information for authors from an overview of the MD process to drafting tips. Also, a member of the MD team would be happy to meet with you in person to go over the process and timeline.

Regards,

*Kate Raynor*

*Policy Analyst*

*Management Directives Team*

*ADM/DAS/RADB*

*Mailstop: TWB-05 B01M*

*Tel: (301) 492-3663*



**From:** Isakovic, Nadja  
**To:** Coe, Doug  
**Subject:** Director approval for Carlyleamaryllis Nelson-Wilson  
**Date:** Wednesday, March 23, 2011 8:20:00 AM  
**Importance:** High

---

Move request for Carlyleamaryllis Nelson-Wilson is less than ten (10) business days from today.  
Please approve this move request.

Thank you



Nadja Isakovic  
Administrative Support Specialist  
RES/PMDA/ITIB  
301-251-7683  
Nadja.Isakovic@nrc.gov

AG/766

From: GCN Daily  
To: Case, Michael  
Subject: Most accurate maps on tap | Major spam network gets busted  
Date: Wednesday, March 23, 2011 8:32:08 AM

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From: FCW Daily  
To: Case, Michael  
Subject: Congress targets retirement benefits | DOD rethinks workforce structure  
Date: Wednesday, March 23, 2011 8:32:16 AM

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This message was sent to: mjc@nrc.gov

**From:** Leeds, Eric  
**To:** Virgilio, Martin; Weber, Michael  
**Subject:** FW: N.Y. press release on meeting with NRC today  
**Date:** Wednesday, March 23, 2011 8:46:00 AM

---

FYI

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Sheehan, Neil  
**Sent:** Tuesday, March 22, 2011 4:11 PM  
**To:** Leeds, Eric  
**Subject:** FW: N.Y. press release on meeting with NRC today

---

**From:** Sheehan, Neil  
**Sent:** Tuesday, March 22, 2011 3:43 PM  
**To:** Hayden, Elizabeth  
**Cc:** Brenner, Eliot  
**Subject:** N.Y. press release on meeting with NRC today

Beth,

Here's what the N.Y. Governor's Office just put out. Is this true? Did we commit to do these things?

Starting to get lots of media calls on this.

Neil

---

Conversation: GOVERNOR CUOMO ANNOUNCES NUCLEAR REGULATORY COMMISSION HAS AGREED TO MAKE INDIAN POINT THE TOP PRIORITY IN NUCLEAR PLANT SEISMIC RISK REVIEW  
Subject: GOVERNOR CUOMO ANNOUNCES NUCLEAR REGULATORY COMMISSION HAS AGREED TO MAKE INDIAN POINT THE TOP PRIORITY IN NUCLEAR PLANT SEISMIC RISK REVIEW

[cid:3383652743\_17625682]State of New York | Executive Chamber Andrew M. Cuomo |  
Governor For Immediate Release: March 22, 2011

GOVERNOR CUOMO ANNOUNCES NUCLEAR REGULATORY COMMISSION HAS AGREED TO MAKE INDIAN POINT THE TOP PRIORITY IN NUCLEAR PLANT SEISMIC RISK REVIEW

Governor Andrew M. Cuomo today announced that the U.S. Nuclear Regulatory Commission (NRC) has pledged to make Indian Point its first and top priority in its review of seismic risk at 27 nuclear plants throughout the country. At the request of the Cuomo Administration, the NRC has agreed to a cooperative review of Indian Point as a joint effort between the NRC and New York State.

As a result of the meeting today at NRC headquarters in Maryland between Lieutenant

AG/769

Governor Robert Duffy, Director of State Operations Howard Glaser, and top NRC officials, the NRC has also agreed to sign a memorandum of understanding that will:

- \* Share federal data regarding seismic risk specific to Indian Point with New York technical experts
- \* Include New York experts as part of the NRC on-site inspection team that will evaluate Indian Point with regard to seismic risk

In addition, NRC Chair Greg Jaczko has agreed to conduct a personal site inspection of Indian Point with New York officials.

"It is essential that the NRC move quickly to answer the significant and long-standing safety questions surrounding Indian Point," Governor Cuomo said. "We appreciate the NRC agreeing to move swiftly and we look forward to working closely with them on this issue to protect the health and safety of New Yorkers."

"I thank the NRC for hosting us today and for recognizing the legitimate concerns that exist regarding Indian Point," Lieutenant Governor Duffy said. "Seismic activity is a serious concern regarding the facility and we will now work with the federal government to make sure we get answers for the people of New York."

Indian Point is located in Westchester County, within fifty miles of where more than 20 million people live and work. Among its other structural and safety flaws, the facility is situated near a fault line and concerns have been raised about whether it was designed to withstand the seismic activity that could result from an earthquake.

Governor Cuomo has long been an opponent of Indian Point and has worked to prevent the federal relicensing of the facility. Governor Cuomo and senior officials will continue to work with the NRC to monitor the status of Indian Point and protect residents.

###



**From:** [Williams, Shawn](#)  
**To:** [Jaegers, Cathy](#)  
**Cc:** [Abu-Eid, Bobby](#); [Astwood, Heather](#); [Brach, Bill](#); [Camper, Larry](#); [Case, Michael](#); [Cook, John](#); [Cool, Donald](#); [Diec, David](#); [Holahan, Vincent](#); [Lewis, Robert](#); [Quinones, Lauren](#); [Rini, Brett](#); [Sampson, Michele](#); [Schwartzman, Jennifer](#); [Virgilio, Martin](#); [Weaver, Doug](#); [Williams, Shawn](#)  
**Subject:** Please issue the attached Green Ticket to develop an option(s) on how the NRC will meet its obligations to seek comments from their national stakeholders for IAEA Safety Standards  
**Date:** Wednesday, March 23, 2011 8:50:26 AM  
**Attachments:** [EDATS-Green Ticket to develop a proposal for meeting the SSC TOR.docx](#)

---

Cathy,

Please issue the attached Green Ticket assigned to FSME due May 27. It is understood that Larry Camper will take the lead and coordinate with the others.

Coordinate with the other offices and IAEA Safety Standard Committees (SSCs), as necessary, to develop an option (or options) to be discussed further with the Deputy Executive Director for Reactor and Preparedness Programs (DEDR) on how the NRC will meet its obligations to the new SSC Terms of Reference (TOR) item *"To disseminate the draft nuclear/radiation/transport/waste safety standards in their respective States, to seek comments from their national stakeholders and to present a national position on each draft safety standard, which should be based on appropriate consultation at the national level and coordination of the input of national stakeholders."*

Shawn Williams  
Executive Technical Assistant  
Office of the Executive Director for Operations  
301-415-1009

AG/770

## GREEN – EDO PRINCIPAL CORRESPONDENCE CONTROL

DUE: May 27, 2011

FROM: N/A

TO: N/A

FOR SIGNATURE OF: N/A

DESCRIPTION: Develop an option(s) for the NRC to meet its obligations in the revised IAEA Safety Standard Committee's Terms of Reference to *"... seek comments from national stakeholders and to present a national position on each draft safety standard, which should be based on appropriate consultation at the national level and coordination of the input of national stakeholders"*

### ROUTING:

DATE: {EDO Mail Room Staff will enter this date}

ASSIGNED TO: CONTACT:

FSME Miller

### SPECIAL INSTRUCTIONS OR REMARKS:

Coordinate with the other offices and IAEA Safety Standard Committees (SSCs), as necessary, to develop an option (or options) to be discussed further with the Deputy Executive Director for Reactor and Preparedness Programs (DEDR) on how the NRC will meet its obligations to the new SSC Terms of Reference (TOR) item *"To disseminate the draft nuclear/radiation/transport/waste safety standards in their respective States, to seek comments from their national stakeholders and to present a national position on each draft safety standard, which should be based on appropriate consultation at the national level and coordination of the input of national stakeholders."*

The complete SSC TOR can be found at:

<http://www-ns.iaea.org/downloads/standards/ss-committees-tor.pdf>

Provide the information by May 27, 2011, via e-mail to Shawn Williams (OEDO).

**From:** Defense Systems Update  
**To:** Leeds, Eric  
**Subject:** Army CIO sets sights on efficiency, collaboration goals  
**Date:** Wednesday, March 23, 2011 8:51:54 AM

Having trouble viewing this e-mail? [Click here](#) to view as a Web page.



3/23/2011

### **Army CIO sets sights on efficiency, collaboration goals**

LandWarNet, enterprise e-mail and the Army Cyber Command are all getting the immediate attention of new CIO Lt. Gen. Susan Lawrence.

**DOD eases off original insourcing target**

**Military software to spread pro-American views online**

**DOD, SAIC advance to next phase of anti-WMD project**

#### **C4ISR**

**Williamson to lead military's joint radio system office**

#### **Top contracts**

**Top 20 defense contracts highlight trends in weapons, IT services**

#### **Register today for the ACT-IAC Small Business Conference, April 7th!**

This year's conference, ACT-IAC's fifth, provides a forum for small businesses to learn even more about how to take advantage of public sector opportunities to strengthen their companies, our economy, and our government. Register before April 6th to receive \$50 off.

**Register Now!**

#### **In case you missed it**

**Military struggles to find long-term solution to bandwidth needs**

**DOD wants space assets more secure, resilient to attack**

**DOD space efforts must go lean in tight fiscal times**

#### **More From 1105 Government Information Group**

**IT struggles to control security, bandwidth on tethered devices**

For users, tethering looks like an easy way to get unlimited Internet access, but it creates a challenging development for IT administrators.

#### **7.0 Biometrics**

DoD Biometrics designs, engineers, acquires, deploys and sustains Enterprise biometric solutions in multiple operating environments enabling identity dominance on the battlefield and across DoD.



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Defense Systems  
1105 Government Information Group  
3141 Fairview Park Drive, Suite 777

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AG/771

Falls Church, VA 22042  
703-876-5100

This message was sent to: [eric.leeds@nrc.gov](mailto:eric.leeds@nrc.gov)

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## Kauffman, John

---

**From:** Kauffman, John  
**Sent:** Wednesday, March 23, 2011 9:08 AM  
**To:** Raynor, Kathleen  
**Cc:** Beasley, Benjamin  
**Subject:** RE: Status update request for MD 6.4  
**Attachments:** image001.png; image002.gif

Kate,  
Thanks for update. JVK

---

**From:** Raynor, Kathleen  
**Sent:** Wednesday, March 23, 2011 8:24 AM  
**To:** Kauffman, John  
**Subject:** RE: Status update request for MD 6.4

Dear John,

You are 100% correct. I'm sorry for the confusion – I was working from a list that still included your old 5-year plan date. You do not need to revise this MD until November 2014. We have updated our records.

Regards,

*Kate Raynor*  
Policy Analyst  
Management Directives Team  
ADM/DAS/RADB  
Mailstop: TWB-05 B01M  
Tel: (301) 492-3663



---

**From:** Kauffman, John  
**Sent:** Tuesday, March 22, 2011 7:59 AM  
**To:** Raynor, Kathleen  
**Cc:** Beasley, Benjamin  
**Subject:** RE: Status update request for MD 6.4

Kathleen,  
We should be able to have an update by 6/2012. One question though, the latest MD 6.4 revision (it was a major revision) was issued on 11/17/2009. Is it necessary to revise it again so soon, or would a more appropriate date be 11/2014?



*John V. Kauffman*

Senior Reactor Systems Engineer  
US NRC/RES/DRA/OEGIB  
Washington, DC 20555 Mail Stop: C-2A07M  
Phone: 301-251-7465  
Fax: 301-251-7410

Please visit the [internal GIP web page](#) or [external GIP web page](#).

---

**From:** Raynor, Kathleen  
**Sent:** Monday, March 21, 2011 4:48 PM  
**To:** Kauffman, John  
**Cc:** Directives Resource  
**Subject:** Status update request for MD 6.4

Dear John,

I am reaching out to touch base with you regarding MD 6.4, "Generic Issues Program." The MD 5-year plan due date is June 2012. Please let the [Management Directives \(MD\) team](#) know what the current status of the MD is and if you have any questions or need any assistance while going through the MD revision process. Also, please remember that if you anticipate a problem meeting the 5-year plan date, you may request an extension of up to one year from the MD team.

The [MD Web site](#) has a wealth of information for authors from an overview of the MD process to drafting tips. Also, a member of the MD team would be happy to meet with you in person to go over the process and timeline.

Regards,

*Kate Raynor*  
Policy Analyst  
Management Directives Team  
ADM/DAS/RADB  
Mailstop: TWB-05 B01M  
Tel: (301) 492-3663



**Kauffman, John**

---

**From:** Kauffman, John  
**Sent:** Wednesday, March 23, 2011 9:10 AM  
**To:** Smith, April  
**Subject:** Going back to school

Congrats! The branch and GI Program are going to feel your loss. JVK

AG 1773

9

## Laur, Steven

**From:** Claggett, Lauren  
**Sent:** Wednesday, March 23, 2011 9:14 AM  
**To:** Laur, Steven; Holston, William; Torres, Andrea; Sallman, Ahsan  
**Cc:** Claggett, Lauren  
**Subject:** Office Space Assignments During NRR SLS Project to Enclose C-Corridor Offices

**Importance:** High

**Resending this information... Just want to be sure you're all informed. Please contact me should you have any questions.**

### Steve Laur & William Holston

You will not need to pack all of your belongings. However, your computer and phone will need to be moved due to them being disconnected from your assigned office space during construction. I will check with ADM regarding any additional instructions.

### Paulette,

Administrative Assistant workstation O-12D03 is being converted into a standard staff workstation (work scheduled to be complete within the next week). Because you have the highest ranking of employees displaced from the 12th floor, you have first choice and will be relocated to this space. This location will be your permanent location until further notice.

### Ahsan,

Sometime ago, we made arrangements for your temporary use of O-10C05. Now that the construction to enclose the office is scheduled to begin, you will have to be relocated. Because we do not currently have a vacant office on your designated floor, you will again, be temporarily assigned to a workstation until one becomes available to you.

Thanks  
Lauren

Phase-I (moves to take place the week of April 4 <sup>th</sup> )		
NAME	MOVE FROM	MOVE TO TEMPORARY LOCATION
Allen Hiser	O-11C01	O-07G03
*William Holston (Non-SLS)	O-11C03 (NO CABLE PULL)	O-07H12
John Adams	O-12C01	O-07G05
Thomas Fredrichs	O-12C03	O-07H10
Phase-II (moves to take place the week of April 18 <sup>th</sup> )		
Tim Collins	O-10C01	O-07D11
Paul Clifford	O-10C03	O-07E15
**Ahsan Sallman (Non-SLS)	O-10C05	O-07D09
*Steve Laur	O-10C07 (NO CABLE PULL)	O-07D13
Phase-III (moves to take place the week of April 28 <sup>th</sup> )		
***Paulette Torres (Non-SLS)	O-09C01	O-12D03
Steve Arndt	O-09C03	O-07G03



Kenneth Karwoski	O-09C05	O-07G05
Robert Hardies	O-09C07	O-07H10
<p>*Employee to be relocated due to disconnection of power in adjoining office during construction.  **Reassigned to new temporary location due to enclosing of office space.  ***Displace employee reassigned to newly constructed workstation based on ranking.</p>		

*Lauren G. Claggett*

Sr. Program Analyst

Program Management, Policy Development & Analysis Staff

Information & Infrastructure Services Branch

Office of Nuclear Reactor Regulation

Lauren.Claggett@nrc.gov

**END**

**From:** Zabel, Joseph  
**To:** Bonaccorso, Amy  
**Subject:** RE: Editor's Corner  
**Date:** Tuesday, March 22, 2011 9:29:00 AM  
**Attachments:** Editors Corner 30.docx

---

Hi Amy:

Here is the Editor's Corner.

Joe

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Document Control Branch  
[joseph.zabel@nrc.gov](mailto:joseph.zabel@nrc.gov)  
06D05

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**From:** Bonaccorso, Amy  
**Sent:** Sunday, March 20, 2011 12:46 PM  
**To:** Zabel, Joseph  
**Subject:** Editor's Corner

Hi Joe:

I am attempting to get a short Researcher out this month. Can you please send me the Editor's Corner.

Thanks,

Amy

AG/775

## **Oops! A Thorough Review Is the Best Policy**

When I put together the Editor's Corner last month, I felt pretty good about the column despite the time constraints I was under to complete this task and others due that afternoon. Like everyone these days, I had a lot on my plate; subsequently, I quickly wrote the column and immediately moved on to other the high-priority work that was waiting for me.

Not too smart, Mr. Editor! I had violated one of my own basic rules by neglecting to take the time to review my work before sending it out. To turn a popular phrase, "My bad."

Last month's column included two significant errors that could have been avoided if I had taken the time to review my writing. Did you spot them? A good pal and NRC colleague of mine did and he let me know about my goofs. Thanks for the heads up, Larry.

My little example of editorial ineptitude should remind us that good writing is never a one-step process. One of the most important steps in this process is to take the time to reread your work with an eye toward improving it through careful revision. Many of us resist this review step because of time limitations and the difficulty of distancing ourselves from our own draft. Also, we tend to review our work from our own perspective and not from our audience's viewpoint.

To distance yourself from your draft, put it aside for a while (preferably overnight, if possible). When you return to your paper, try to play the role of your audience as you read. Initially, look for the larger issues of your writing (i.e., purpose, appropriateness, focus, and content). When working on a computer, a good tip is to print out a hard copy so you can read the draft as a whole rather than screen by screen. A printout allows you to look at the entire paper when thinking about what overall revisions to make. However, some writers like to handle revisions directly at the computer, experimenting on screen with a variety of possible improvements.

Once you are satisfied that the document addresses these larger issues, you are ready to proofread and edit your draft. Proofreading is a careful, methodical search for misspellings, typographical mistakes, and omitted words or word endings. Such mistakes are difficult to spot in your own work because you may read what you intended to write, not what is actually on the page. Sometimes it may help to proofread your sentences out loud, articulating each word as it is actually written. Another strategy is to proofread your sentences in reverse order. This takes your attention away from the meanings you intended and forces you to think about small surface features instead.

Editing is the process by which you evaluate your writing on its own terms, questioning it on the grounds of accuracy, clarity, coherence, consistency, and effectiveness. When editing your document, consider the material in light of the following factors:

- Check for errors in spelling.
- Ensure all punctuation is correctly inserted.
- Look for possible errors in capitalization, number, and abbreviation style.

- Correct any mistakes in grammar or usage.
- Look for inconsistencies in wording and format.

This kind of review work can be dull, but it is very important. Errors strewn throughout a document are distracting and annoying. However, a carefully reviewed paper sends a positive message that shows you value your writing and respect your readers.

By the way, my two boo-boos in last month's column involved a poor word choice and faulty grammar. The first sentence in the column read, "Although communicating by e-mail has many benefits, it is also **bereft** with pitfalls." "Bereft" was a wrong word choice— "fraught" would have been a better word to use. Later on in the column, I wrote "... the **reader** will often quickly scan the subject lines of e-mail messages in **their** mailbox to determine which particular e-mails should be assigned priority over the others." I created a pronoun-antecedent agreement problem by using the plural pronoun "their" to refer to the singular antecedent "reader." This construction is not acceptable in proper writing. By changing the singular "reader" to "readers," I could have solved the agreement problem.

Sometimes even a good editor can be a bad, bad boy.

**Kauffman, John**

---

**From:** RES\_OpPlan@nrc.gov  
**Sent:** Wednesday, March 23, 2011 9:30 AM  
**To:** Kauffman, John  
**Subject:** New Milestone has been Assigned to you

**Importance:** High

## **New RES Milestone has been Added to the RES OpPlan**

---

[View Milestone |](#)

John Kauffman

The purpose of this email is to notify you that there has been a new milestone added to the RES OpPlan Milestone List assigned to you. This milestone was added by Benjamin Beasley on 3/23/2011 9:29:57 AM.

If you have any questions, please contact your supervisor.

### **New Milestone Information:**

<b>User Need ID</b>	Generic Issues Program
<b>User Need Title</b>	Generic Issues Program
<b>Requesting Office</b>	RES
<b>Milestone Description</b>	Revise MD 6.4 as appropriate. A revision is due no later than 2014.
<b>Milestone Level</b>	D
<b>Original Due Date</b>	5/30/2014 12:00:00 AM
<b>Current Due Date</b>	5/30/2014 12:00:00 AM
<b>Explanation / Comments</b>	
<b>Business Line</b>	Operating Reactors
<b>Product</b>	Generic Issues and Operating Experience
<b>Division</b>	RES/DRA
<b>Branch</b>	RES/DRA/OEGIB
<b>RES/ Contact Lead</b>	John Kauffman
<b>Strategic Goal/Obj</b>	

---

**From:** Zabel, Joseph  
**To:** Bonaccorso, Amy  
**Subject:** RE: Editor's Corner  
**Date:** Tuesday, March 22, 2011 9:32:00 AM  
**Attachments:** Editors Corner 30.docx

---

Hi Amy:

Use this one instead of the version I just sent you.

Joe

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Document Control Branch  
joseph.zabel@nrc.gov  
06D05

---

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**To:** Zabel, Joseph  
**Subject:** Editor's Corner

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Sometimes even a good editor can be a bad, bad boy.



**From:** Langlie, Liz  
**To:** Prescott, Paul; Hall, Victor; Zhang, Deanna; Rebstock, Paul; Hilton, Nick; Cool, Donald; Dehmel, Jean-Claude; Jankovich, John; Poole, Brooke; Dube, Donald; Lois, Erasmia; Stutzke, Martin; Hudson, Daniel; Drouin, Mary; Nove, Carol; Scarbrough, Thomas; Lee, Mike; Dean, Bill; McCree, Victor; Satorius, Mark; Collins, Elmo; Denissen, Christie; Munson, Clifford; Ake, Jon; Manoly, Kamal; Kokajko, Lawrence; Miller, Kenn; Daley, Robert; Tappert, John; Casto, Chuck; Kahler, Robert; Dozier, Jerry; Imboden, Andy; Stone, AnnMarie; Galloway, Melanie; Howe, Andrew; Tiader, Theodore; Mrowca, Lynn; Sieracki, Diane; Cheok, Michael; Cai, June; Dion, Jeanne; Pederson, Perry; Costello, Ralph; Hiser, Allen; Carpenter, Gene; Frumkin, Daniel; Held, Wesley; Scales, Kerby; Roquecruz, Carla; Concepcion, Milton; Day, Kerstun; Shaffer, Vered; Cullingford, Michael; Bailey, Stewart; Cloyd, SherVerne; Tetter, Keith; Moyer, Carol; Carpenter, Robert; Stevens, Gary; Kennedy, James; Barkley, Richard; Markley, Michael; Doolittle, Elizabeth; Som, Swagata; Rivera-Varona, Aida; Mroz (Sahm), Sara; Sangimino, Donna-Marie; Drucker, David; Evans, Jonathan; Thompson, Catherine; Cai, June; Emche, Danielle; VandenBerghe, John; Tregoning, Robert; Oudinot, Daniele; Mills, Daniel; Gall, Jennifer; Calvo, Antony; Anoshehpour, Rasool; Miller, Barry; Sakai, Stacie; Williams, Donna; Cartwright, William; Tene, Kimberly; Sallman, Ahsan; Sall, Basia; Reed, Wendy; Snyder, Amy; Cupidon, Les; Shropshire, Alan; Chang, Richard; Barrett, Harold; Xu, Jim; Lu, Shanlai; Park, Sunwoo; Hernandez, Raul; Gall, Jennifer; Ruland, William; Zigh, Ghani; Gingrich, Chester; Whitman, Josh; Esmaili, Hossein; Gibson, Kathy; Brock, Terry; Khanna, Meena; Klein, Paul; Hardies, Robert; Kozal, Jason; Powell, Raymond; Pederson, Cynthia; Guthrie, Eugene; Daley, Robert; Vogel, Anton; Brown, Frederick; Kelly, Joseph; Srinivasan, Makuteswara; Lobel, Richard; Laur, Steven; Mitchell, Reggie; Rheume, Cynthia; Noggle, James; Libby, Earl; Case, Michael; Mizuno, Geary; Benowitz, Howard; Whitney, James; Schnetzler, Bonnie; Giantelli, Adelaide; Barry, Terrence; Chang, Richard; Schaperow, Jason; Tinkler, Charles; Santiago, Patricia; Patel, Jigar  
**Cc:** Givvines, Mary; Kipfer, Lorna; Oliveto, Betsy; Reckley, William; Murphy, Martin; Sydnor, Russell; Zimmerman, Roy; Bush-Goddard, Stephanie; Cullingford, Michael; Ruland, William; Karlin, Alex; Demoss, Gary; Norris, Wallace; Camper, Larry; Virgilio, Martin; Markley, Michael; Haney, Catherine; Wilson, George; Tappert, John; McDermott, Brian; Sheron, Brian; Holian, Brian; Harrison, Donnie; Elliott, Robert; Campbell, Andy; Doane, Margaret; Erlanger, Craig; Case, Michael; Klein, Alex; Mrowca, Lynn; Ulses, Anthony; Uhle, Jennifer; Gibson, Kathy; Gavrilas, Mirela; Virgilio, Martin; Holahan, Gary; Morris, Scott; Pederson, Cynthia; Scott, Michael; Dennig, Robert; Dyer, Jim; Nicholson, Thomas; Matthews, David; Johnson, Clay; Coffin, Stephanie; Bonaccorso, Amy; Anderson, Patricia; Schum, Constance; Wright, Jason; Padilla, William; Doan, Brian; Coates, Carlotta; Emche, Danielle; Doolittle, Elizabeth; Galloway, Melanie; Case, Michael; Dudes, Laura; Lorson, Raymond; Cullingford, Michael; Machalek, Woody; Wilson, George; Knowles, Eric; Valentin, Andrea; Oliveto, Betsy  
**Subject:** REMINDER: ACTION: Unanswered Session Questions due Today; Send Speaker Thank you  
**Date:** Wednesday, March 23, 2011 9:35:14 AM  
**Attachments:** Sample Speaker TY Ltr.doc  
Sample Format for Qs&As.docx  
**Importance:** High

---

Dear All,

I have received questions and answers from several of you, but if you have not sent them to me, please do so today. If you cannot meet today's deadline, please let me know as well. We would like to post all responses to questions that were not answered at the RIC on our website by April 1.

Attached is the question and answer sample. If you have unanswered questions from your session, please respond in the **Option A** format listed on the sample; or, if you do not have unanswered questions from your session, respond in the **Option B** format.

In addition, please send thank you letters to your speakers soon and feel free to use the attached sample thank you letter as a guide. Please just let me know when you have completed this action – there is no need to copy me on the letters.

Thanks very much and please contact me if you have any questions.

Liz

---

**From:** Langlie, Liz  
**Sent:** Thursday, March 17, 2011 1:00 PM  
**Subject:** THANK YOU and ACTION: Sample Speaker Thank you Letter and Template for Unanswered Session Questions  
**Importance:** High

AG/778

Dear Session Coordinators and Chairs,

The 2011 RIC was very successful and I thank you on behalf of Lorna Kipfer, Betsy Oliveto and the RIC Planning Committee for greatly adding to that success! We have received many compliments on the technical session content and we appreciate the hard work you and your speakers put into making RIC sessions educational, timely and interesting.

It is now time for conference wrap up actions, which include thanking all speakers for their participation and responding to unanswered session questions, which will be posted on the RIC website. Attached is a sample speaker thank you letter for your reference – feel free to customize the letter to meet your needs. Please send thank you notes to your speakers in the next couple of weeks and let us know via email when this action has been completed – *we do not need to be copied on thank you notes*. Feel free to send your thank you letters via regular mail or email.

Also attached is a question and answer template. If you have unanswered questions from your session, please respond in the *Option A* format listed on the attached template; or, if all questions were answered at your session onsite, please respond in the *Option B* format. Please send your responses to me at [liz.langlie@nrc.gov](mailto:liz.langlie@nrc.gov) by March 23.

Our goal is to have audio and video of plenary sessions, audio of technical sessions, transcripts for plenary and technical sessions, updated technical presentations and unanswered questions on the external website by the end of March. We understand that it is an extremely busy time for many of you as a result of the Japan earthquake and tsunami, so please let us know if you are unable to send responses to unanswered questions by March 23.

I enjoyed working with each of you on the RIC technical sessions this year and I hope to work with you again on RIC 2012! Please don't hesitate to contact me or Lorna Kipfer if you have any questions and thank you again for your efforts to make the RIC such a successful conference.

Best,  
Liz

Liz Langlie  
Program Specialist, NRR/PMDA  
U.S. Nuclear Regulatory Commission (NRC)  
301/415-7237  
O-13E9  
[liz.langlie@nrc.gov](mailto:liz.langlie@nrc.gov)



## SAMPLE THANK YOU LETTER TO TECHNICAL SESSION SPEAKERS

DATE

NAME  
TITLE  
ORGANIZATION  
ADDRESS

Dear Mr./Mrs./Ms. \_\_\_\_\_:

Thank you for presenting at the U.S. Nuclear Regulatory Commission's 23rd Annual Regulatory Information Conference (RIC), March 8 – 10, 2011, in Rockville, Maryland. This year the total number of participants reached over 2,900 participants including international representatives from 28 countries.

Initial feedback from participants indicates that this year's RIC was another resounding success. Your dedication and support helps the NRC "raise the bar" each year to develop a comprehensive program filled with discussion topics that are timely and relevant.

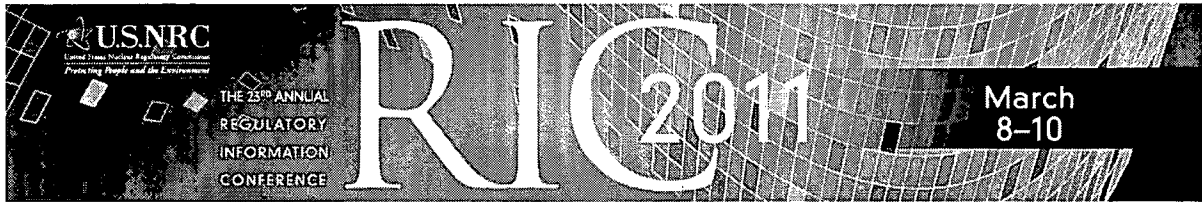
Your presentation on "\_\_\_\_(speaker presentation title)\_\_\_\_\_" during the \_\_\_\_ (session number and title)\_\_\_\_ session provided important information and another perspective about initiatives that are underway in the nuclear arena. *[optional: The interest of the attendees was evident by the range of questions raised during the question-and-answer period following the panel presentations.]*

All final presentation slides and questions that were not addressed during the conference are being compiled and will be posted on the NRC's RIC website at: <http://www.nrc.gov/public-involve/conference-symposia/ric/index.html>. Again, thank you for your participation at NRC's 2011 Regulatory Information Conference. It is your commitment and support that helped to make the RIC a success.

We hope you will join us for the 24th Annual RIC March 13-15, 2012, scheduled to be held at the Bethesda North Marriott Hotel and Conference Center, Rockville, Maryland.

Warm regards,

Session Chair or Coordinator (as appropriate)



## **SUGGESTED FORMATS FOR PROVIDING QUESTIONS AND ANSWERS**

*Option A - Please follow the sample format below for sessions that have unanswered questions:*

**Session Day and Time:** *[ex: Tuesday, March 8, 1:30 p.m. - 3:00 p.m.]*

**Session Number and Title:** *[ex: T1 10 CFR Part 21 and Commercial-Grade Degradation]*

**Session Chair:** *[enter name and office of Session Chair]*

**Session Coordinator:** *[enter name, office, telephone number and email address of Session Coordinator]*

**Question 1:**

**Answer 1:**

**Question 2:**

**Answer 2:**

*Option B - Please follow the sample format below for sessions where all the questions received were answered during the session:*

**Session Day and Time:** *[ex: Tuesday, March 8, 1:30 p.m. - 3:00 p.m.]*

**Session Number and Title:** *[ex: T1 10 CFR Part 21 and Commercial-Grade Degradation]*

**Session Chair:** *[enter name and office of Session Chair]*

**Session Coordinator:** *[enter name, office, telephone number and email address of Session Coordinator]*

All questions received were answered during the session.

**From:** Landau, Mindy  
**To:** Leeds, Eric  
**Subject:** RE: Working the communication issue  
**Date:** Wednesday, March 23, 2011 9:40:37 AM

---

Thanks Eric!

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 9:35 AM  
**To:** Landau, Mindy  
**Subject:** Working the communication issue

I'll let you know what we come up with – may take a couple of days but I put a group on it.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

AG/779

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 9:47 AM  
**To:** Lane, John  
**Subject:** Spending on N6891

John,

The APP input was due yesterday so I updated the N6891 spending plan to help me calculate our needs. I had the February spending from the MLSR received last week. However, the January actual spending had not been entered into ROMA. I used the year to date on the MLSR to back calculate the January spending and then entered it into ROMA. Please use last month's MLSR to confirm that I calculated and entered the correct value.

Ben

AG/780

From: John Paul  
To: C3A\_Doug  
Subject: 2nd Annual Command and Control Conference - Washington, DC - May 10-12, 2011  
Date: Wednesday, March 23, 2011 9:55:58 AM

---

For more information on the presenters or a electronic copy of the brochure and Agenda.

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Comments: [webmaster@ttcus.com](mailto:webmaster@ttcus.com)

AG/1781



Zabel, Joseph

---

**From:** RES\_Onboarding@nrc.gov  
**Sent:** Wednesday, March 23, 2011 9:57 AM  
**To:** Flory, Shirley  
**Cc:** Zabel, Joseph  
**Subject:** Rotation Employee Zhian Li Arriving RES on 3/28/2011 12:00:00 AM.

## Zhian Li Arriving the Office of Research

---

Hello

The purpose of this email notification is to inform you that Zhian Li is a Rotation employee and is arriving on 3/28/2011 12:00:00 AM.

If you have any questions, please reply to this email.

Regards

RES Onboarding Team

---

### Employee's Information:

<b>Employee's Name</b>	Zhian Li
<b>Employee's title</b>	Senior Criticality and Shielding Engineer
<b>Type</b>	Rotation
<b>Division</b>	DSA
<b>Branch</b>	CDB
<b>Arrival Date (EOD)</b>	3/28/2011 12:00:00 AM
<b>EOD Status</b>	Actual

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---

AG 1782

**From:** [Rudland, David](#)  
**To:** [Case, Michael](#); [Csontos, Aladar](#)  
**Cc:** [Richards, Stuart](#); [West, Stephanie](#)  
**Subject:** RE: Walkthru of xLPR version 1.0 report  
**Date:** Wednesday, March 23, 2011 10:00:58 AM

---

Mike

Of course!

I'll work with Stephanie to get on your calendar

Thanks

Dave

---

**From:** Case, Michael  
**Sent:** Wednesday, March 23, 2011 9:45 AM  
**To:** Rudland, David; Csontos, Aladar  
**Cc:** Richards, Stuart  
**Subject:** Walkthru of xLPR version 1.0 report

Hi Dave. Great report. Do you think you can do a walkthrough of the report highlights for Stu and I? Whenever convenient is fine.

AG 1783

**From:** Megan Craig  
**To:** [Case, Michael](#)  
**Subject:** Don't Miss these Essential TapRoot® Courses!  
**Date:** Wednesday, March 23, 2011 10:02:13 AM

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AG/784

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**From:** Oberson, Greg  
**To:** Case, Michael  
**Subject:** RIC  
**Date:** Wednesday, March 23, 2011 10:09:06 AM

---

Mike,

Do you recall whether there were any unanswered audience questions from the RIC session on extended operations (i.e., that we need to post answers to the website)? Rob and I can't recall any but we need to confirm this to the RIC organizers today.

Thanks.

AG/785

**From:** [Valentin, Andrea](#)  
**To:** [Donaldson, Leslie](#); [Case, Michael](#)  
**Subject:** FW: RES Fortran Training  
**Date:** Wednesday, March 23, 2011 10:22:54 AM  
**Attachments:** [image001.png](#)

---

Mike,

This was your procurement right? See Jody's description and questions. My involvement was to try to put the right folks together to make sure HR's process was being followed once Jody pointed out that it had not been coordinated up until that point. Any insight that you can provide would be appreciated so that I can get back to Jody.

Thanks,  
Andrea

---

**From:** Hudson, Jody  
**Sent:** Wednesday, March 23, 2011 9:24 AM  
**To:** Valentin, Andrea; Purdie, Deonna  
**Cc:** Bumpass, Sheila  
**Subject:** FW: RES Fortran Training

All,

It appears (see email below) the RES-initiated training procurement we had some discussion about a couple weeks ago proceeded with posting on Gov Biz-Ops. This occurred despite our having brought the issue and concern forward.

Although I'm not inclined to over blow this, it does illustrate that there are continuing problems with program offices operating contrary to NRC's delegated authorities with respect to developing, delivering, or procuring training. We need to find a way to fix this.

I have been communicating on this issue to, and relying primarily on, the PMDA offices to monitor and comply with the delegated authorities on training. The PMDAs seem like the logical coordination point given most office training and office procurements come through them.

I still think this is the best way to address the issue, but it's not as effective as it needs to be; case in point this latest RES procurement posting.

I'm interested in your thoughts as to how we can make this work without elevating to higher levels.

Regards

-  
Jody Hudson

Chief Learning Officer  
Human Resources Training & Development  
U.S. Nuclear Regulatory Commission  
Mailstop: GW-4A01

AG/786

301-492-2215

---

**From:** Chernoff, Margaret  
**Sent:** Wednesday, March 23, 2011 8:37 AM  
**To:** Barnes, Robin  
**Cc:** Hudson, Jody; Eam, Erika  
**Subject:** FW: RES Fortran Training

Hi Robin,

Yesterday we were doing some market research for the RES Fortran training project; and we discovered that this procurement had already been announced here: <http://www.nrc.gov/about-nrc/contracting/general/notice.html>. Therefore, I don't believe our input would benefit the procurement process at this time.

If there is anything additional we can help you with, please feel free to contact me.

- Margaret

Margaret Chernoff  
U.S. Nuclear Regulatory Commission  
Chief, Regulatory Fundamentals Training Branch  
Human Resources Training and Development  
301-492-2316  
[Margaret.Chernoff@nrc.gov](mailto:Margaret.Chernoff@nrc.gov)

---

**From:** Barnes, Robin  
**Sent:** Tuesday, March 22, 2011 3:16 PM  
**To:** Chernoff, Margaret  
**Subject:** RE: RES Fortran Training

Hi Margaret –

Thanks for the update. Great - we look forward to hearing from either Sal and Randi. As promised, we will begin discussing the integrated training process with our colleagues in RES at tomorrow's meeting.

Thanks again for your assistance!

*Robin T. Barnes  
Management Analyst  
US Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Division of Program Management, Policy Development & Analysis  
Procurement Oversight & Funds Control Team*

Phone: 301-251-7401



---

**From:** Chernoff, Margaret  
**Sent:** Tuesday, March 22, 2011 3:00 PM  
**To:** Barnes, Robin  
**Subject:** RE: RES Fortran Training

Hi Robin,

I have a couple folks on my staff (Salman Haq and Randi Neff) reviewing the SOW.

We are not really trying to develop an "approval" process; rather we are trying to instill a partnership whereby we work with the offices to obtain training that best fits the need – so our goal is effective and economical training that is delivered in a timely manner.

Tomorrow you should hear from my staff with their comments/questions.

- Margaret

---

**From:** Barnes, Robin  
**Sent:** Tuesday, March 22, 2011 1:30 PM  
**To:** Chernoff, Margaret  
**Cc:** Eam, Erika  
**Subject:** RE: RES Fortran Training

Hi Margaret!

I hope you are doing well. I just wanted to follow up with you regarding the status of Fortran training we were looking to procure. Can you let me know whether it has been approved or is still pending?

Thanks so much for your efforts.

*Robin T. Barnes  
Management Analyst  
US Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Division of Program Management, Policy Development & Analysis  
Procurement Oversight & Funds Control Team  
Phone: 301-251-7401*





---

**From:** Barnes, Robin  
**Sent:** Thursday, March 17, 2011 10:55 AM  
**To:** Chernoff, Margaret  
**Cc:** Colon, Heriberto  
**Subject:** RES Fortran Training

Hi Margaret!

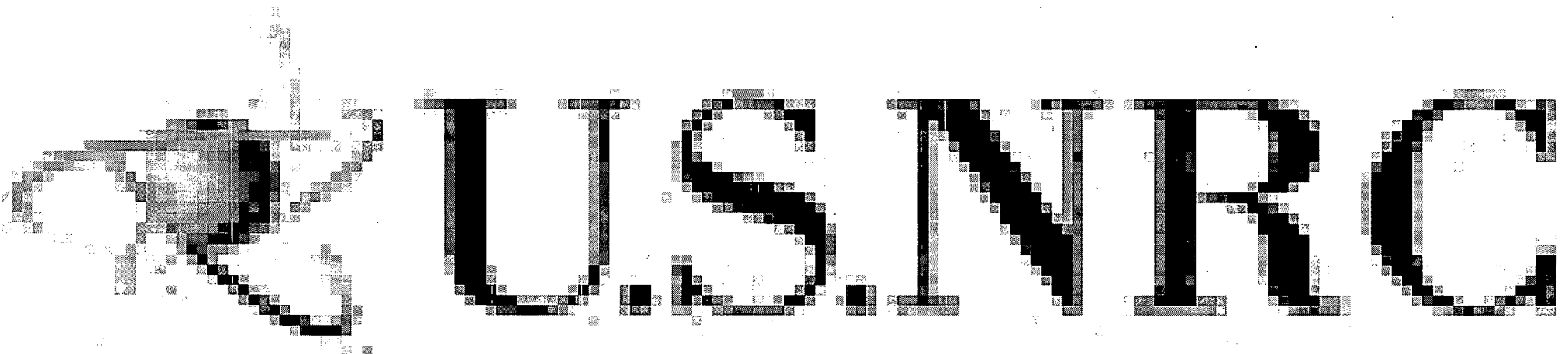
Thank you so much for taking the time to speak with us regarding the training procurement process. We are happy to assist in making this process as smooth as possible for both HR and RES. Attached is the JOFOC for the Fortran Training. The Project Manager for this training is Antony Calvo at 251-7677 and the Division Management Analyst is Elizabeth Bowlin at 251-7955. Please feel free to keep me in the loop and/or let me know if there is anything I can do to help facilitate.

Again – we appreciate your time this morning and look forward to working with you!

Regards,

*Robin T. Barnes  
Management Analyst  
US Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
Division of Program Management, Policy Development & Analysis  
Procurement Oversight & Funds Control Team  
Phone: 301-251-7401*





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## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 10:29 AM  
**To:** Siu, Carolyn  
**Cc:** Bens, Michelle  
**Subject:** RE: Pay period reminder

Carolyn,

Shelby has been supporting the Ops Center during the evenings this week. She is scheduled to work Friday evening. I told her that we should do her time card on Monday morning.

All of the rest of the branch should have the time in by Thursday COB.

Ben

---

**From:** Siu, Carolyn  
**Sent:** Wednesday, March 23, 2011 10:15 AM  
**To:** RES\_DRA  
**Subject:** Pay period reminder

Good morning DRA,

Please remember to have your time in before you go home Thursday. Thank you!

## Carolyn Siu

Fiction reveals truths that reality obscures.

Division line: 301-251-7430

Direct line: 301-251-7568

Fax: 301-251-7424

Email: [Carolyn.Siu@nrc.gov](mailto:Carolyn.Siu@nrc.gov)

AG/787

8

**Laur, Steven**

---

**From:** Dinsmore, Stephen  
**Sent:** Wednesday, March 23, 2011 10:26 AM  
**To:** Harrison, Donnie; Gallucci, Ray; Howe, Andrew; Laur, Steven; ONeal, Daniel; Dozier, Jerry; Short, Steve M; Lain, Paul  
**Subject:** Audit Questions.docx  
**Attachments:** Audit Questions.docx

I understand that we need to audit the first set of NFPA-805 submittals. I propose that we will need to gain an good understanding on how all the change in risk calculations are done until such time as the process has stabilized. This is independent of the base fire PRA peer reviews.

To that purpose, I put together a list of question that would have helped me identify the oddities in the ONS submittal during an audit instead of piecemeal over time.

Comments, clarifications, additions?

Stephen

AG 1788

## Audit Questions

The range of the PRA audit includes an audit of change in risk calculations determining how damage targets are identified and how these damaged target failures are reflected in the PRA

How is the initiating event determined for each ignition source?

Obtain a list of all risk-evaluation that decrease risk. Examine several model changes.

- Is the credited equipment part of the FPP?
- Is the credited equipment already installed?
- If the credited equipment is not installed, why and when will it be installed?
- If the equipment being credited is not yet installed, how is the accuracy of the PRA models and equipment failure probabilities to be confirmed?

Obtain a list of all risk-evaluations that increase risk. Examine several model changes.

- What is the baseline risk model, a fully compliant plant?
- Does the as-is risk model faithfully reflect the facility conditions allowed under the VFDR?
- How does the list of failed equipment vary with ignition sources (i.e., do many of the VFDRs have no risk impact because the un-separated multi-train cables run outside of single ignition source ZOLs)

Obtain a list of equipment that will no longer be needed

- Is there any FPP equipment that will not be required under NFPA-805, but that is currently modeled in the PRA?
- How is the removal or abandonment of this equipment modeled on the PRA?

Obtain a list of suppression/severity factors. Examine some of the scenarios that include severity factors and/or manual suppression.

- How is fire detection included in the PRA
- Is there a list of failed equipment following a non-severe fire and a second list following a severe fire? If there is only one list, why is there only one and which one is it?
- Is there a list of failed equipment following a suppressed fire, and a second list following a non-suppressed fire? If there is only one list, why is there only one and which one is it?
- What is the relationship between detection, severity factor, and non-suppression

Obtain the list of operator actions following a fire.

- Are there any human actions that need to be performed outside of the control room following a fire?
- Are there any PCS (remote shutdown) stations?
- How are human actions taken at a PCS reflected in the PRA?
- Are there any recovery actions (actions taken outside of the PCA and not associated with transfer of control to a PCS) and how is the change in risk calculated?

**From:** Soundview Executive Book Summaries  
**To:** Case, Michael  
**Subject:** New From the Publisher of Soundview  
**Date:** Wednesday, March 23, 2011 10:28:40 AM

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AG/789

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**From:** [Homeland Security NewsWire](#)  
**To:** [Leeds, Eric](#)  
**Subject:** Maritime & Transportation Security Expo, May 4-5, 2011, Baltimore, MD Convention Center  
**Date:** Wednesday, March 23, 2011 10:31:57 AM

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**Beasley, Benjamin**

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 10:34 AM  
**To:** Bamford, Lisa  
**Cc:** Davis, Chon  
**Subject:** Revised need for N6632

Lisa,

I just learned that the March spending for N6632 is about \$6,000 above the projection. Please change our need for N6632 from \$55,000 to \$65,000.

Ben

AG/791

**From:** [SNL Energy](#)  
**To:** [Case, Michael](#)  
**Subject:** Webinar: FERC's Transmission NOPR (Why all the fuss?)  
**Date:** Wednesday, March 23, 2011 10:35:24 AM

---



Join us for an informative discussion of this controversial rule and its implications.

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Registration: [www.snlcenter.com/nopr](http://www.snlcenter.com/nopr)

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- **Patricia Alexander** – Advisor, Dickstein Shapiro LLP
- **Joseph T. Kelliher** – Executive Vice President, Federal Regulatory Affairs, NextEra Energy, Inc.
- **Clair J. Moeller** – Transmission Asset Management, Midwest Independent Transmission System Operator, Inc.

**Moderator: Glen Boshart** – Senior Industry Editor, SNL Energy

Read panelist bios [here](#).

### Agenda:

- Is the rule necessary?
- Would it adequately account for regional transmission planning differences?
- What kind of public policy goals should be considered and what kind should not?
- How should the costs of regional, high-voltage transmission lines be allocated?
- Is FERC's proposal necessary to offer guidance on an issue absent from federal legislation, or is transmission cost allocation and planning best left up to policymakers?

AG/792

- State regulators across the country have spoken out in opposition to the NOPR, warning that it would intrude on matters reserved for state authorities. Despite FERC's assurances, do these regulators have a point?
- Should incumbent utilities keep their right of first refusal to build new lines?
- What impact might this provision have on both incumbent utilities and merchant transmission developers?

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**From:** [FedScoop](#)  
**To:** [Case, Michael](#)  
**Subject:** VA CTO on Open Source Health Records, GSA De-Bunks Cloud Myths and more ...  
**Date:** Wednesday, March 23, 2011 10:41:06 AM

---

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VA CTO & Senior Advisor to the Secretary Dr. Peter Levin on Open Source VistA. Full story »

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AG1793

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**From:** [Thomas, Brian](#)  
**To:** [Case, Michael](#)  
**Cc:** [Lubinski, John](#)  
**Subject:** RE: Non-Concurrence Process  
**Date:** Wednesday, March 23, 2011 10:41:38 AM

---

Mike,  
Thanks. We are finalizing our response to the non-concurrence. The non-concurrence, the response and SE will be ready for issuance by NRR this week.  
Thanks again for your support on this.  
...brian

---

**From:** Case, Michael  
**Sent:** Wednesday, March 23, 2011 7:17 AM  
**To:** Thomas, Brian; Lubinski, John  
**Subject:** FW: Non-Concurrence Process

Hi guys. We've finished up on the non-concurrence from our end.

---

**From:** West, Stephanie  
**Sent:** Tuesday, March 22, 2011 3:48 PM  
**To:** Tregoning, Robert; Mitchell, Matthew; Case, Michael  
**Subject:** Non-Concurrence Process

Good Afternoon Gentleman,

I have attached the ADAMs package re: the Non-Concurrence Process for your review. I have added NRR-DCI Secretaries as owners so that more information can be added to the package by NRR if needed.

Please contact me if you have questions or concerns.

Stephanie West  
Administrative Assistant, RES/DE  
US Nuclear Regulatory Commission  
ph: 301-251-7619  
fax: 301-251-7425  
[stephanie.west@nrc.gov](mailto:stephanie.west@nrc.gov)

AG/794



Attachment ML110770162.APK (107 Bytes) cannot be converted to PDF format.

**From:** Kobetz, Timothy ;  
**To:** Leeds, Eric; Westreich, Barry  
**Subject:** RE: Query: TI Status  
**Date:** Wednesday, March 23, 2011 10:48:31 AM

---

Today, after Jack's call with the DRAs (just to make sure nothing changes). The documentation guidance I "hope" to issue by next Wednesday.

Tim

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 10:47 AM  
**To:** Westreich, Barry; Kobetz, Timothy  
**Subject:** Query: TI Status

Bullets were great – thank you. When do you expect we'll issue the TI to the Regions? I can fuzz it up if you need me to.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

AG/795

**From:** ACT-IAC  
**To:** Leeds, Eric  
**Subject:** Register today for the ACT-IAC Small Business Conference, April 7th!  
**Date:** Wednesday, March 23, 2011 10:50:09 AM

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AG 1796

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**From:** [MathCraft, Inc.](#)  
**To:** [Leeds, Eric](#)  
**Subject:** Visitor Management in Secure Facilities  
**Date:** Thursday, March 24, 2011 10:52:30 AM

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# ViSi Commander WE



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MathCraft, Inc. | Suite 200 | 44121 Harry Byrd Highway | Ashburn | VA | 20147



AG/797

**Murphy, Andrew**

---

**From:** West, Stephanie  
**Sent:** Wednesday, March 23, 2011 10:56 AM  
**To:** RES\_DE  
**Subject:** Timecards

Please have your timecards finished by close of business on Friday, March 25, 2011 or sooner.

Thank you,

Stephanie West  
Administrative Assistant, RES/DE  
US Nuclear Regulatory Commission  
ph: 301-251-7619  
fax: 301-251-7425  
[stephanie.west@nrc.gov](mailto:stephanie.west@nrc.gov)

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 11:01 AM  
**To:** Kauffman, John  
**Subject:** RE: REMINDER: Plan of the Week - 3/28/2011

Looks good. Thanks!

---

**From:** Kauffman, John  
**Sent:** Wednesday, March 23, 2011 10:57 AM  
**To:** Beasley, Benjamin  
**Subject:** RE: REMINDER: Plan of the Week - 3/28/2011

Ben,  
I have written up the joint branch meeting and put in the folder. The write-up is provided below in case you want to review it/provide comments. JVK

March 31, 2011: Joint Branch Meeting of RES Operating Experience and Generic Issues Branch and NRR Operating Experience Branch to discuss each branch's activities and to explore opportunities for enhancing cooperation and communication between the branches. Church Street, 2C19

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 10:31 AM  
**To:** Kauffman, John  
**Cc:** Siu, Carolyn  
**Subject:** FW: REMINDER: Plan of the Week - 3/28/2011

John,

Please write up the joint branch meeting with IOEB for the POW.

Ben

---

**From:** Siu, Carolyn  
**Sent:** Wednesday, March 23, 2011 10:14 AM  
**To:** Barnes, Valerie; Beasley, Benjamin; Coyne, Kevin; Demoss, Gary; Hudson, Daniel; Nicholson, Thomas; Ott, William; Peters, Sean; Salley, MarkHenry; Siu, Nathan  
**Cc:** Wood, Jeffery  
**Subject:** REMINDER: Plan of the Week - 3/28/2011

Good morning,

Please update the Plan of the Week by 4:15 tomorrow. Thanks!

## Carolyn Siu

Fiction reveals truths that reality obscures.

Division line: 301-251-7430

Direct line: 301-251-7568

Fax: 301-251-7424

Email: [Carolyn.Siu@nrc.gov](mailto:Carolyn.Siu@nrc.gov)

AG 1799



Laur, Steven

---

**From:** CSC@nrc.gov  
**Sent:** Wednesday, March 23, 2011 11:13 AM  
**To:** Laur, Steven  
**Subject:** Incident# 507925 has been created for your support request

## BMC SERVICE DESK EXPRESS

---

Thank you for using the NRC Self Service Portal! The Customer Support Center has received and processed your support request. Incident# **507925** has been created to track this issue. Please reference this number when contacting the Customer Support Center regarding your support request. Please feel free to e-mail or call us at 301-415-1234 if you require further assistance. You may also check the status of your support request by launching the NRC Self Service Portal at this address: <http://servicedesk/helpdesk>

Thank you for contacting the Customer Support Center.

SELF-SERVICE Ticket details are as follows:

-Client: SAL - STEVEN LAUR

-IT Coordinator: RMB3 - RICHARD BROCKMAN

-Category: Non Organization Move

-Description: Employee to be relocated due to disconnection of power in adjoining office during construction. Moving from O-10C07 to O-07D13. Please map to closest network printer.

-Scheduled Date: 4/18/2011 11:10:43 AM

[Click here to view Incident #: 507925](#)

CSC  
301-415-1234  
T-05C14  
Hours: M-F 6am-9pm, Weekends 9am-9pm

\*\*\*\*\*

*Auto-generated by SDEBR: 13-NOTIFY\_USER\_and\_ITC\_on\_SS\_CREATE*

**From:** Bosco, Paulette  
**To:** /o=USNRC/ou=First Administrative Group/cn=Recipients/cn=4018eeaf-314116c0-1b3a5e41-6a56e863; Ash, Darren; Boyce, Thomas (OIS); Brenner, Eliot; Burns, Stephen; Cohen, Miriam; Collins, Elmo; Dean, Bill; Doane, Margaret; Dyer, Jim; Greene, Kathryn; Hackett, Edwin; Haney, Catherine; Hawkens, Roy; Howard, Patrick; Johnson, Michael; Kelley, Corenthis; Leeds, Eric; McCrary, Cheryl; McCree, Victor; Miller, Charles; Muesse, Mary; Poole, Brooke; Satorius, Mark; Schmidt, Rebecca; Sheron, Brian; Vietti-Cook, Annette; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Zimmerman, Roy; Boger, Bruce; Burns, Stephen; Campbell, Andy; Casto, Chuck; Dapas, Marc; Dorman, Dan; Grobe, Jack; Hayden, Elizabeth; Howell, Art; Krupnick, David; Lew, David; Moore, Scott; Pederson, Cynthia; Schaeffer, James; Stewart, Sharon; Tracy, Glenn; Uhle, Jennifer; Wert, Leonard; Williams, Barbara  
**Cc:** Wilson, Timothy; Foster, Vicki; Gordon, Judy; Zane, Steven  
**Subject:** OIG's Most Recent Audit Report: OIG-11-A-08, Audit of NRC's Implementation of 10 CFR Part 21, Reporting of Defects and Noncompliance - March 23, 2011  
**Date:** Wednesday, March 23, 2011 11:24:56 AM  
**Attachments:** OIG-11-A-08, Audit of NRC's Implementation of 10CFR Part 21, Reporting of Defects and Noncompliance FINAL REORT 03.08.11 (pb).pdf

---

Attached please find the following Office of the Inspector General's Most Recent Audit Report:

**OIG-11-A-08**, Audit of NRC's Implementation of 10 CFR Part 21, Reporting of Defects and Noncompliance – March 23, 2011  
**ADAMS Accession Number: ML110820426**

This report will be publicly available in ADAMS and on the NRC Web site on arch 24, 2011.

If you have any questions regarding this report, please contact RK Wild, Team Leader at 415-5948 or Vick Foster, Audit Manager at 415-5909.

Thank you.

*Paulette Bosco*

Program Support Specialist  
Office of the Inspector General  
Phone: 301-415-5915  
E-Mail: [paulette.bosco@nrc.gov](mailto:paulette.bosco@nrc.gov)

AG/801

# AUDIT REPORT

Audit of NRC's Implementation of 10 CFR Part 21,  
Reporting of Defects and Noncompliance

OIG-11-A-08 March 23, 2011



All publicly available OIG reports (including this report) are accessible through  
NRC's Web site at:

<http://www.nrc.gov/reading-rm/doc-collections/insp-gen/>



**UNITED STATES**  
**NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

OFFICE OF THE  
INSPECTOR GENERAL

March 23, 2011

MEMORANDUM TO: R. William Borchardt  
Executive Director for Operations

FROM: Stephen D. Dingbaum /RA/  
Assistant Inspector General for Audits

SUBJECT: AUDIT OF NRC'S IMPLEMENTATION OF 10 CFR PART  
21, REPORTING OF DEFECTS AND NONCOMPLIANCE  
(OIG-11-A-08)

Attached is the Office of the Inspector General's (OIG) audit report titled, *Audit of NRC's Implementation of 10 CFR Part 21, Reporting of Defects and Noncompliance*.

The report presents the results of the subject audit. OIG discussed the audit results and informal agency comments with agency management and staff during an exit conference on February 1, 2011, and during a meeting on February 23, 2011. OIG incorporated the agency's informal comments into this final report as appropriate. NRC management stated that the report will be helpful in adding clarity in the associated regulatory area and opted not to provide formal comments.

Please provide information on actions taken or planned on each of the recommendations within 30 days of the date of this memorandum. Actions taken or planned are subject to OIG followup as stated in Management Directive 6.1.

We appreciate the cooperation extended to us by members of your staff during the audit. If you have any questions or comments about our report, please contact me at 415-5915 or R.K. Wild, Team Leader, Nuclear Reactor Safety Team, at 415-5948.

Attachment: As stated

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## EXECUTIVE SUMMARY

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### BACKGROUND

The Nuclear Regulatory Commission (NRC) endeavors to protect the public health and safety and the environment through the regulation of the 104 operating nuclear power plants in the United States. The *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance*<sup>1</sup> provides the statutory basis for NRC guidance and regulations that pertain to reporting component defects<sup>2</sup> in operating reactors. Specifically, Section 206 requires licensees that operate nuclear power plants to notify NRC of defects in basic components<sup>3</sup> that could cause a substantial safety hazard.<sup>4</sup>

NRC uses Title 10, Code of Federal Regulations, Part 21, *Reporting of Defects and Noncompliance* (Part 21) to implement the provisions of Section 206. The primary NRC office responsible for Part 21 implementation among licensees with operating plants is the Office of Nuclear Reactor Regulation.

### PURPOSE

The purpose of this audit was to determine if NRC's implementation of Federal regulations requiring reactor licensees to report defects contained in installed equipment is meeting the intent of the *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance*.

---

<sup>1</sup> For the purposes of this report, *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance* is referred to as Section 206.

<sup>2</sup> A defect is a deviation in a basic component delivered to a purchaser for use in operating nuclear power plants if, on the basis of an evaluation, the deviation could create a substantial safety hazard.

<sup>3</sup> A basic component is a structure, system, or component that assures the integrity of the reactor coolant pressure boundary; the capability to shut down the reactor and maintain it in a safe shutdown condition; or the capability to prevent or mitigate the consequences of accidents. It is, essentially, a safety-related component.

<sup>4</sup> A substantial safety hazard is the loss of safety function to the extent that there is a major reduction in the degree of protection provided to public health and safety. Safety functions are necessary to assure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents that could result in certain potential offsite exposures.

## **RESULTS IN BRIEF**

NRC staff has initiated action to better align NRC's defect reporting guidance with Section 206 of the *Energy Reorganization Act*. However, NRC will need to take further action so that NRC's implementation of Part 21 fully meets the intent of Section 206.

Despite Section 206 requirements for licensees that operate nuclear power plants to notify NRC of defects in basic components that could cause a substantial safety hazard, NRC staff have noted Part 21 reporting issues, and Office of the Inspector General (OIG) analysis of industry data indicate that there are apparent unreported Part 21 defects. These reporting issues exist because NRC regulations and guidance for implementing Section 206 are contradictory and unclear, and the NRC Baseline Inspection Program does not include requirements to inspect licensee reporting of Part 21 defects. Unless NRC takes action to fully implement Section 206, the margin of safety for operating reactors could be reduced.

## **RECOMMENDATIONS**

This report makes five recommendations to improve NRC's implementation of Part 21. A list of these recommendations appears on pages 12-13 of this report.

## **AGENCY COMMENTS**

On January 19, 2011, OIG issued the discussion draft of this report to the Executive Director for Operations. OIG subsequently met with NRC management officials and staff during a February 1, 2011, exit conference at which time the agency requested additional time in order to provide informal comments. OIG met with agency management and staff on February 23, 2011, to discuss these comments; afterward, OIG incorporated the informal comments into the draft report as appropriate. NRC management and staff reviewed the revised draft OIG report, found that the report will be helpful in adding clarity in the associated regulatory area, and opted not to provide formal comments.

## **ABBREVIATIONS AND ACRONYMS**

---

CFR	Code of Federal Regulations
EQVB	Division of Engineering, Quality and Vendor Branch
IP	Inspection Procedure
LER	Licensee Event Report
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OIG	Office of the Inspector General



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## I. BACKGROUND

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The Nuclear Regulatory Commission (NRC) endeavors to protect the public health and safety and the environment through the regulation of the 104 operating nuclear power plants in the United States. The *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance*<sup>5</sup> provides the statutory basis for NRC guidance and regulations that pertain to reporting component defects<sup>6</sup> in operating reactors. Specifically, Section 206:

- Requires licensees that operate nuclear power plants to notify NRC of defects in basic components<sup>7</sup> that could cause a substantial safety hazard.<sup>8</sup>
- Requires NRC to define, by regulation, defects which could create a substantial safety hazard.
- Identifies the civil penalties that are to be imposed for noncompliance and posting requirements at licensees' facilities, and authorizes inspections and other enforcement activities needed to ensure compliance with the provisions.

### NRC Component Defect Reporting Regulation

Title 10, Code of Federal Regulations (CFR), Part 21, *Reporting of Defects and Noncompliance* (Part 21) implements the provisions of Section 206. Part 21 requires that licensees inform NRC if they obtain

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<sup>5</sup> For the purposes of this report, *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance* is referred to as Section 206.

<sup>6</sup> A defect is a deviation in a basic component delivered to a purchaser for use in operating nuclear power plants if, on the basis of an evaluation, the deviation could create a substantial safety hazard.

<sup>7</sup> A basic component is a structure, system, or component that assures the integrity of the reactor coolant pressure boundary; the capability to shut down the reactor and maintain it in a safe shutdown condition; or the capability to prevent or mitigate the consequences of accidents. It is, essentially, a safety-related component.

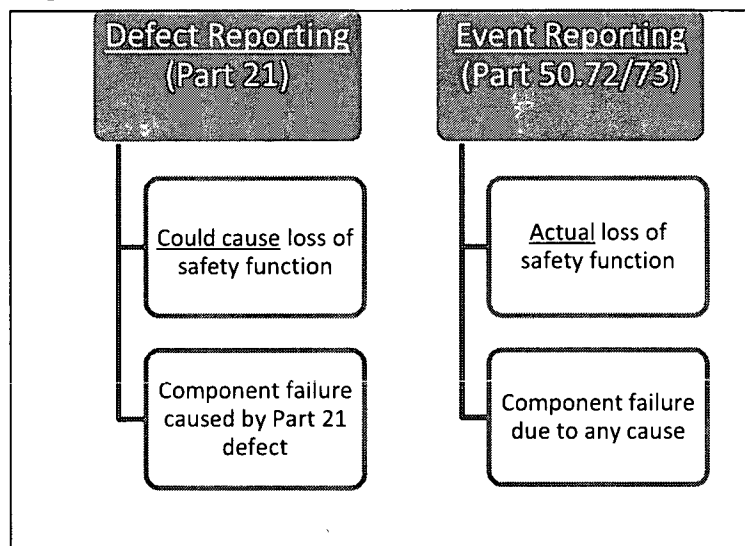
<sup>8</sup> A substantial safety hazard is the loss of safety function to the extent that there is a major reduction in the degree of protection provided to public health and safety. Safety functions are necessary to assure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents that could result in certain potential offsite exposures.

information that indicates that basic components fail to comply with regulatory requirements relating to substantial safety hazards or contain defects that could create a substantial safety hazard.

NRC revised Part 21 in 1991. Among other things, the revision was intended to reduce duplicative licensee reporting requirements, and allow for reporting of defects under NRC event reporting regulations. These NRC event reporting regulations are contained in Title 10, CFR, Part 50.72 and Part 50.73 (Part 50 Sections 72/73).<sup>9</sup>

There are differences between Part 21 and Part 50 Sections 72/73 reporting requirements. One difference is that Part 21 concerns itself with component defect reporting, whereas Part 50 Sections 72/73 describe event reporting. Consequently, the thresholds for reporting a component defect under Part 21 are different than those for Part 50 Sections 72/73, as shown in Figure 1.

**Figure 1: Defect Reporting vs. Event Reporting Differences**



Source: Office of the Inspector General analysis of reporting requirements.

Another difference between the Part 21 defect reporting and Part 50 Sections 72/73 event reporting requirements is that Part 21 defect reporting requires an evaluation *and* report if the defect *could* cause a loss of safety function, whereas Part 50 Sections 72/73 events require

<sup>9</sup> Title 10, CFR, Part 50.72, *Immediate notification requirements for operating nuclear power reactors*, describes how licensees must notify NRC of events and conditions and Title 10, CFR Part 50.73, *Licensee event report system*, describes the type of events and conditions that must be reported to NRC in Licensee Event Reports.

reporting of only *actual* losses of safety function.<sup>10</sup> In addition, Part 21 defect reporting requirements include individual component failures if the failures are caused by a defect. Part 50 Sections 72/73 would not require reporting of an individual component failure unless the failure caused a loss of safety function. Typically, safety functions are supported by multiple redundant components—such as multiple service water pumps—so that loss of a single component does not cause a loss of safety function.

To illustrate the difference, two nuclear power plants could experience the same basic component failure due to a defect that did not cause an event. Some licensees interpret this as reportable under Part 21, whereas others do not, since an event did not occur based on Part 50 Sections 72/73. However, Section 206 (which provides the statutory basis for Part 21) requires reporting of component defects that *could* cause a loss of safety function as well as those that did cause an actual loss of safety function. Part 50 Sections 72/73 only requires reporting if a failure *actually* caused a loss of safety function.

#### Office of Nuclear Reactor Regulation (NRR) Responsibility for Part 21 Implementation

The primary NRC office responsible for Part 21 implementation among licensees with operating plants is NRR. Two NRR divisions are responsible for monitoring and enforcing Part 21-related issues:

- Division of Engineering, Quality and Vendor Branch (EQVB).

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<sup>10</sup> *Part 50 Sections 72/73* require power reactor licensees to notify NRC of any event or condition that at the time of discovery could have prevented the fulfillment of the safety function of structures or systems that are needed to (A) shut down the reactor and maintain it in a safe shutdown condition, (B) remove residual heat, (C) control the release of radioactive material, or (D) mitigate the consequences of an accident. Furthermore, *Part 50 Sections 72/73* state that events required to be reported under *Part 50 Sections 72/73* may include one or more procedural errors; equipment failures; and/or discovery of design, analysis, fabrication, construction, and/or procedural inadequacies. However, individual component failures need not be reported under *Part 50 Sections 72/73* if redundant equipment in the same system was operable and available to perform the required safety function.

- EQVB is primarily responsible for reviewing nuclear reactor operating experience relevant to the quality of components regulated under Part 21. EQVB works closely with NRR's Operating Experience Branch to identify Part 21-related issues. EQVB also provides oversight through inspection and allegation follow-up of quality assurance and Part 21 implementation for component manufacturers.
- Division of Inspection and Regional Support, Operating Experience Branch.
  - The Operating Experience Branch is part of an NRC coordinated program to systematically collect and evaluate licensee operating experience, identify and resolve safety issues in a timely manner, and apply lessons learned from operating experience to support the agency goal of ensuring safety. Such reviews include evaluation of Part 50 Sections 72/73 licensee event reports (LER) for event occurrences that have Part 21 defective component implications.

## II. PURPOSE

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The audit objective was to determine if NRC's implementation of Federal regulations requiring reactor licensees to report defects contained in installed equipment is meeting the intent of the *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance*. The report appendix contains information on the audit scope and methodology.

### III. FINDING

---

NRC staff has initiated action to better align NRC's defect reporting guidance with Section 206 of the *Energy Reorganization Act*. However, NRC will need to take further action so that NRC's implementation of Part 21 fully meets the intent of Section 206.

Section 206 requires licensees that operate nuclear power plants to notify NRC of defects in basic components that could cause a substantial safety hazard. However, NRC staff have noted Part 21 reporting issues, and Office of the Inspector General (OIG) analysis of industry data indicate that there are apparent unreported Part 21 defects. These reporting issues exist because NRC regulations and guidance for implementing Section 206 are contradictory and unclear, and the NRC Baseline Inspection Program does not include requirements to inspect licensee reporting of Part 21 defects. Unless NRC takes action to fully implement Section 206, the margin of safety for operating reactors could be reduced.

#### **Despite Reporting Requirements, There Are Unreported Part 21 Defects**

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Despite Section 206 requirements for licensees that operate nuclear power plants to notify NRC of defects in basic components that could cause a substantial safety hazard, examples indicate that there are defective components that should be reported under Part 21, but are not. Specifically, NRC headquarters and regional staff and OIG have identified apparent unreported Part 21 defects. Furthermore, NRC staff and licensees described examples of licensees' standard practice for reporting defective components that may result in the under-reporting of defects under Part 21.

#### **Identification of Part 21 Reporting Defects**

NRC staff identified examples of apparent unreported defective components that could cause a substantial safety hazard as described in LERs under Part 50 Sections 72/73, but were not reported as Part 21 defective components. Since mid-2009, when NRC inspectors became aware of potentially unreported defects during an inspection of a plant, agency staff have been evaluating LERs for potentially unreported defects under Part 21. Furthermore, NRR staff conducted an analysis of LERs

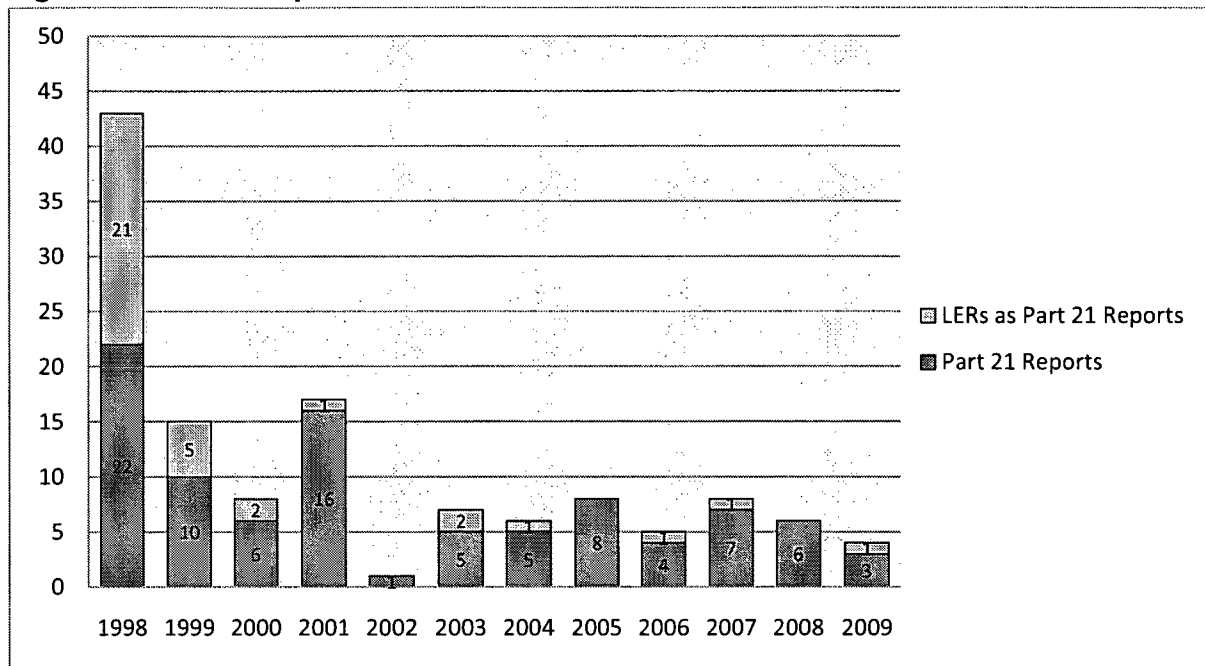
with potential Part 21 implications during the period December 2009 through September 2010, and identified 24 instances of LERs that had Part 21 implications but were not reported under Part 21.

OIG staff also identified examples of apparent unreported defective components. OIG independently analyzed LERs submitted under Part 50 Sections 72/73 and found some describing defective components that could cause substantial safety hazards, but were not reported to NRC under Part 21. During the period June 2009 through June 2010, OIG identified 11 LERs that contained apparent Part 21 reportable defects where the licensee had not indicated that it had conducted a Part 21 evaluation or provided a Part 21 report. Given that the period of review for OIG's analysis of LERs was different than the agency's review period, OIG auditors requested NRR staff to review the OIG analysis results. NRR staff concurred that 5 of the 11 LERs that OIG identified had apparent Part 21 reportable defects. NRR staff either did not support or could not determine if the remaining LERs also had potential Part 21 reportable defects based on the data available in the LERs.

Further, OIG reviewed three reactor control room logs recorded during the 4th quarter of 2009. OIG's analysis indicates that for every safety-related component failure that occurs and is reported, there are several that occur but do not meet the level of reportability using Part 50 Sections 72/73 reporting criteria.

OIG also calculated for each year the number of Part 21 reports filed by licensees since 1998. As Figure 2 indicates, there was a significant decline in the number of Part 21 reports after 2001. Figure 2 also indicates how many Part 21 reports were made through LERs according to Part 50 Sections 72/73 reporting criteria.

**Figure 2: Part 21 Reports from Nuclear Power Plants, 1998-2009**



Source: OIG analysis of NRC data.

### **Examples of Licensee Standard Practices for Reporting Defective Components**

During the course of the review, OIG met with agency and industry stakeholders to ascertain licensees' standard practices for reporting defective components under Part 21. NRC staff and licensees described to OIG some examples of Part 21 reporting practices that indicate there are unreported defective components.

NRC senior resident inspectors described licensee Part 21 reporting practices that indicate unreported defective components. Four of seven senior resident inspectors interviewed by OIG described a practice wherein licensees (1) evaluate whether a defective component caused an event under 50.72 reporting criteria, but (2) fail to follow up with a Part 21 evaluation or submit a Part 21 report when the 50.72 evaluation concludes that the events caused by the defective component did not reach the threshold for reporting under Part 50 Sections 72/73. Senior resident inspectors provided OIG with the following examples:

- LERs that should have been reported under Part 21, but were not.



- The licensee belief that loss of safety function was required to conduct a Part 21 evaluation and report.<sup>11</sup>
- A licensee that considers Part 50 Sections 72/73 event reporting evaluations to meet Part 21 defect reporting requirements, even if the Part 50 Sections 72/73 evaluation result is that the event is not reportable to NRC.
- A licensee that has opted not to conduct Part 21 evaluations or reports because, according to the licensee, current regulations and guidance do not require this as long as they did an event reporting evaluation.

NRC licensees also described their Part 21 reporting practices in a manner that further indicated the likelihood of unreported defective components. Some industry representatives stated that, as standard practice, they do not notify NRC of Part 21 defects unless the defects are reportable under Part 50 Sections 72/73 event reporting regulations. Based on interviews and analysis, OIG determined that licensees representing at least 28 percent of the operating reactor fleet do not, as standard practice, notify NRC of defects under Part 21 unless they are reportable under event reporting regulations.

### **NRC Regulations and Guidance for Implementing Section 206 Are Contradictory and Unclear**

Part 21 component defect reporting issues exist because NRC regulations and guidance for implementing Section 206 are contradictory and unclear. Specifically, NRC regulations and guidance for implementing Section 206 contain stipulations that have been interpreted as not requiring a report under Part 21 if an LER was not required. This interpretation seemingly contradicts Section 206, which requires reporting of component defects that could cause substantial safety hazards. Furthermore, applicable NRC reportability guidance is not utilized by some licensees and NRC staff, and NRC's Baseline Inspection Program does not include requirements to inspect licensee reporting of Part 21 defects.

---

<sup>11</sup> As shown earlier in Figure 1, Part 21 requires reporting the defect if a failure *could* cause loss of safety function, not if it actually does.

NRC Regulations and Guidance Are Interpreted as Relieving Licensees of Defect Reporting Obligations

NRC regulations and guidance for implementing Section 206 contain stipulations that some licensees and NRC staff have interpreted as relieving licensees of their obligation to report to NRC defects in basic components that could cause a substantial safety hazard. This includes specific language in Part 21, a 1991 *Federal Register Notice* that summarized Part 21, and NRC guidance on event reporting in NUREG-1022.

The agency introduced some uncertainty regarding event reporting when it revised Part 21 in 1991. Part 21 Section 2(c), states:

For persons licensed to operate a nuclear power plant under part 50 ... of this chapter, evaluation of potential defects and appropriate reporting of defects under §§ 50.72, 50.73 ... satisfies each person's evaluation, notification, and reporting obligation to report defects under this part.

Moreover, the agency has interpreted language from the July 31, 1991, *Federal Register Notice*, Statement of Consideration as guidance to facilitate implementation of Part 21 Section 2(c). The Statement of Consideration provides the following sentence which can also be seen as contradictory to Section 206:

If the event is determined not to be reportable under §50.72 or §50.73, then the obligations of Part 21 are met by the evaluation.

Additionally, in October 2000, NRC revised NUREG-1022, which provides event reporting guidelines for Part 50 Sections 72/73. This 115-page guidance document offers a three-paragraph subsection on Part 21, which states (in part):

The only case where a defect in a basic component of an operating reactor might be reportable under Part 21, but not under §§ 50.72, 50.73 ... would involve parts on the shelf.<sup>12</sup>

This language effectively leaves NUREG-1022 in conflict with Section 206.

The combination of the changes to Part 21 and associated guidance have resulted in a lack of clarity for implementing Section 206. Given these written passages in Part 21.2(c), NUREG-1022, and the July 31, 1991, Statement of Consideration, some licensees have concluded that if they conduct evaluations consistent with event evaluation and reporting thresholds, then they have also met Part 21's evaluation and reporting requirements. Some NRC resident inspectors shared this interpretation as well. One resident inspector indicated to OIG that conducting a Part 50 Sections 72/73 evaluation and/or report fulfilled a licensee's Part 21 requirements. Another resident inspector asserted that Part 21 evaluations and reporting are more the responsibility of the vendor than the licensee.

To resolve confusion about implementing Part 21 component defect reporting and to better align NRC's defect reporting guidance with Section 206, NRC regional office personnel sought clarification from NRC management officials. However, NRC management officials have responded that defect reporting guidance and Part 21 itself have resulted in multiple interpretations of Part 21 reporting requirements, which presents an obstacle towards clarifying Part 21 reporting.<sup>13</sup> Consequently, NRC has not yet established a position that would result in consistent interpretation and application of Part 21 guidance and regulations on the part of NRC staff and resident inspectors, as well as licensees.

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<sup>12</sup> Parts on the shelf refer to components that are in a nuclear power plant's inventory that have not been installed.

<sup>13</sup> For example, recent inspections uncovered a potential Part 21 violation at a nuclear power plant that NRC has not resolved for the past 2 years.

### Applicable Reportability Guidance Is Not Used

Existing NRC guidance for implementation of Part 21 is applicable, but not all NRC staff and licensees use it. NUREG-0302, *Remarks Presented (Questions/Answers Discussed) at Public Regional Meetings to Discuss Regulations (10 CFR Part 21) for Reporting of Defects and Noncompliance*, published in July 1977, contains guidance for Part 21 implementation and reporting. NUREG-0302 was published in 1977—prior to the changes in 1991 that allowed reporting under Part 50 Sections 72/73—and, therefore, does not include guidance on reporting Part 21 defects under Part 50 Sections 72/73.

According to agency staff, NUREG-0302 is not frequently used by less experienced staff because it is “35 years old,” and is composed of public meeting summaries. Consequently, newer staff are not as familiar with NUREG-0302. Agency staff surmised that less experienced staff are more likely to use recent guidance, such as the Statement of Consideration, NUREG-1022, and less formal information obtained during training. Senior NRR staff also indicated that the question-and-answer format and numbering schematic in NUREG-0302 make it difficult to use. NRR staff agreed that the guidance in NUREG-0302 remains valid to this day, despite its lack of visibility to newer staff.

### NRC Baseline Inspection Program Does Not Include Requirements To Inspect Licensee Reporting of Part 21 Defects

The NRC Baseline Inspection Program does not include requirements to inspect licensee reporting of Part 21 defects.<sup>14</sup> Currently, the NRC Baseline Inspection Program does not include a reference to Part 21-related Inspection Procedures (IP). IP 36100, *Inspection of 10 CFR Parts 21 and 50.55(e) Programs for Reporting Defects and Noncompliance*, provides guidance to NRC inspectors for inspecting Part 21 reporting at operating nuclear power plants. Senior resident inspectors told OIG that they are aware of IP 36100, but there was no “hook” in the Baseline

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<sup>14</sup> The Baseline Inspection Program is an integral part of the NRC's reactor oversight process. Its objectives are to (1) obtain inspection information and performance indicators to assess safety performance of power reactor licensees, (2) determine the licensee's ability to identify and assess risk and effectively correct issues, (3) verify accuracy and completeness of performance indicators, and (4) provide a mechanism for the NRC to remain cognizant of plant status and conditions.

Inspection Program that would prompt an inspector to consider conducting an inspection using IP 36100.<sup>15</sup>

### **Incomplete Implementation of Section 206 Could Reduce the Margin of Safety for Operating Reactors**

Incomplete implementation of Section 206 could reduce the margin of safety for operating nuclear power reactors as NRC may remain unaware of component failures that have resulted from manufacturing defects. Unless NRC takes further action to sufficiently implement Section 206, staff and stakeholders may not be notified of component defects. For example, given current interpretations of regulations and guidance related to defect reporting, a licensee might not report a basic component that failed due to a design defect. Other licensees that use the same component, as well as component manufacturers, may be unaware of the problem. Absent knowledge of manufacturing defects, NRC and its stakeholders will also not be able to trend such information.

Additionally, NRC inspectors face difficulties in enforcing defect reporting given the lack of clarity in Part 21 and related guidance. As noted earlier, NRC inspectors have found possible Part 21 reporting violations. However, pending resolution of the contradictory and unclear guidance and regulations, the agency has opted not to cite licensees for violations and not issue civil penalties for licensees' failure to notify NRC of defects in basic components that could cause a substantial safety hazard. Therefore, NRC is not fully enforcing the Part 21 regulation as required by Section 206. Furthermore, NRC has not levied any civil penalties or significant enforcement actions for nuclear power plant licensee Part 21 defect reporting lapses in at least the past 8 years.

### **Recommendations**

OIG recommends that the Executive Director for Operations:

1. Revise 10 CFR Part 21 for full conformity with the *Energy Reorganization Act of 1974, As Amended, Section 206, Noncompliance*.

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<sup>15</sup> The Baseline Inspection Program does not currently include guidance for how inspectors should check for defective parts. NRR staff have indicated this is a condition that should be corrected.

2. Expedite publication of interim guidance that specifies requirements for Part 21 reporting in accordance with the *Energy Reorganization Act of 1974, As Amended, Section 206, Noncompliance*.
3. Correct the sections of NUREG-1022, *Event Reporting Guidelines 10 CFR 50.72 and 50.73, October 2000*, that are in conflict with the *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance* and 10 CFR Part 21.
4. Review, revise as applicable, and reissue NUREG-0302, *Remarks Presented (Questions/Answers Discussed) at Public Regional Meetings to Discuss Regulations (10 CFR Part 21) for Reporting of Defects and Noncompliance*, July 12 - 26, 1977.
5. Incorporate Inspection Procedure 36100, *Inspection of 10 CFR Parts 21 and 10 CFR 50.55(e) Programs for Reporting Defects and Noncompliance* into the NRC Baseline Inspection Program.

#### **IV. AGENCY COMMENTS**

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On January 19, 2011, OIG issued the discussion draft of this report to the Executive Director for Operations. OIG subsequently met with NRC management officials and staff during a February 1, 2011, exit conference at which time the agency requested additional time in order to provide informal comments. OIG met with agency management and staff on February 23, 2011, to discuss these comments; afterward OIG incorporated the informal comments into the draft report as appropriate. NRC staff reviewed the revised draft OIG report, found that the report will be helpful in adding clarity in the associated regulatory area, and opted not to provide formal comments.

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## SCOPE AND METHODOLOGY

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The audit objective was to assess the extent to which NRC's implementation of Federal regulations requiring nuclear power reactor licensees to report defects contained in installed equipment is meeting the intent of the *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance*. The audit scope was limited to NRC's regulatory responsibilities as they pertain to commercial nuclear power plants. To address the audit objective, OIG interviewed agency headquarters and regional staff, senior resident and resident inspectors, and selected licensee officials. OIG also reviewed NRC regulations and guidance as well as LERs and Part 21 reports for the period June 2009 through June 2010 and various inspection reports. OIG also analyzed control room logs for three reactor units, as well as agency-collected information pertaining to potentially unreported Part 21 defects.

Key documents reviewed include:

- *Energy Reorganization Act of 1974, as Amended, Section 206, Noncompliance.*
- *10 CFR Part 21, Reporting of Defects and Noncompliance.*
- *NUREG-0302, Rev 1, Remarks Presented (Questions/Answers Discussed) at Public Regional Meetings to Discuss Regulations (10 CFR Part 21) for Reporting of Defects and Noncompliance.*
- *Federal Register Notice, Vol. 56, No. 147, Statement of Consideration, Part 21.*
- *NUREG-1022, Rev 2, Event Reporting Guidelines for 10 CFR 50.72 and 50.73.*
- *Management Directive (MD) 8.18, NRC Generic Communications Program.*
- *Inspection Procedure 36100, Inspection of 10 CFR Parts 21 and 10 CFR 50.55(e) Programs for Reporting Defects and Noncompliance.*



- Agency Office Instructions.
- Agency Generic Communications.
- Nuclear industry guidance documents.

Auditors conducted interviews with agency and industry employees, including NRC managers and staff members at headquarters and the regions, and members of the nuclear industry.

We conducted this performance audit at NRC headquarters in Rockville, MD, from July 2010 through December 2010, in accordance with generally accepted Government auditing standards. Those standards require that the audit is planned and performed with the objective of obtaining sufficient, appropriate evidence to provide a reasonable basis for any findings and conclusions based on the stated audit objective. OIG believes that the evidence obtained provides a reasonable basis for the report findings and conclusions based on the audit objectives. Internal controls related to the audit objective were reviewed and analyzed. Throughout the audit, auditors were aware of the possibility or existence of fraud, waste, or misuse in the program.

Major contributors to this report were R.K. Wild, Team Leader; Kevin Nietmann, Senior Technical Advisor; Vicki Foster, Audit Manager; Timothy Wilson, Senior Management Analyst; and Diane Furstenau, Student Management Analyst.

**Zabel, Joseph**

---

**From:** Jervey, Richard  
**Sent:** Wednesday, March 23, 2011 11:29 AM  
**To:** Zabel, Joseph  
**Subject:** RE: Request for QTE

Thanks.

Did you have any notes for him? Anything I should know?

Regards,

R. A. Jervey  
RES/DE/RGDB  
CS2A07  
301/251-7404

---

**From:** Zabel, Joseph  
**Sent:** Wednesday, March 23, 2011 11:23 AM  
**To:** Jervey, Richard  
**Subject:** RE: Request for QTE

Hi Rick:

I edited these RGs for Casper and returned them to him on March 15.

Joe

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Document Control Branch  
[joseph.zabel@nrc.gov](mailto:joseph.zabel@nrc.gov)  
06D05

---

**From:** Jervey, Richard  
**Sent:** Wednesday, March 23, 2011 10:58 AM  
**To:** Zabel, Joseph  
**Subject:** FW: Request for QTE

Joe, Did Casper's request for QTE get done for these guides? See email below....

Regards,

R. A. Jervey  
RES/DE/RGDB  
CS2A07

---

**From:** Jervey, Richard  
**Sent:** Tuesday, March 08, 2011 8:04 AM  
**To:** Orr, Mark  
**Subject:** FW: Request for QTE

---

**From:** Sun, Casper  
**Sent:** Tuesday, March 08, 2011 7:55 AM  
**To:** Zabel, Joseph  
**Cc:** Jervey, Richard; Schaffer, Steven  
**Subject:** FW: Request for QTE

Dear Joe,

Time fly: I am back from vacation.

I do need to follow up and work on both DG-8050 and DG-8051 in your hand. Please check. Any questions please contact me directly.

Thank you so much,  
Casper

---

**From:** Sun, Casper  
**Sent:** Thursday, February 03, 2011 5:19 PM  
**To:** Zabel, Joseph  
**Cc:** Jervey, Richard; Schaffer, Steven  
**Subject:** RE: Request for QTE

Dear Joe,

Please review this DG-8050 for the last time: I have made a lot of change since your last review. I am looking forward to learn your English and thanking you in advance.

Happy New Year (Chinese),

*Casper Sun, Ph.D., CFP*


*Health Physicist*

Health Effects Branch, Division of System Analysis  
Office of Nuclear Regulatory Research

MS CSB 3C-07

U.S. Nuclear Regulatory Commission

Washington, D.C. 20555

Office 301-251-7912  Fax 301-251-7436

---

**From:** Jervey, Richard  
**Sent:** Friday, October 01, 2010 10:12 AM  
**To:** Sun, Casper  
**Subject:**

Hi Casper,

Please verify the references are still correct. If so , we are ready to prepare the concurrence package.

Regards,

R. A. Jervy  
RES/DE/RGDB  
CS2A07  
301/251-7404

**From:** Cianci, Sandra  
**To:** Leeds, Eric  
**Cc:** Schwarz, Sherry  
**Subject:** Pink for Review- received today - due today  
**Date:** Wednesday, March 23, 2011 11:31:53 AM

---

Eric,

I have a Pink for review before it goes to final concurrence with Bill. Thanks

*Sandy Cianci*

*Administrative Assistant to Marty Virgilio, DEDR*

*Office of the Executive Director for Operations*

*O-17 H13*

*301-415-1714*

*sandra.cianci@nrc.gov*

AG/803

**From:** E-RIDS2 Resource  
**To:** NRCREP Resource; RidsManager Resource; RidsResDE Resource; Orr, Mark; Case, Michael  
**Subject:** Comment (2) of R.M. Krich, on behalf of Tennessee Valley Authority, on Draft Guide 1245, "Inspection of Water-Control Structures Associated with Nuclear Power Plants." 03/18/2011  
**Date:** Wednesday, March 23, 2011 11:34:53 AM  
**Attachments:** [distribution.doc](#)  
[ML110820116.ADC](#)

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**ADAMS Distribution Notification**  
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Title	Comment (2) of R.M. Krich, on behalf of Tennessee Valley Authority, on Draft Guide 1245, "Inspection of Water-Control Structures Associated with Nuclear Power Plants."
Docket Number	
Document Date	03/18/2011
Author Name	Krich R M
Author Affiliation	Tennessee Valley Authority
Addressee Name	Bladey C K
Addressee Affiliation	NRC/ADM/DAS/RDEB
Document Type	General FR Notice Comment Letter
Availability	Publicly Available
Date to be Released	03/31/2011
Document Sensitivity	Non-Sensitive
Comment	
Date Added	03/23/2011

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AG/804

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Docket Number	
Document Date	03/18/2011
Author Name	Krich R M
Author Affiliation	Tennessee Valley Authority
Addressee Name	Bladey C K
Addressee Affiliation	NRC/ADM/DAS/RDEB
Document Type	General FR Notice Comment Letter
Availability	Publicly Available
Date to be Released	03/31/2011
Document Sensitivity	Non-Sensitive
Comment	
Date Added	03/23/2011
Keyword	DXP JRR3 SUNSI Review Complete

Attachment ML110820116.ADC (107 Bytes) cannot be converted to PDF format.



**From:** ManageBetter.biz Insider  
**To:** Case, Michael  
**Subject:** 6 mentoring tips; Brainstorm, then act; What to ask a miserable colleague; and more ...  
**Date:** Wednesday, March 23, 2011 11:35:46 AM

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#### **FEATURED BLOGGER:**



**K.J. McCorry** is the CEO of Officiency Enterprises ® Inc., a professional productivity, efficiency and sustainability consulting company based out of Boulder, Colorado. K.J.'s work in office process simplification has been recognized locally and nationally in the New York Times, International Herald Tribune, Chicago Tribune, Real Simple, Better Homes & Gardens with TV and radio appearances on the Do It Yourself Network, The Peter Boyles Show, and World Talk Radio. She is also the author of Organize Your Work Day In No Time, released in April 2005 by Que Publishing. She is currently working on her second book on becoming a 'paperless' office.



AG/805

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## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 11:44 AM  
**To:** McNamara, Nancy  
**Subject:** NY AG Letter to Commission  
**Attachments:** image001.gif

Nancy,

The letter from NY Attorney General Schneiderman to the Commission is reproduced in this article:  
<http://www.capitaltonight.com/2011/03/schneiderman-pushes-nrc-on-indian-point/>

Ben



Benjamin Beasley, Chief  
Operating Experience and Generic Issues Branch  
Division of Risk Analysis  
Office of Nuclear Regulatory Research  
301-251-7676  
[Benjamin.Beasley@nrc.gov](mailto:Benjamin.Beasley@nrc.gov)  
[Generic Issues Program](#)  
[Operating Experience Databases](#)

AG/806

**From:** Case, Michael  
**To:** Oberson, Greg  
**Subject:** RE: RIC  
**Date:** Wednesday, March 23, 2011 11:44:00 AM

---

Nope. I checked them all off as done!

---

**From:** Oberson, Greg  
**Sent:** Wednesday, March 23, 2011 10:09 AM  
**To:** Case, Michael  
**Subject:** RIC

Mike,

Do you recall whether there were any unanswered audience questions from the RIC session on extended operations (i.e., that we need to post answers to the website)? Rob and I can't recall any but we need to confirm this to the RIC organizers today.

Thanks.

AG/807

5  
**Laur, Steven**

---

**From:** Brockman, Richard  
**Sent:** Wednesday, March 23, 2011 11:45 AM  
**To:** Claggett, Lauren; Harper, Kevin; Chey, Sonary; Deeds, Erin; Beckford, Kaydian; Holston, William; Laur, Steven  
**Cc:** Cho, Caroline; Freeman, Stanley; Creedon, Meghan; Wilhelm, Martha; Lilley, Joanna; Gorham, Tajuan; Jenkins, Barbara; Hart, Robin; Veraart, Paul; Erskine, Pamela; Erskine, Pamela  
**Subject:** RE: NRR SLS (Project to Enclose C-Corridor Offices)

Division ITCs,

Please review the move request tickets that pertain to your division and confirm all assets/numbers/information is included and accurate. Make changes to the ticket as needed. If the user needs additional items moved such as furniture or boxes, please submit a form 30 or labor services request.

The move request tickets have been created and are as follows:

*Note: Some move dates are likely to change as the CSC can only process a certain number of moves per day.*

**Move Date 4/4/2011**

William Holston	507900
Allen Hiser	507903
John Adams	507904
Thomas Fredrichs	507907

**Move Date 4/18/2011**

Timothy Collins	507912
Paul Clifford	507915
Ahsan Sallman	507924
Steven Laur	507925

**Move Date 4/28/2011**

Paulette Torres	507926
Steven Arndt	507928
Kenneth Karwoski	507929
Robert Hardies	507930

Regards,

Richard Brockman  
NRR IT Support  
O-12B04F  
415-1211

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**From:** Claggett, Lauren  
**Sent:** Tuesday, March 22, 2011 6:26 PM  
**To:** Brockman, Richard; Harper, Kevin; Chey, Sonary; Deeds, Erin; Beckford, Kaydian; Holston, William; Laur, Steven  
**Cc:** Cho, Caroline; Freeman, Stanley; Creedon, Meghan; Wilhelm, Martha; Lilley, Joanna; Gorham, Tajuan; Jenkins, Barbara; Claggett, Lauren; Hart, Robin; Veraart, Paul; Erskine, Pamela; Erskine, Pamela  
**Subject:** NRR SLS (Project to Enclose C-Corridor Offices)  
**Importance:** High

Please scroll down to "END" to ensure a complete reading of this email.

Hi Richard,

Please submit/process moves. Also, when processing moves, request that cables be pulled from the offices that will be constructed; see table below.

Please note, occupants of O-10C07 (Steve Laur) and O-11C03 (William Holston) will be relocated due to disconnection of electricity in their offices during construction; cable pulls are NOT necessary in offices O-10C07 and O-11C03. I've also included each designated division space/IT coordinator on this email in the event you may need their assistance in processing moves and/or gathering additional information.

NRR employees that will be temporarily relocated within OCAA space (please see floor plan attached), ARE NOT TO BE CONNECTED TO OCAA PRINTERS. Please map them to other printers within NRR space on the 7<sup>th</sup> floor.

**Steve Laur & William Holston**

You will not need to pack all of your belongings. However, your computer and phone will need to be moved due to them being disconnected from your assigned office space during construction. I will check with ADM regarding any additional instructions.

Please contact me should you have any questions.

Thanks  
Lauren

Phase-I (moves to take place the week of April 4 <sup>th</sup> )		
NAME	MOVE FROM	MOVE TO TEMPORARY LOCATION
Allen Hiser	O-11C01	O-07G03
*William Holston (Non-SLS)	O-11C03 (NO CABLE PULL)	O-07H12
John Adams	O-12C01	O-07G05
Thomas Fredrichs	O-12C03	O-07H10
Phase-II (moves to take place the week of April 18 <sup>th</sup> )		
Tim Collins	O-10C01	O-07D11
Paul Clifford	O-10C03	O-07E15
**Ahsan Sallman (Non-SLS)	O-10C05	O-07D09
*Steve Laur	O-10C07 (NO CABLE PULL)	O-07D13
Phase-III (moves to take place the week of April 28 <sup>th</sup> )		
***Paulette Torres (Non-SLS)	O-09C01	O-12D03
Steve Arndt	O-09C03	O-07G03
Kenneth Karwoski	O-09C05	O-07G05
Robert Hardies	O-09C07	O-07H10
*Employee to be relocated due to disconnection of power in adjoining office during construction. **Reassigned to new temporary location due to enclosing of office space. ***Displace employee reassigned to newly constructed workstation based on ranking.		

*Lauren G. Claggett*

Sr. Program Analyst

Program Management, Policy Development & Analysis Staff

Information & Infrastructure Services Branch

Office of Nuclear Reactor Regulation

[Lauren.Claggett@nrc.gov](mailto:Lauren.Claggett@nrc.gov)

**END**

## **NRR 10 SL Office Modification Project Schedule**

Modified on March 22, 2011

### Distribution List

Joanna Lilley  
William Padilla  
Harry Cepura  
Lauren Claggett  
James Heck  
Charemagne Grimes

<b>Start Date</b>	<b>End Date</b>	
Aug. 10	Aug. 31	Develop design SOW for A/E (SDB)
Sept. 1	Nov. 17	A/E procurement (DC)
Nov. 17		NTP (DC)
Nov. 19	Nov. 21	A&E field survey of OWFN 9 <sup>th</sup> through 12 <sup>th</sup> floors
Oct. 1	Dec. 3	Systems furniture ordered - 9 wks lead time (SDB)
Nov. 23	Dec. 2	95% CD Complete (contractor)
Dec. 3	Dec. 13	NRC Review 95% CDs (SDB and DFS)
Dec. 1	Dec. 16	Prepare construction SOW for GC (SDB)
Dec. 13	Dec. 15	100% CD Complete
Dec. 22		Submit RFPA Package to DC (SOW, IGCE, 100% CD, NRC Form #187) (SDB)
Jan. 5		Re-submit RFPA Package to DC
Jan. 6	Mar. 16	GC Procurement (DC)
Mar. 16		NTP (DC)



**Start Date      End Date**

Mar. 17      Apr. 22      Long lead time items Procurement - 6wks Lead Time  
- VAV's (contractor)

**PHASE I (11<sup>th</sup> & 12<sup>th</sup> Floor)**

Apr. 6      Apr. 8      Move out O-11C1, O12-C1 & O12-C3

Apr. 11      Apr. 20      Construction (O-11C1, O-12C1&C3)

Apr. 26      Apr. 28      Move back

**PHASE II (10<sup>th</sup> Floor)**

Apr. 18      Apr. 20      Move out O-10C1, C3, C5

Apr. 21      May 2      Construction (C1, C3 & C5)

May 10      May 12      Move back

**PHASE III (9<sup>th</sup> Floor)**

Apr. 28      May 2      Move out O-9C1, C3, C5, C7

| May 3\_      May 17      Construction (C1, C3, C5 & C7)

| May 25\_      May 27      Move back

## **NRR 10 SL Office Modification Project Schedule**

Modified on March 22, 2011

### Distribution List

Joanna Lilley  
William Padilla  
Harry Cepura  
Lauren Claggett  
James Heck  
Charemagne Grimes

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Dec.13	Dec. 15	100% CD Complete
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Jan. 6	Mar. 16	GC Procurement (DC)
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| May 3      May 17      Construction (C1, C3, C5 & C7)

| May 25      May 27      Move back

**From:** [Diane.JACKSON@oecd.org](mailto:Diane.JACKSON@oecd.org)  
**To:** [add-nsd@nea.fr](mailto:add-nsd@nea.fr); Leeds, Eric  
**Subject:** recent webcast from WENRA/Jukka Laaksonen and Andre Lacoste  
**Date:** Wednesday, March 23, 2011 11:45:26 AM

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Dear all –

Webcast by Jukka Laaksonen and Andre Lacoste on country and WENRA follow-up...

[http://qsb.webcast.fi/s/stuk/stuk\\_2011\\_0323\\_tiedotustilaisuus/](http://qsb.webcast.fi/s/stuk/stuk_2011_0323_tiedotustilaisuus/)



**Diane Jackson**, Nuclear Safety Specialist  
Nuclear Safety Division, OECD Nuclear Energy Agency (NEA)  
Tel.: +33 (0)1 45 24 10 55, [Diane.Jackson@oecd.org](mailto:Diane.Jackson@oecd.org)

AG/809

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 11:55:05 AM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 12: Interagency Agreements w/ DOE  
Start Date/Time: 5/24/2011 01:00 PM ET  
End Date/Time: 5/24/2011 04:00 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

Click the following link to access the approvals section of iLearn. [Click Here](#)

**Why did you get this message?**

You received this message for one of three reasons, either:

**1. Request for course registration**

Your subordinate requested registration for the course listed above. As the supervisor, your approval is required for them to register for this course. This registration is currently pending your approval. This registration will only be confirmed in iLearn when you approve this request. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**2. SF-182 request for external training**

Your subordinate submitted an SF-182 request for external training. As the supervisor, your approval is required for this request to be approved. This request will only be confirmed when all of the approving officials listed above have approved the request. If you have any questions about how to approve an SF-182 request, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

For additional information please contact your training coordinator.  
The name and contact information for training coordinators may be found at:  
<http://papaya.nrc.gov/Training/coordinators.cfm>

Please tell us whether this notification was helpful by clicking on the following link.  
<https://www.surveymonkey.com/s/6M25CCR>

\*\*\*\*\*  
\*Please DO NOT REPLY. This email address is automated and unattended\*  
\*\*\*\*\*

AG / 810

**From:** [Diane.JACKSON@oecd.org](mailto:Diane.JACKSON@oecd.org)  
**To:** [Johnson, Michael](#); [Leeds, Eric](#)  
**Cc:** [Javier.REIG@oecd.org](mailto:Javier.REIG@oecd.org)  
**Subject:** could you do 1-2 US time on Monday for CNRA call?  
**Date:** Wednesday, March 23, 2011 11:55:26 AM

---

Mike and Eric - J-C is available 30 minutes later. Mike W is okay. Could you take the call 1 -2 pm US time (6-7p UK/ 7-8p Paris)?

Diane

AG / 811

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 11:56:02 AM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acq. Wkshp. 10: Prep. Statements of Work/Perf.-Based Service Contracting  
Start Date/Time: 7/26/2011 08:30 AM ET  
End Date/Time: 7/26/2011 04:15 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

Click the following link to access the approvals section of iLearn. [Click Here](#)

**Why did you get this message?**

You received this message for one of three reasons, either:

**1. Request for course registration**

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[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

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[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid:  
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Please tell us whether this notification was helpful by clicking on the following link.  
<https://www.surveymonkey.com/s/6M25CCR>

\*\*\*\*\*

\*Please DO NOT REPLY. This email address is automated and unattended\*

\*\*\*\*\*

AG/812

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 11:57:03 AM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 2: Developing Independent Government Cost Estimates  
Start Date/Time: 7/28/2011 08:30 AM ET  
End Date/Time: 7/28/2011 11:30 AM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

Click the following link to access the approvals section of iLearn. [Click Here](#)

**Why did you get this message?**

You received this message for one of three reasons, either:

**1. Request for course registration**

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**2. SF-182 request for external training**

Your subordinate submitted an SF-182 request for external training. As the supervisor, your approval is required for this request to be approved. This request will only be confirmed when all of the approving officials listed above have approved the request. If you have any questions about how to approve an SF-182 request, please refer to the Supervisor's Approving Requests for Training job aid:  
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- 3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid:  
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For additional information please contact your training coordinator.

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<http://papaya.nrc.gov/Training/coordinators.cfm>

Please tell us whether this notification was helpful by clicking on the following link.  
<https://www.surveymonkey.com/s/6M25CCR>

\*\*\*\*\*  
\*Please DO NOT REPLY. This email address is automated and unattended\*  
\*\*\*\*\*

AG/813



**From:** McCree, Victor  
**To:** Leeds, Eric  
**Cc:** Virgilio, Martin; Grobe, Jack; Wert, Leonard; Wiggins, Jim; Sanfilippo, Nathan; Brenner, Eliot; Munday, Joel; Croteau, Rick; Jones, William; Bartley, Jonathan; Ledford, Joey; Hannah, Roger  
**Subject:** Feedback from Senator Graham's Visit to Oconee  
**Date:** Wednesday, March 23, 2011 11:58:12 AM  
**Attachments:** External Flood rev. 3 FINAL.docx

---

Eric,

As you know, Senator Lindsey Graham toured Oconee yesterday, 3/22, and met with the press. The feedback I received indicates that the Senator's site visit, meetings with the licensee and residents, and the press brief went well.

Today's edition of *The State*, a Columbia, SC, newspaper, includes the Senator's response to a question about the impact of a failure of the Jocassee Dam at Oconee: "*a broken dam at Lake Jocassee could affect the plant, but...Duke Energy is working on a plan to address such a disaster*" [see full article at <http://www.thestate.com/2011/03/23/1747337/graham-uses-tour-to-push-uke.html>]. Apparently, a reporter for another local paper also indicated interest in flooding caused by a Jocassee Dam break and may ask additional questions of Duke and/or NRC.

Given that this matter involves security-related-information, Duke has developed the attached "messages on external flood events" to respond to public/media questions. So that we are best prepared to respond to similar questions, I asked my folks prepare a set of talking points that will be coordinated with your staff and OPA later today.

Vic

AG/814

## MESSAGES ON EXTERNAL FLOOD EVENTS

- The Keowee-Toxaway Project was built as part of an overall plan that included building Lakes Keowee and Jocassee, their respective hydroelectric stations, and Oconee Nuclear Station. From a seismic perspective, a design criterion similar to Oconee Nuclear's was applied to all Keowee and Jocassee dams and dikes, as well. The design was based on the project's ability to withstand an earthquake of greater magnitude than the region's worst-case earthquake, which was the Charleston earthquake of 1886.
- Duke Energy dams are safe. Our hydro fleet dams are routinely inspected by Duke Energy personnel. (This includes once a quarter for concrete structures, once every two weeks for earthen structures and once a week at Jocassee.) The structures are also inspected annually by our regulators and every five years by an independent engineering consultant.
  - Inspections are also done immediately following earthquakes or tremors. We receive instant alerts from the U.S. Geological Society and have our own seismic instrumentation at Jocassee's dam.
  - Additional inspections are also done if the area receives more than two inches of rain within 24 hours. (At Bad Creek, it's three inches of rain.)
- The standard, today, when building a new nuclear plant is to automatically assume the failure of an upstream dam and to factor in appropriate mitigation strategies.
  - Because the nuclear industry is based on continuous improvement, we have worked with the NRC to apply that same standard and assumption at Oconee Nuclear Station. Doing so further enhances the robustness of our site and ensures we're continuously making a safe plant safer.
- Based on our model that assumes an upstream dam failure, we've ensured we have mitigation strategies that would continue to provide cooling capabilities to the site's reactor cores and spent fuel pools.
- While we have applied an assumption of a dam failure, and added mitigation strategies, we have also added prevention strategies.
  - For example, we have improved monitoring capabilities that more quickly call attention to changes in the characteristics of our dams and allow us to take preventive actions.
- We're continuously making improvements and long-term investments to reduce the overall impact of external events. These improvements further add to the safety of Oconee Nuclear and its ability to withstand external forces, such as fires, floods, tornadoes and earthquakes.

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 11:59:01 AM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 3: Developing Proposal Evaluation Factors  
Start Date/Time: 5/24/2011 08:30 AM ET  
End Date/Time: 5/24/2011 12:00 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

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**2. SF-182 request for external training**

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**3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid: [https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

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<https://www.surveymonkey.com/s/6M25CCR>

\*\*\*\*\*  
\*Please DO NOT REPLY. This email address is automated and unattended\*  
\*\*\*\*\*

A6/815

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 12:01:01 PM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 4: Source Evaluation Panel (SEP) Procedures  
Start Date/Time: 5/5/2011 08:30 AM ET  
End Date/Time: 5/5/2011 04:15 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

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[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**2. SF-182 request for external training**

Your subordinate submitted an SF-182 request for external training. As the supervisor, your approval is required for this request to be approved. This request will only be confirmed when all of the approving officials listed above have approved the request. If you have any questions about how to approve an SF-182 request, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

For additional information please contact your training coordinator.

The name and contact information for training coordinators may be found at:  
<http://papaya.nrc.gov/Training/coordinators.cfm>

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AG/816

## Murphy, Andrew

---

**From:** Robert Corsetti [rcorsetti1@berkeleynucleonics.com]  
**Sent:** Wednesday, March 23, 2011 12:03 PM  
**To:** Murphy, Andrew  
**Subject:** Berkeley Nucleonics Test Equipment Stock List

Hello Andrew!

We want to re-introduce you to two of our most popular, budget-saving products. Our Model 1105 and 645 are providing test engineers with top performance at impressive pricing.

Our new 400 MHz Universal Counter, the Model 1105, is more versatile than typical counters, with features like math functions and time-interval measurements. Importantly, it is priced under \$2,000.00. See the website for comparisons, specifications, video tutorials, and application notes.

Our 50 MHz Arbitrary Waveform Generator, the Model 645, is loaded with output modes, web-based controls and complete custom waveform programmability. Also important, the price...\$1,295.00.

Several units are in stock....shall I ship you a trial unit for 30 days ?

Regards,

Robert Corsetti  
Director of Sales and Marketing  
415-453-9955 x250

---

Berkeley Nucleonics Corp  
2955 Kerner Blvd, San Rafael CA 94901  
[www.berkeleynucleonics.com](http://www.berkeleynucleonics.com)

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AG/817

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 12:03:01 PM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 5:Negotiating Project Terms and Conditions  
Start Date/Time: 5/3/2011 08:30 AM ET  
End Date/Time: 5/3/2011 04:15 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

Click the following link to access the approvals section of iLearn. [Click Here](#)

**Why did you get this message?**

You received this message for one of three reasons, either:

**1. Request for course registration**

Your subordinate requested registration for the course listed above. As the supervisor, your approval is required for them to register for this course. This registration is currently pending your approval. This registration will only be confirmed in iLearn when you approve this request. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid: [https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**2. SF-182 request for external training**

- Your subordinate submitted an SF-182 request for external training. As the supervisor, your approval is required for this request to be approved. This request will only be confirmed when all of the approving officials listed above have approved the request. If you have any questions about how to approve an SF-182 request, please refer to the Supervisor's Approving Requests for Training job aid: [https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

- 3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid: [https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

For additional information please contact your training coordinator.

The name and contact information for training coordinators may be found at: <http://papaya.nrc.gov/Training/coordinators.cfm>

Please tell us whether this notification was helpful by clicking on the following link. <https://www.surveymonkey.com/s/6M25CCR>

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\*\*\*\*\*

AG/818

**From:** [do\\_not\\_reply@ilearnnrc.plateau.com](mailto:do_not_reply@ilearnnrc.plateau.com)  
**To:** [Coe, Doug](#)  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 12:06:03 PM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 6: Contract Administration  
Start Date/Time: 7/27/2011 08:30 AM ET  
End Date/Time: 7/27/2011 04:15 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

Click the following link to access the approvals section of iLearn. [Click Here](#)

**Why did you get this message?**

You received this message for one of three reasons, either:

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[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**2. SF-182 request for external training**

Your subordinate submitted an SF-182 request for external training. As the supervisor, your approval is required for this request to be approved. This request will only be confirmed when all of the approving officials listed above have approved the request. If you have any questions about how to approve an SF-182 request, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

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For additional information please contact your training coordinator.  
The name and contact information for training coordinators may be found at:  
<http://papaya.nrc.gov/Training/coordinators.cfm>

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AG/819

**From:** do\_not\_reply@ilearnnrc.plateau.com  
**To:** Coe, Doug  
**Subject:** Supervisor Approval Required for JENNENE LITTLEJOHN  
**Date:** Wednesday, March 23, 2011 12:08:02 PM

---

JENNENE LITTLEJOHN

Has requested the following course for approval or has verified their attendance in the following course:

Registration: Registration: Acquisition Workshop 9: Organizational Conflicts of Interest  
Start Date/Time: 3/31/2011 01:00 PM ET  
End Date/Time: 3/31/2011 04:00 PM ET

Comments:

Please go to the Approvals section of iLearn at your earliest convenience to examine this request. If you have any questions about the approval, please contact the employee requesting/verifying this course or your Training Coordinator.

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**Why did you get this message?**

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**2. SF-182 request for external training**

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[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

**3. Verified attendance of SF-182 training** Your subordinate has verified attendance for the external (SF-182) training listed above. Verification includes confirmation of attendance or non-attendance. Since SF-182 training is external to NRC, this is the only way for the system to track your subordinate's status with this activity. As the supervisor, you must now verify the attendance before the process can be completed and the training can be added to the Learning History. You may do so by going to the Approvals section of iLearn. This message will continue to be sent until you have verified their attendance in iLearn. If you have any questions about how to do this, please refer to the Supervisor's Approving Requests for Training job aid:  
[https://ilearnnrc.plateau.com/content/nrc/help\\_guide/docs/output/supervisor/approving\\_requests\\_for\\_SF182.html](https://ilearnnrc.plateau.com/content/nrc/help_guide/docs/output/supervisor/approving_requests_for_SF182.html)

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AG/820



**From:** [Federal Computer Week](#)  
**To:** [Case, Michael](#)  
**Subject:** Using Video to Meet Your Agency's Mission Objectives - Free Seminar - Register Today  
**Date:** Wednesday, March 23, 2011 12:11:59 PM



April 27 – 28, 2011 | Sheraton Reston Hotel | Reston, VA



Federal Computer Week and Cisco invite you to attend this intensive two-day program.

**Register today** to hear from government and industry experts as they share best practices, detailed case studies, and technical briefings on how to use video applications to meet the business and mission objectives of diverse Federal agencies.

Attendees will learn:

- Strategies to align unified communications
- How to make video pervasive throughout your agency
- Maximize ROI: Increasing the value of your video investment
- How to make video a key component of your cloud and mobility strategy
- How digital media signage fits into an integrated video strategy

Bring your experience, questions, and insights and plan to learn from colleagues how to evolve video applications in your operational environment.



**Registration is free, but space is limited.**

Please visit the [website](#) for more information.

#### Event Details

**When:**  
**Wednesday, April 27**  
**1:00pm - 7:00pm**  
Technology Demonstrations & Networking Dinner

**Thursday, April 28**  
**7:00am - 4:30pm**  
Full-Day Program & Networking Reception

**Where:**  
**Sheraton Reston Hotel** Reston, VA

**Cost:** Free

#### Presented By



AG/821

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## Kauffman, John

---

**From:** Ibarra, Jose  
**Sent:** Wednesday, March 23, 2011 12:28 PM  
**To:** Kauffman, John  
**Subject:** RE: Who is GIP Resources?

John,  
I do get the e-mail and I had not gotten to asking what it was all about. Thanks. Jose

---

**From:** Kauffman, John  
**Sent:** Wednesday, March 23, 2011 9:59 AM  
**To:** Ibarra, Jose  
**Subject:** RE: Who is GIP Resources?

Jose,  
It is a group mailbox. Incoming messages are auto forwarded to me, Mehdi, John L, Richard, Lauren, Ben, April, Michelle and you. The idea is that someone in the group will be around to respond. Ben, Mehdi, and I "manage" the mailbox. JVK

---

**From:** Ibarra, Jose  
**Sent:** Wednesday, March 23, 2011 9:51 AM  
**To:** Kauffman, John  
**Subject:** RE: Who is GIP Resources?

John,  
Does that box belong to us? Who monitors and manages it? Jose

---

**From:** Kauffman, John  
**Sent:** Wednesday, March 23, 2011 9:50 AM  
**To:** Ibarra, Jose  
**Subject:** RE: Who is GIP Resources?

It is just the "GIP mailbox." Sent it there to have a record. JVK

---

**From:** Ibarra, Jose  
**Sent:** Wednesday, March 23, 2011 9:49 AM  
**To:** Kauffman, John  
**Subject:** Who is GIP Resources?

John,  
What is GI Resources? I saw that you replied to a question that went through GIP Resources. I meant to ask before about this GI Resources. Jose

AG/822

**From:** McNamara, Nancy  
**To:** Leeds, Eric  
**Subject:** FW: FYI - More NY State involvement  
**Date:** Wednesday, March 23, 2011 12:29:01 PM

---

Hey Eric...And you thought those women in NH and MA were bad!!! Miss those days?  
When we were riding the VY/VT wave I took comfort in THIS TOO SHALL PASS.

Hang in there.  
Nancy

---

**From:** Lew, David  
**Sent:** Wednesday, March 23, 2011 12:09 PM  
**To:** Leeds, Eric  
**Cc:** Dean, Bill; McNamara, Nancy; Tifft, Doug; Screnci, Diane; Sheehan, Neil  
**Subject:** FW: FYI - More NY State involvement

Thanks Eric.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 12:08 PM  
**To:** Dean, Bill; Lew, David  
**Cc:** Roberts, Darrell; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Borchardt, Bill; Brenner, Eliot; Hayden, Elizabeth; Powell, Amy; Schmidt, Rebecca; Wittick, Brian  
**Subject:** FYI - More NY State involvement

FYI – We’ve heard that NY City – Mayor Bloomberg or his staff – is interested in meeting with the NRC to express a different point of view than we received from the NY State group that we met with yesterday. That meeting is not yet set up. In addition, I have a teleconference with Congresswoman Nan Hayworth – she took over the IP district that had been held by John Hall – tomorrow at 11 am.

I’ll keep you informed.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

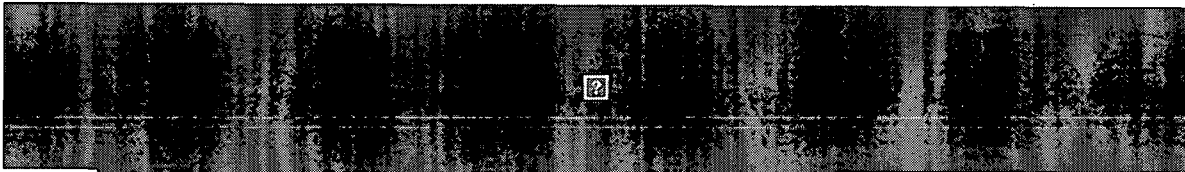
AG/823

**From:** The National Conference Center  
**To:** Case, Michael  
**Subject:** WiFi-always fast and now free  
**Date:** Wednesday, March 23, 2011 12:32:17 PM

---

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The National Conference Center



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AG / 824

**From:** [Norris, Wallace](#)  
**To:** [Case, Michael](#)  
**Cc:** [Boyce, Tom \(RES\)](#); [Moyer, Carol](#); [West, Stephanie](#)  
**Subject:** FW: Final 2005-2008 rule  
**Date:** Wednesday, March 23, 2011 12:35:22 PM

---

Mike, I've reviewed the draft final rule. Other than the document desperately needs to be edited (lots of extra spaces in the middle of sentences and spacing), I'm ok other than they still haven't fixed the issue I raised. Geary indicated below that he has tried to fix this.

How do you want to proceed? I don't have a hard copy. Do we need one for Brian's concurrence? Since Geary is aware of the issue, it will get corrected. I would recommend that we concur with the comment that RES' approval is subject to the wording below being corrected.

Thanks, Wally

---

**From:** Mizuno, Geary  
**Sent:** Wednesday, March 23, 2011 12:27 PM  
**To:** Norris, Wallace  
**Subject:** RE: Final 2005-2008 rule

This is not quite right. I keep fixing this and it keeps getting changed.

---

**From:** Norris, Wallace  
**Sent:** Wednesday, March 23, 2011 12:25 PM  
**To:** Mizuno, Geary  
**Subject:** Final 2005-2008 rule

Geary, following up on your response to the emails regarding the NTTAA and what it does or doesn't require, I'm reviewing the final rule and found the following (my underlining):

"This final rule action is in accordance with the NRC's policy to incorporate by reference in 10 CFR 50.55a new editions and addenda of the ASME B&PV and OM Codes to provide updated rules for constructing and inspecting components and testing pumps, valves, and dynamic restraints (snubbers) in light-water nuclear power plants. ASME Codes are national voluntary consensus standards and are required by the National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, to be used by government agencies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. The National Environmental Policy Act (NEPA) requires Federal government agencies to study the impacts of their "major Federal actions significantly affecting the quality of the human environment," and prepare detailed statements on the environmental impacts of the proposed action and alternatives to the proposed action (42 U.S.C. Sec. 4332(C); NEPA Sec. 102(C))."

AG/825

As I understood your email, it doesn't require that we adopt the ASME Codes. Did I understand your email correctly? Thanks, Wally

**From:** Norris, Wallace  
**To:** Case, Michael  
**Cc:** Boyce, Tom (RES); Moyer, Carol  
**Subject:** FW: Final 2005-2008 rule  
**Date:** Wednesday, March 23, 2011 12:39:58 PM

---

Geary's on the job! No worries.

---

**From:** Mizuno, Geary  
**Sent:** Wednesday, March 23, 2011 12:38 PM  
**To:** Norris, Wallace  
**Cc:** Markley, Anthony  
**Subject:** RE: Final 2005-2008 rule

We probably need to fix this once and for all. I need to get the language that is in the revision to the MD on rulemaking, and/or RGs. We could start out with the following language, and see how much more detailed we want to be.

ASME Codes are voluntary consensus standards. The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, and implementing guidance by the Office of Management and Budget requires government agencies to use a voluntary consensus standard in lieu of a "government unique standard" unless the use of the voluntary consensus standard is inconsistent with applicable law or otherwise impractical.

Geary

---

**From:** Norris, Wallace  
**Sent:** Wednesday, March 23, 2011 12:25 PM  
**To:** Mizuno, Geary  
**Subject:** Final 2005-2008 rule

Geary, following up on your response to the emails regarding the NTTAA and what it does or doesn't require, I'm reviewing the final rule and found the following (my underlining):

"This final rule action is in accordance with the NRC's policy to incorporate by reference in 10 CFR 50.55a new editions and addenda of the ASME B&PV and OM Codes to provide updated rules for constructing and inspecting components and testing pumps, valves, and dynamic restraints (snubbers) in light-water nuclear power plants. ASME Codes are national voluntary consensus standards and are required by the National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, to be used by government agencies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. The National Environmental Policy Act (NEPA) requires Federal government agencies to study the impacts of their "major Federal actions significantly affecting the quality of the human environment," and prepare detailed statements on

AG/826



the environmental impacts of the proposed action and alternatives to the proposed action (42 U.S.C. Sec. 4332(C); NEPA Sec. 102(C)).”

As I understood your email, it doesn't require that we adopt the ASME Codes. Did I understand your email correctly? Thanks, Wally

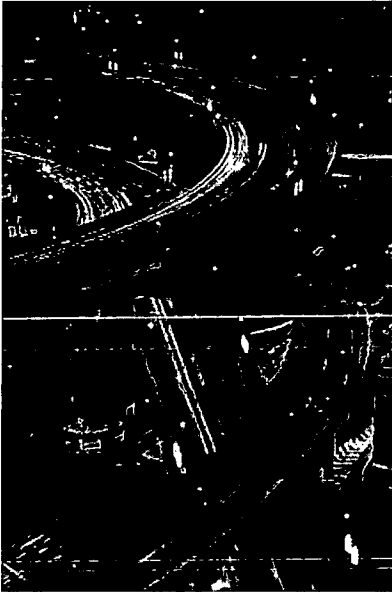
**From:** TomTom Government GIS Webinars  
**To:** Leeds, Eric  
**Subject:** Eric, on 4/6: TomTom Maps and Applications for Government GIS  
**Date:** Wednesday, March 23, 2011 12:41:40 PM  
**Attachments:** [tomtomgbrlogo.png](#)

---

**COMPLIMENTARY WEBINAR**  
Wednesday, April 6, 2011

**"TomTom Maps and Applications for Government GIS"**

**REGISTER NOW**



**Title:** TomTom Maps & Applications for Government GIS

**Date:** Wednesday, April 6, 2011

**Time:** 2:00 PM-3:00 PM EST

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AG/827

**TomTom**



**Zabel, Joseph**

---

**From:** Jervey, Richard  
**Sent:** Wednesday, March 23, 2011 1:03 PM  
**To:** Zabel, Joseph  
**Subject:** RE: Request for QTE

Thanks Joe.

Regards,

R. A. Jervey  
RES/DE/RGDB  
CS2A07  
301/251-7404

---

**From:** Zabel, Joseph  
**Sent:** Wednesday, March 23, 2011 12:43 PM  
**To:** Jervey, Richard  
**Subject:** FW: Request for QTE

Rick:

Here is the other RG I sent to Casper on 3/14.

Joe

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Document Control Branch  
[joseph.zabel@nrc.gov](mailto:joseph.zabel@nrc.gov)  
06D05

---

**From:** Zabel, Joseph  
**Sent:** Monday, March 14, 2011 4:19 PM  
**To:** Sun, Casper  
**Subject:** RE: Request for QTE

Hi Casper:

I have attached the redline and corrected versions of RG DG 8050 for your review and distribution. Please note the highlighted portions of page 6 on which I provided revisions that need your review.

I will have the other RG to you sometime tomorrow morning.

Joe

AG1828

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Document Control Branch  
[joseph.zabel@nrc.gov](mailto:joseph.zabel@nrc.gov)  
06D05

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**From:** Sun, Casper  
**Sent:** Tuesday, March 08, 2011 7:55 AM  
**To:** Zabel, Joseph  
**Cc:** Jervey, Richard; Schaffer, Steven  
**Subject:** FW: Request for QTE

Dear Joe,

Time fly: I am back from vacation.

I do need to follow up and work on both DG-8050 and DG-8051 in your hand. Please check. Any questions please contact me directly.

Thank you so much,  
Casper

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**From:** Sun, Casper  
**Sent:** Thursday, February 03, 2011 5:19 PM  
**To:** Zabel, Joseph  
**Cc:** Jervey, Richard; Schaffer, Steven  
**Subject:** RE: Request for QTE

Dear Joe,

Please review this DG-8050 for the last time: I have made a lot of change since your last review. I am looking forward to learn your English and thanking you in advance.

Happy New Year (Chinese),  
*Casper Sun, Ph.D., CFP*

Health Physicist  
Health Effects Branch, Division of System Analysis  
Office of Nuclear Regulatory Research

MS CSB 3C-07  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555  
Office 301-251-7912 Fax 301-251-7436

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**From:** Jervey, Richard  
**Sent:** Friday, October 01, 2010 10:12 AM

**To:** Surt, Casper

**Subject:**

Hi Casper,

Please verify the references are still correct. If so , we are ready to prepare the concurrence package.

Regards,

R. A. Jervey

RES/DE/RGDB

CS2A07

301/251-7404

**From:** Srinivasan, Makuteswara  
**To:** Richards, Stuart; Case, Michael  
**Subject:** My trip to England  
**Date:** Wednesday, March 23, 2011 1:06:05 PM  
**Importance:** High

---

Hello, Stu and Mike,

I would appreciate your favorable consideration of the proposed trip next month to England to attend a meeting organized by the U.K. Nuclear Installations Inspectorate on graphite fracture.

**Venue:** The meeting is in Mansfield College, Oxford University, London. England.

**Dates:** April 11 -13, 2011.

**Organizer:** The meeting is organized by Nuclear Installations Inspectorate (HSE) and EdF Energy, the operator of British AGRs.

**Meeting Objective:** The purpose of this meeting is to gather selected experts from around the world (a dozen or so), and establish an understanding of the scope of the problem related to graphite fracture in high temperature gas cooled reactors. the work that is already in place (do we understand what each is doing and why?) and complete a Gap analysis to see where we need to go next.

**My Role:** I have been invited to participate as an expert in graphite and ceramic fracture. I will convey the regulatory and safety implications of fracture in graphite core components in terms of the overall safety risk and exploration of potential compensatory measures as well as inservice inspection procedures and proactive periodic graphite performance assessment by core monitoring. Particularly, I will bring to focus the current ASME Graphite Core Component (GCC) design criteria, and explore the sufficiency of design margin with the experts. I will also challenge the experts at this meeting aspects related to future consideration in research of potential severe accident hazards, such as earthquake in cracked graphite core components.

**Benefit to NRC:** NRC staff will exchange of technical safety information and potential regulatory issues related to cracked graphite components in HTGR with international nuclear graphite reactor experts. The outcome of this meeting will aid NRC's future research planning. The staff will provide information on specific data needs, such as for example dynamic loading situations, and encourage future research planners to conduct research to provide experimental data and models, which will address technical safety issues related to graphite core performance. The expected outcome will provide technical basis information for formulating staff position, interim staff guidance development, and regulatory guide development.

Please let me know if you need any additional information.

AG/829

Thanks.

Srini.



**From:** Tripp, Christopher  
**To:** Case, Michael  
**Subject:** Standards Participation Questions  
**Date:** Wednesday, March 23, 2011 1:09:44 PM

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Mike,

I understand that you're the NRC Standards Executive. I am on several working groups and had a few questions about my participation in working group efforts.

I'd like to understand the level of NRC's commitment to support staff work. In FCSS, we have a number of people involved in several criticality-related (ANS-8) standards committees, but due to shortages of travel and training funds (training because most of the working group meetings run concurrently with the two annual ANS conferences), people are often not able to attend. While I understand we don't have absolute control over the budget and funds are limited, it seems to me that if the NRC appoints someone as an official representative to a standards committee, they are making some level of commitment to support their participation over the long run. Sometimes we've had different people covering one another's working group meetings, and management seems more concerned with limiting the number of people and maintaining "office coverage" than having continuity on the working groups. Many of these standards, as you know, take years to get through the pipe line.

I'd just like to understand better what NRC's level of commitment is and what the expectations are about supporting staff involvement. Also, if someone is assigned to a working group, should they constantly be playing musical chairs and sending other NRC people in their stead?

Appreciate any guidance you can provide.

Chris Tripp


AG/830

**From:** [Homeland Security Network](#)  
**To:** [Case, Michael](#)  
**Subject:** Actionable Intelligence Analysis March 23, 2011  
**Date:** Wednesday, March 23, 2011 1:10:13 PM

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**MARCH 23, 2011**

**Electronic Jihad**

This is what experts say will be the future of insurgent warfare. Al-Qaeda deploys a whole inventory of internet operations including immortalizing suicide bombers online, with video clips of the destruction they wreak and web biographies that attest to their religious zeal, together with instructional videos that lay out in precise detail how to construct a suicide bomber's explosive belt. The video showing how to estimate the impact of an explosion, how best to arrange the shrapnel for maximum destruction, how to strap the belt onto the bomber's body, and even how to avoid the migraine headache that can come from exposure to the recommended explosive chemicals.

If you have any questions and would like to discuss any part of this newsletter with the author and you are a bona fide security professional or work with Homeland Security in some capacity, you may apply to the Homeland Security Network (link to the page registration <http://www.homelandsecuritynet.com/network.html>) and join our group Homeland Security News.

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AG/831

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- Selecting the Training Facility or Vendor
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- In What Areas Should the Dog Be Trained to Work In

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## The Dark Side Of The Web English Language Web Sites On The Rise

The number of English-language sites sympathetic to al-Qaeda has risen from about 30 seven years ago to more than 200 recently. These web sites are spreading al-Qaeda's message to Muslims in the West, translating writings and sermons of charismatic clerics to the once largely out of reach English speaking audience. These radical Islamic sites are providing a powerful tool for recruiting sympathizers to its cause of jihad, or holy war.

### Points to Consider:

*The Internet has played a significant role in terrorist recruitment in the West for many years. The phenomenal growth in the number of al-Qaeda sympathizers on the Web illustrates the considerable transformation of al-Qaeda. Their mission has often been described as an advance guard, inspiring other radical jihadi groups to follow suit. Today, one is tempted to add another element with the formation and expansion of radical jihadi media outlets creating a large and vibrant presence on the Internet. Marginalized youth populations are vulnerable to radicalization and can be mobilized online since they rely heavily on the Internet for communication. Al-Qaeda uses the Internet to bring its message to the general public, and to provide its many supporters and sympathizers with its official policies, strategies, and doctrines. Many of the terrorist websites are tailored to appeal to these young adults via colorful, graphic images, inspiring appeals to defend Islam, turning homegrown radicals into terrorists, and facilitating the planning of terrorist operations at decentralized levels around the globe. The Internet also provides a forum for terrorist training, fundraising, and allowing terrorists to collect intelligence on their targets. Consider the theory that the war on terror is fundamentally a war of ideas. If true then al-Qaeda's direct access to such a large community of online jihadi sympathizers is a bad sign, and should be viewed as a major concern as a present and future threat.*

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<http://www.homelandsecuritynet.com/network/hsn-networks-points.html>

## Nuclear Power's Dark Side

As Japan desperately fights to bring its damaged reactors at Fukushima under control, the world's nuclear industry and the energy plans of many nations are faced with a new question: beyond natural disasters, how vulnerable is nuclear energy to military attack or to terrorists?

#### Points to Consider:

The World Nuclear Organization (WNO) has said that core melting and breach of containment "would not result in any significant radioactive releases." The WNO pointed to the industry's safety record with only two significant incidents in 50 years, which include: Three Mile Island in the United State in 1979, and the 1986 Chernobyl explosion in the Ukraine. Additionally the nuclear industry has countered fears with extensive scientific studies reporting the inherent safety of reactor design and their resilience to disaster, attack and sabotage. But numerous studies say that despite these industry assurances, reactors are vulnerable to attacks and could become targets by terrorists. Remember that Iraq's Osirak reactor near Baghdad was attacked by Iran in 1980 and then destroyed by the US in the first Gulf war, and Israel bombed Syria's partially built Al Kibar facility in 2007. Additionally, Charles Faddis the former head of the American Central Intelligence Agency's terrorism and weapons of mass destruction unit has warned that even US reactors were "woefully unprepared" for terror attacks.

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### Militia Ends Government Support

The day after a deadly suicide bombing targeted his group, Dilawar Khan; the head of a powerful anti-Taliban militia in northwest Pakistan said he is ending cooperation with the government because they have failed to provide enough support.

#### Points to Consider:

At least 38 people were killed recently when the Taliban bombed a funeral procession for the wife of a tribal elder. Consider that the increasing instability in Pakistan is a serious problem, and one that potentially has global consequences. According to Hassan Abbas, Fellow at Harvard's Kennedy School of Government, "there is an emerging consensus among foreign policy experts that the growing insurgency, militancy and growing anti-American sentiment poses the greatest security providing one more worry for the U.S. in terms of both available nuclear capabilities and terrorism, at a time when U.S. capabilities are stretched thin."

### Radicalization Summit Planned

Google's new "think/do tank", "Google Ideas" is teaming up with the US think tank Council on Foreign Relations to hold the "Summit Against Violent Extremism" from June 26th to 29th in Dublin, Ireland.

#### Points to Consider:

The summit's goal is to generate new and innovative ways to address the threat posed by radicalization, and will consist of victims of terrorism, diplomats, academics, civil society organizations, the private sector, along with violent extremists, including neo-Nazis, Islamic fundamentalists and drugs gang members.

## Intelligence Chief Points To Change In Terror Tactics

At least five mail bombs were received by various public figures across Jakarta recently have led Indonesia's National Intelligence Agency (BIN) chief General Sutanto to say that there has been a shift in tactics employed by terrorists.



### Points to Consider:

According to the BIN Chief, terrorism can be conducted in various ways. In the past, it was done through mass organizations, but now he said terrorists prefer to work alone rather than in groups. General Sutanto said that Jemaah Islamiyah (JI), an Indonesian jihadist group linked to al-Qaeda, is believed responsible for the book-bombs mailed to several people including a liberal Islamic activist; a youth group leader and a former member of Indonesia's counterterrorism police. Consider that analysts have been warning for several years that the terrorist threat is changing. This new generation of terrorists is looser; its operations are more decentralized and harder to find. Remember that in his book "Leaderless Jihad", Dr. Marc Sageman, a former CIA officer, argues that, "the present threat has evolved from a structured group of al-Qaeda masterminds controlling vast resources and issuing commands to a multitude of informal groups trying to emulate their predecessors by conceiving and executing operations from the bottom up. These "homegrown wannabes" form a scattered global network, a "leaderless jihad." Once they have been recruited, indoctrinated and prepared, their lust for "martyrdom make them difficult to deter.



## IID's Discovered Along With IED's At Checkpoint

Israeli Border Police recently arrested a 20 year-old Palestinian man who they found to be carrying both improvised explosive devices (IED) and improvised incendiary devices (IID) during a routine inspection at the Tapuach Junction checkpoint.



### Points to Consider:

The security personnel found the suspect carrying five pipe bombs and three firebombs (Molotov cocktails), which they described as ready for detonation. Consider that although are the most common type of terrorist act, utilizes explosives which has contributed to 67% of all terrorist incidents in the last decade. Be aware that incendiary devices are cheap and easy to hide. Arson and fire bombings can be easily conducted by terrorist groups, which may not be as well organized, equipped, or trained as a major terrorist organization. Additionally consider the impact of arson or firebombing attacks against a utility, hotel, government building, or industrial center, which would portray an image that the ruling government is incapable of maintaining order. Furthermore, according to a military dissertation paper on pyro-terrorism written in 2005 by Major Robert Arthur Baird, USMC, which found that from 1968 to 2005, fifty-six terrorist groups worldwide were using arson as a tactic. The paper also included intelligence reports at that time that indicated that al-Qaeda had sought to use arson as a tactic in American forests ("Forest Fire Jihad").

## Qaddhafi Vows Retaliation

In an audio address recently broadcast on Libyan state television, Muammar Qaddafi said there is "no justification" for the United States and European nations enforcing a United Nations mandated no-fly zone using air strikes called "Operation Odyssey Dawn", which he said amounted to terrorism.

### Points to Consider:

The Libyan leader termed the Western nations "terrorists" who are waging "war against Islam." denouncing the strikes as "unjustified crusader aggression," and vowing to retaliate against military and civilian targets. Consider that Libya's Colonel Muammar Qaddafi is the longest-serving leader in both Africa and the Arab world. He has used a pan-Arab (movement for cooperation with Arab states), anti-imperialist philosophy,



blended with aspects of Islam. In the past Qaddafi has been strongly associated with "terrorism", accused of being a leader of State Sponsored Terrorism, supporting armed groups including FARC in Colombia and the IRA in Northern Ireland. Additionally, he was allegedly involved in the 1986 bombing of a Berlin nightclub in which two US soldiers were killed, and the 1988 bombing of the Pan Am flight over Lockerbie, Scotland, for which Qaddafi's regime formally accepted responsibility and paid compensation to the families of those who died.



## Suspected Bombers Killed By Premature Explosion

Nigeria's Military Special Task Force intervened recently to prevent additional violence after two suspected terrorists were killed in the city of Jos when improvised explosive devices (IED) they were carrying on a motorcycle apparently meant to target churches in the area, unexpectedly exploded.

### Points to Consider:

*Consider that IED's are extremely diverse in design, and may many types of initiators, detonators, penetrators, and explosive loads, many times containing shrapnel generating objects such as nails or ball bearings. IED's made by inexperience bomb-makers many times fail to detonate or explode prematurely.*

## News Group Runs Photos That Could Fuel Terror

The German news organization Der Spiegel recently published graphic photographs taken last year depicting US soldiers grinning over the corpses of Afghan civilians they had allegedly killed.



### Points to Consider:

*The leaked photographs were being used as evidence in ongoing court-martial proceedings of five US soldiers charged in the deaths, and seven other platoon members were charged with lesser crimes. Consider that in the past extremists have sought to exploit the power of images posting them on the Internet together with their propaganda. Most experts agree that the Internet is not just a tool of terrorist organizations, but is central to their operations. The Web gives jihad a public face where they can distribute images of alleged atrocities to huge audiences in the hope of justifying their actions and recruiting more sympathizers to their cause.*

## Controversial Act Could Have Repercussions

After first holding a mock trial the controversial pastor of the Dove World Outreach Center, who last year had halted his plans to burn a Quran on the 9/11 anniversary recently burned of the Islamic holy book at his Gainesville, Florida church.



### Points to Consider:

*According to the controversial Florida church's 2010 Facebook page (8/4/10 newsletter) the church planned to "stand against the evil of Islam." by burning copies of Islam's holy book on the church property. They had touted their activity as "International Burn the Koran Day," and appeared to be largely oblivious to the potential consequences of their plans. At that time General David Petraeus, the top US commander in Afghanistan warned that lives will be in danger if the church stuck to its plans saying that it could cause problems "not just in Kabul, but everywhere in the world". Consider that radical Islam poses a challenge in the modern world, which is like that of no other radical religious movement. Including the repercussions from several cartoon controversy's which led to protests across the Muslim world, some of which escalated into violence resulting in a total of more than 100 deaths, and various violent acts including setting fire to the Danish Embassies in Syria, Lebanon and Iran.*

### **Police Officer Killed In "Wild Shootout"**

One Wisconsin police officer was killed and another critically injured recently when a six-hour standoff at a Fond du Lac house ended in a hail of bullets.

#### **Points to Consider:**

*The suspect was later found dead inside the house from an apparent self-inflicted gunshot wound. Consider that a national crime clock has indicated an increasing number of violent crimes, which are occurring every 22 seconds. In addition we must be aware of the increasing number of officers attacked which would seem to indicate that criminals are becoming more violent and aggressive. Remember that few people are aware of the hazards police officers face on a daily basis. While carrying out their day-to-day activities, police officers encounter some of the riskiest occupational hazards. Because of these dangers, officer must constantly be on guard.*

### **Many People Hurt As Tour Bus Rolls**

A bus carrying 25 tourists headed from Canada to New Jersey rolled over on snowy Interstate 93 in Littleton, New Hampshire, recently injuring at least 17 people.

#### **Points to Consider:**

*Consider that it is important to understand that although bus transportation today is the safest of all modes of American transportation and, accidents are at one of their lowest levels ever, mass transportation accidents do happen and can have a profound effect on first responders operation. Additionally, be aware that mass casualty incidents require a prompt response and implementation of both the individual Departments and community-wide disaster plans. Prior to commencing operations, size-up is crucial in evaluating hazards, tactics, and available resources. These incidents also create the need for expansion of the ICS to include a Medical Sector to decide where to set-up both triage and treatment areas.*



### **Plane Crashes And Burns**

At least 5 people were killed recently when a twin-engine "Beechcraft King Air" plane crashed and burned as it was taking off from Long Beach airport for a trip to Salt Lake City.

#### **Points to Consider:**

*Consider it is important to understand that although airline accidents are at one of their lowest levels ever, accidents do happen and can have a profound effect on first responders operation. Recognize that this incident highlights the potential for mass casualty incident. Prior to commencing operations, size-up is crucial in evaluating hazards, tactics, and available resources. Furthermore, consider that emergencies involving aircraft require specialized procedures,*

*which necessitates responders to undergo specific training and certification to prepare for all types of aviation-related incidents.*



### **Colorado Wild Fires**

Recently strong 40 mph winds fanned the flames of a wildfire, which quickly spread the blaze, scorching more than 850 acres of drought-stricken brush, trees and grasses in Colorado's Jefferson County.

#### **Points to Consider:**

Wildland fires burn average of 5 million acres every year in the United States, causing millions of dollars in damage. Once a fire begins, it can spread at a rate of up to 14.29 miles per hour, consuming everything in its path. Experts say there are several factors that determine how the fire spreads. These three factors include fuel, weather and topography. Fighting wild-land fires requires different techniques, equipment, and training from the structure fires. These wildfire-trained firefighters suppress flames, construct "fire lines", and extinguish flames and areas of heat to protect resources and natural wilderness.



### **Chemical Plant Fire**

Residents within a mile of Kentucky's Rubbertown neighborhood's Carbide Industries chemical plant were advised to stay inside recently while firefighters dealt with a fire within the plant.

#### **Points to Consider:**

*At least one worker was killed in an explosion that triggered the blaze at the plant, which is a major producer of calcium carbide products. Consider that calcium Carbide (UN 1402) is described as a grey to black solid with a garlic-like odor. Considered stable, but reacts violently with water to produce acetylene, which is a considerable fire and explosion hazard. In addition Calcium carbide can produce burns in contact with the skin, and is harmful if swallowed or inhaled. For general operating procedures refer to the Emergency Response Guidebook, guide # 138.*

### **Hazmat Crews Called For Cyanide Scare**

Hazardous materials crews were called to Calgary, Canada's Peter Lougheed Centre recently after a man looking dispose of the toxic substance brought in a container of cyanide.

#### **Points to Consider:**

*A second alarm was initially transmitted but later downgraded when the officials verified that the man had no malicious intent and only wanted to dispose of the cyanide and assumed the hospital would get rid of it for him. Consider that cyanide and its compounds are commonly found in the industry. It is known to be toxic to the extent that they release the cyanide ion. Acute exposure can cause death by asphyxia, as the result of exposure to lethal concentrations.*

### **I-71 Closed Due To Hazmat Blaze**

Hazmat crews were called to respond to the scene near Pendleton, Kentucky recently after a tractor-trailer containing nearly 43,000 pounds of zinc aluminum copper alloy caught fire on I-71 forcing fire crews to battle the blaze using non-traditional methods.

#### **Points to Consider:**

*Fire crews could not use water to fight the fire because of a possible chemical reaction. Consider that zinc aluminum copper alloy (UN 3089) is considered a flammable solid that is highly flammable and reactive in presence of moisture. For general operating procedures refer to the Emergency Response Guidebook, guide # 170.*

### **Toxic Spill Warning Issued**

Fire officials recently issued a shelter in place order for near San Jose California's Santa Teresa Water Treatment Plant after an aqueous ammonia leak was detected from a 5,000-gallon tank at the Plant.

#### **Points to Consider:**



Aqueous ammonia AKA Anhydrous ammonia, Aqua ammonia (UN 1005) is a colorless gas (shipped as a liquefied compressed gas) with a pungent, suffocating odor. It is incompatible or reactive with strong oxidizers, acids, halogens, salts of silver & zinc, and is corrosive to copper & galvanized surfaces. For general operating procedures refer to the Emergency Response Guidebook, guide # 125 or 10-35% solution guide # 154.

### Potentially Explosive Situation

The Essex Junction Fire Department recently issued an alert to residents in a suburban Vermont neighborhood after jars of potentially explosive chemicals were found in a garage of a deceased research chemist.

#### Points to Consider:

Among many unknown chemicals, at least two jars of crystallized picric acid, and one container of dinitrophenol were found. Consider that dinitrophenol (UN 1320) is a flammable, poisonous solid with a sweet, musty odor and a bitter taste. Explosion can be caused by heat, friction or shock; dinitrophenol forms explosive salts with alkali or ammonia. It is used in scientific research and in manufacturing various chemicals, explosives and pesticides. For general operating procedures refer to that Emergency Response Guidebook, guide # 113. Additionally, picric acid can be a useful laboratory reagent; however, dry picric acid is a shock-sensitive explosive capable of releasing energy on a level similar to dynamite. In a confined area such, the force of a picric acid explosion could be devastating; due to its unstable nature, dry picric acid is forbidden from being transported in the U.S. For general operating procedures refer to the Emergency Response Guidebook, guide # 113.

### Spill Forces Evacuation

Temple Fire and Rescue Hazmat crews were called to Akzomobile in Temple, TX after xylene spilled from a 700-gallon tank.

#### Points to Consider:

Xylene (UN 1307) is a clear, colorless sweet-smelling flammable liquid, widely used in many products such as paints, glues, and pesticides. It is insoluble in water, highly flammable in presence of open flames and sparks, or heat. Contact of with strong oxidizers may cause fires and explosions. For general operating procedures refer to the Emergency Response Guidebook, guide # 130.

### Chemical Reaction At Waste Transfer Station

The Newnan Fire Department was called to Georgia's CLM waste transfer station recently on reports of a white vapor coming from the building.

#### Points to Consider:

The fire crews made an assessment of the scene and found that calcium-hypochloride; chlorine tablets, fertilizer bags and lime were present in the debris causing a chemical reaction. A professional hazardous materials company was called to provide initial cleanup of the site and eliminate the danger of fire or further chemical reactions.

### Major Highway Closed Due To Chemical Spill

Australia's Fire and Emergency Services Authority established an exclusion area; warning residents of two

of Perth's eastern suburbs to stay away from Tonkin Highway after 50 drums of herbicide fell from the truck and spilled on to the road.

**Points to Consider:**

*Consider that these chemicals are unique among toxic substances. They are not a byproduct of another process, but are instead industrial chemicals produced specifically for their toxicity to a. They can pose serious health risks to workers, first responders, and the public if there is an accidental spill or release. For general operating procedures, refer to the Emergency Response Guidebook, guide # 151.*



## Chemical Reaction Fumes Result In School Evacuation

Fumes overcame a Paul Revere intermediate school janitor recently when he accidentally mixed bleach with drain cleaner resulting in a chemical reaction causing officials to evacuate the Blue Island, Ill school.



**Points to Consider:**

*Consider that chemicals are frequently used in our daily life and at work. Quite a number of these chemicals are dangerous substances, and some are hazardous when heated or mixed with other chemicals. The mixing two or more substances can result to one of several types of reactions, all of which have one common feature and that is the production of new substances or new mixtures. Be aware that many household products do not state that they contain bleach on the label. Sodium hypochlorite is the active ingredient in chlorine bleach. Sodium hypochlorite reacts with ammonia, drain cleaners, and other acids to rapidly producing a very toxic chlorine gas.*

## US-278 Closed After Chemical Spills

The Hardeeville Fire Department and Bluffton Hazardous Materials Team were called to U.S. 278 near the Hilton Head SC after bottles of muriatic acid fell from a vehicle onto the road.



**Points to Consider:**

*Muriatic Acid (UN 1789) is the same chemical as Hydrochloric Acid, and is one of the most corrosive of acids. Uses include cleaning brick, etching concrete, cleaning metal and for swimming pool maintenance. Contact with metals produces hydrogen gas, which can form flammable or explosive mixtures in air. Will generate heat when mixed with alkalis. Reacts with sulphides, phosphides, cyanides, acetylides, fluorides, silicides, and carbides, and releases flammable and/or poisonous gasses. For general operating procedures refer to the Emergency Response Guidebook, guide # 157.*

## Chemical Spill Triggers Explosions

Six people were injured and 11 cars incinerated by a fire, which resulted when a tanker carrying carbonic acid gas on Colombia's La Linea highway, suffered mechanical problems, and overturned, dumping its cargo, which triggered the blast and ensuing blaze.

**Points to Consider:**

*Carbon dioxide (UN 1013 or 2187) AKA Carbonic acid gas is a nonflammable gas with a wide range of commercial uses. At room temperature, carbon dioxide takes the form of an odorless, colorless gas, which is incombustible in normal conditions. Carbon dioxide vapor is heavier than air and will accumulate in low areas. Various metals, such as magnesium, zirconium, titanium, aluminum, chromium & manganese are ignitable and explosive when suspended in carbon dioxide. For general operating procedures refer the Emergency Response Guidebook, guide # 120.*

## Chemical Spill On I-44

A portion of Interstate 44 near St. Clair, Missouri was shut after hydrofluoric acid and ammonia was found

leaking from a semi truck trailer at the rest area.

**Points to Consider:**

*Consider that ammonia (UN2672) is corrosive to the skin, eyes, and lungs. Exposure to 300 ppm is immediately dangerous to life and health. Ammonia is also flammable at concentrations of approximately 15% to 28% by volume in air. When mixed with lubricating oils, its flammable concentration range is increased. It can explode if released in an enclosed space with a source of ignition present, or if a vessel containing anhydrous ammonia is exposed to fire. Fortunately, ammonia has a low odor threshold (20 ppm), so most people will seek relief at much lower concentrations. For general operating procedures depending on the concentration, refer to the Emergency Response Guidebook, guide #125 or #154. Additionally, hydrofluoric acid (Hydrogen fluoride) UN: 1790 is a corrosive, poisonous liquid. It contains fluorine and has an acrid (Strong.) odor. It can exist as a colorless gas; a fuming liquid, or it can be dissolved in water. For general operating procedures refer to the Emergency Response Guidebook, guide # 157.*

**School Closed When Mercury Spill Found**

School administrators quickly closed Idaho's Mountain Home High School prior to the start of classes recently to keep students from risking exposure when a small mercury spill was discovered.



**Points to Consider:**

*Mercury (UN 2809) is a heavy silvery-white metal that is liquid at room temperatures. It is commonly used in thermometers, manometers, barometers, and it is present in nearly every chemistry and physics lab. It may be absorbed through intact skin, consider stable under normal temperatures and pressures, but is reactive with oxidizing agents, and metals. For general operating procedures refer to the Emergency Response Guidebook, guide # 172.*

## RESOURCE PAGE

The jihadist terrorists aim for an enlargement of their supportive patronage. Therefore, the persuasion of the receptive Muslim audience via the heightening of an Islamic identity in confrontation with the West is one of their goals. To achieve these goals terrorists increasingly are using the Internet as a means of communication both with each other and the rest of the world, along with serving as virtual training grounds. Nearly everyone has seen at least some images from propaganda videos published on terrorist sites and rebroadcast on the world's news networks.

Analysts do see a clear proliferation trend, according to Haifa University's Gabriel Weimann, the number of terrorist sites increased exponentially over the last decade, from less than 100 to more than 4,800 two years ago. Terrorist sites include the official sites of designated terrorist organizations, as well as the sites of supporters, sympathizers, and fans, says Weimann.

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**From:** [Homeland Security NewsWire](#)  
**To:** [Leeds, Eric](#)  
**Subject:** HSNW interview: Mandate E-Verify for all employers  
**Date:** Wednesday, March 23, 2011 1:32:00 PM

---

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## Homeland Security News Wire



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Vol. 5, Wednesday, 23 March 2011

### Dealing effectively with illegal immigration

#### Conversation with HSNW

##### Mark Krikorian, executive director of the Center for Immigration Studies

Mark Krikorian, the executive director of the Center for Immigration Studies, was interviewed by Homeland Security NewsWire's executive editor, Eugene Chow; Krikorian discusses the Obama administration's immigration strategy, why mass migration is an outdated phenomenon, and what the government can do to enforce immigration laws effectively; "make E-Verify mandatory," he says

[Read more](#)



### Related stories

#### E-Verify Self Check launched

DHS and U.S. Citizenship and Immigration Services (USCIS) announced the launch of E-Verify Self Check -- a service that allows individuals in the United States to check their own employment eligibility status before formally seeking employment

[Read more](#)



#### Agriculture industry concerned over expansion of E-Verify

As Congressional lawmakers look to expand the E-Verify program to crack down on undocumented workers, businesses have become increasingly uneasy with the proposal; Arizona, Utah, and Mississippi have required all employers to use the system, and House GOP leaders are following their lead and pushing to make the system compulsory for all businesses across the United States; critics fear that making the program mandatory could destabilize critical sectors of the economy; the agriculture industry is particularly concerned as they depend heavily on undocumented workers for labor and worry that mandating the system could potentially jeopardize millions of jobs in the industry; proponents of expanding E-Verify believe that it is a better alternative to the existing I-9 screening process which has been easily circumvented with forged documents

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#### Group calls for biometric component to E-Verify program

The Security Industry Association (SIA) has called for the incorporation of biometrics into the E-Verify program to prevent fraud and increase accuracy; a recent Government Accountability Office (GAO) report found that the E-Verify system was vulnerable to fraud and identity theft; a recent audit of Chipotle by ICE agents revealed that many employees are using forged documents to work in the United States; SIA recommends using biometrics to bind an individual to their identity documents, requiring biometric authentication of individuals when they apply for employments, and distributing smart cards to individuals that contain their biometric data; in 2009 nearly 8.2 million new employees were identified using the E-Verify system and this number is set to steadily grow as more states mandate employers to use the program for new hires; roughly 1,400 employers are joining the system each week

[Read more](#)

#### More states weighing in on immigration debate

More states are pushing for stricter immigration enforcement laws as frustration across the country grows; Indiana, Maine, South Dakota, Colorado, and Texas are joining the ranks of states like Kentucky and Nebraska that have introduced tough Arizona-style immigration laws; at the core of the debate is the controversial provision that requires police to stop and check an individual's papers to verify if they have entered the country illegally; this provision in the Arizona law has already been ruled unconstitutional by a federal judge; last week Wyoming legislator rejected the introduction of such a bill

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AG1833

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**From:** Ragan Communications  
**To:** Leeds, Eric  
**Subject:** Manage change with more power: 25 tips  
**Date:** Wednesday, March 23, 2011 1:32:52 PM



## 25 tips to lead your team through change

Wednesday, April 6, 2011 • 2:00 - 3:15 p.m. Central Standard Time

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This message was sent to [ejl@nrc.gov](mailto:ejl@nrc.gov)  
pmguid:..

**From:** Case, Michael  
**Sent:** Tuesday, March 22, 2011 1:35 PM  
**To:** Karagiannis, Harriet  
**Cc:** Boyce, Tom (RES); Richards, Stuart  
**Subject:** Status Items

Hi Harriet. What's the latest status on the ACRS response for the welding RGs and the latest on the RG paper. I'm a little worried that it will take the front office a bit longer to review since they are in and out on Ops Center duty.

Can you zap me an electronic copy of the RG paper and I'll get Brian to read ahead.

AG/835

**Kauffman, John**

---

**From:** Hiland, Patrick  
**Sent:** Wednesday, March 23, 2011 1:41 PM  
**To:** Kauffman, John  
**Subject:** FW: ACTION: Talking points on GI-199

Can you send me current talking points.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 1:38 PM  
**To:** Hiland, Patrick; Skeen, David  
**Cc:** Khanna, Meena; Burnell, Scott; Hayden, Elizabeth; Grobe, Jack  
**Subject:** ACTION: Talking points on GI-199

DE –

Please provide OPA with talking points on GI-199. Scott Burnell is their POC. They need high level info – the schedule for review, upcoming public meetings, why it's ok to wait, what we'll do with the info once we get it, etc. I don't think we need hard-core technical bullets on response spectra, etc, but we do need to be able to tell the public WHY things are ok right now (not just repeat reactors are safe right now), and what we'll do going forward.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

AG/836

**From:** Cohen, Miriam  
**To:** Leeds, Eric; Johnson, Michael  
**Subject:** Process for selecting acting deputy office directors  
**Date:** Wednesday, March 23, 2011 1:42:31 PM

---

Hello there. Just wanted to know if you need any support from OHR as you select your acting deputies? I assume you have the latest succession planning lists. If not, let us know.

Thanks.

Miriam

AG/837

**From:** Peg Hosky  
**To:** Leeds, Eric  
**Subject:** FedInsider Issue #77 - Spring Brings Progress in Procurement, Cyber  
**Date:** Wednesday, March 23, 2011 1:43:26 PM

---

FedInsider.com  
March 15, 2011

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Welcome to this issue of FedInsider.com;  
Viewpoints on Government Management.

Story #1

#### DHS PROCUREMENT CHIEF SEEKS CONTINUOUS IMPROVEMENT

Nick Nayak, the recently named chief procurement officer at the Homeland Security Department, brings a lot of knowledge to the tough job of running the DHS procurement shop. His two decades of experience at the IRS have prepared him for managing the billions of dollars DHS spends on procurement each year. FedInsider talked to Nayak about the quality initiatives he is working on to improve the DHS procurement process. Learn more about the areas of improvement that form Nayak's approach to quality improvement.

-> Read More

<http://www.fedinsider.com/2011/03/22/110322-1/>

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Story #2

#### PROGRESS TAKES PLACE ON THE PROCUREMENT FRONT

Some equilibrium seems to be occurring in federal contracting. What is the reason for the progress? Dan Gordon, the administrator of the Office of Federal Procurement Policy, is behind much of the headway that is being made on the federal procurement front. Learn about his policies and management style that are empowering contracting officers to get the best deals for the government.

AG/838

-> Read More

<http://www.fedinsider.com/2011/03/22/110322-2/>

Story #3

#### SITE OF THE MONTH: USDA'S PEOPLE'S GARDENS

The USDA's recently launched "People's Gardens" website is one of the more innovative federal sites, not so much for the web technology, but for the subject matter and the way it weaves the federal government into local living. The People's Garden Initiative itself is mainly an effort to encourage USDA's own employees to create gardens at the department's hundreds of facilities nationwide. But it has grown to include information to support anyone's community gardens. Find out more about the USDA's People's Garden Initiative and the trends this website represents.

-> Read More

<http://www.fedinsider.com/2011/03/22/110322-3/>

Story #4

#### CYBER REPORT IS BOTH REVEALING AND PUZZLING

Last week's annual report on Federal Information Security Management Act (FISMA) compliance should give readers an idea of how agencies are doing with complying with FISMA requirements. So how are they doing? Read on to find out what was revealed in the report, and why sections of the report leaves readers puzzled.

-> Read More

<http://www.fedinsider.com/2011/03/22/110322-4/>

=====

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6891

**From:** [EUCI Events](#)  
**To:** [Leeds, Eric](#)  
**Subject:** Nuclear Courses: Nuclear Fundamentals and NRC 101 in August  
**Date:** Wednesday, March 23, 2011 1:43:37 PM

<div>  </div> <div> <b>Nuclear Power Plant Fundamentals</b>   <b>August 9-10, 2011 :: Chicago, IL</b> </div>	<b>Nuclear Power Regulation Basics (NRC 101)</b>  <b>August 10-11, 2011 :: Chicago, IL</b>
Overviews	
<p>This course will review the status of nuclear power in the U.S., and the world, as well as the events and forces that have influenced and continue to influence the nuclear power industry, with a focus on understanding how we got to where we are today. Understanding the technology and operations of a nuclear facility can assist employees and service providers, such as vendors, attorneys, and contractors, in comprehending the nuclear energy system.</p> <p><a href="#">PDF Brochure</a>   <a href="#">Pricing and Registration</a></p>	<p>The course will cover the history and background necessary to understand the regulatory process. It will bring attendees up to date on the latest regulatory changes that have transformed the way commercial nuclear reactors are licensed for construction at approved siting and regulated during construction and operation. The course also will cover NRC regulatory requirements and guidance documents, and it will examine NRC's role in the nuclear fuel cycle from enrichment and fabrication to waste disposal.</p> <p><a href="#">PDF Brochure</a>   <a href="#">Pricing and Registration</a></p>
Testimonials from Past Attendees	
<p>"The Nuclear Power Fundamentals course solidified my knowledge of the nuclear power plant and the nuclear power industry. Everybody in the nuclear business should attend this course."  <i>- Engineering configuration control manager, Mitsubishi Nuclear Energy Systems</i></p> <p>"This course has definitely been an eye-opener on the nuclear industry. I would recommend it to anyone engaged with nuclear work."  <i>- Senior project engineer, Weir Group</i></p> <p>"Extensive information and comprehensive summary of basic knowledge of the nuclear power industry."  <i>- International product manager, HALFEN GmbH</i></p> <p>"Loved it, succinct, to the point, engaging!"  <i>- Project manager, U.S. NRC</i></p> <p>"As a non-technical person in the nuclear industry, with less than one year at my current position, I found the speaker and material to be very effective and informative. I walked away with relevant knowledge I did not have before attending the course."  <i>- Administrator, INPO</i></p>	<p>"Whether you are new to this industry or a veteran, this course will prove enlightening to all who attend."  <i>- Financial analyst, US NRC</i></p> <p>"This course is a must for anyone who is new to the nuclear industry. Highly informative and provides an excellent tool for engineers to executive management."  <i>- Practice manager, Burns and McDonnell Engineering</i></p> <p>"I am a 27-year veteran of commercial nuclear and a former licensed nuclear operator, and I still learned things I didn't know about the NRC. It was well worth the price."  <i>- Director of nuclear oversight, Exelon</i></p> <p>"Great overview on nuclear regulations. I highly recommend attendance."  <i>- Chief information officer, JEA</i></p>
Topics Include	
<ul style="list-style-type: none"> <li>• The History of Nuclear Power and its Development</li> <li>• The Global Nuclear Energy Partnership (GNEP)</li> <li>• Designs and Functions of PWRs and BWRs</li> </ul>	<ul style="list-style-type: none"> <li>• History of Nuclear Regulation 1946-Present</li> <li>• How NRC Imposes Formal Regulatory Requirements, Informal Expectations, and Commitments</li> </ul>

AG/839



- Generation III and IV Reactor Designs
- Nuclear Power and the Environment
- Nuclear Safety
- The Nuclear Fuel Cycle and Some Nuclear Physics
- The Future for Nuclear Power

[Full Agenda](#)

- Reactor Licensing Processes: Existing Plants
- How NRC Evaluates Licensee Performance
- New Nuclear Plant Licensing
- Overview of the Materials License Program
- The Hearing Process
- NRC Enforcement
- The NRC's Allegation and Investigatory Processes
- Nuclear Waste and Related Fuel Cycle Issues

[Full Agenda](#)

#### Instructed By

**Howard L. Sobel, Principal, H.L. Sobel, P.E.**

[Instructor Bio](#)

**Alex Polonksy, Partner, Energy Practice, Morgan Lewis & Bockius LLP**

**Lawrence J. Chandler, Senior Counsel, Energy Practice, Morgan Lewis & Bockius LLP**

[Instructor Bios](#)

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## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 1:45 PM  
**To:** Hiland, Patrick  
**Cc:** Coe, Doug; Kauffman, John; Manoly, Kamal  
**Subject:** RE: ACTION: Talking points on GI-199

Pat,

A week ago we had drafted a few tweaks to the Comm Plan and sent them to Kamal. They did not cover as much ground as Eric outlines below, but were an immediate reaction to the earthquake. Kamal had incorporated the tweaks in the ADAMS version so you should be able to see them.

Let us know how we may help.

Ben

---

**From:** Hiland, Patrick  
**Sent:** Wednesday, March 23, 2011 1:39 PM  
**To:** Leeds, Eric  
**Cc:** Khanna, Meena; Burnell, Scott; Hayden, Elizabeth; Grobe, Jack; Skeen, David; Coe, Doug; Beasley, Benjamin  
**Subject:** RE: ACTION: Talking points on GI-199

We have a communication plan; I'll retrieve and make sure up to date.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 1:38 PM  
**To:** Hiland, Patrick; Skeen, David  
**Cc:** Khanna, Meena; Burnell, Scott; Hayden, Elizabeth; Grobe, Jack  
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Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

AG/840

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 1:51 PM  
**To:** Kauffman, John  
**Cc:** Killian, Lauren  
**Subject:** FW: ACTION: Talking points on GI-199

John,

I just talked to Doug. Please pull out the questions that address the items in Eric's outline below. We should summarize / condense them into briefer talking points. The items that do not have answers we will let NRR take the lead on.

Lauren, keep plugging on the GIMCS and semi-annual input. If we need a hand we will check with you about availability.

Ben

---

**From:** Coe, Doug  
**Sent:** Wednesday, March 23, 2011 1:45 PM  
**To:** Beasley, Benjamin; Kauffman, John; Killian, Lauren  
**Cc:** Burnell, Scott; Hayden, Elizabeth; Skeen, David; Hiland, Patrick  
**Subject:** RE: ACTION: Talking points on GI-199

Ben/John/Lauren,

Can we help out OPA by extracting bullets per Eric Leed's request? Just pull directly from the Comm plan but put into a brief but logical flow of bullets.

---

**From:** Hiland, Patrick  
**Sent:** Wednesday, March 23, 2011 1:39 PM  
**To:** Leeds, Eric  
**Cc:** Khanna, Meena; Burnell, Scott; Hayden, Elizabeth; Grobe, Jack; Skeen, David; Coe, Doug; Beasley, Benjamin  
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**Cc:** Khanna, Meena; Burnell, Scott; Hayden, Elizabeth; Grobe, Jack  
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Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission

301-415-1270

**From:** Richards, Stuart  
**To:** Camper, Larry  
**Cc:** Deegan, George; RST01 Hoc; Bowman, Gregory; Hickman, John; Lee, Richard; Rini, Brett; Case, Michael  
**Subject:** RE: Decommissioning Type Information  
**Date:** Wednesday, March 23, 2011 1:51:30 PM

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Larry

RES might be able to help you with Question #8. Richard Lee in DSA is our POC on this one.

We can provide you some thoughts on enclosures, but I agree that a good answer will take a lot of time and a lot more information on the status of the units.

Stu

---

**From:** Camper, Larry  
**Sent:** Wednesday, March 23, 2011 12:49 PM  
**To:** Dorman, Dan  
**Cc:** Deegan, George; RST01 Hoc; Bowman, Gregory; Hickman, John  
**Subject:** Decommissioning Type Information

Dan,

Greetings! Trust you are holding up well over there! Regarding your message of earlier today, we will be able to provide feedback on Question number 6 today by the 18:00 timeframe. Questions 6,8 and 9 will require a bit of review and interface with RES but we will start that process today. Standby for a better timeline on those. The staff did some work on the entombment issue via a couple of SECY's but the approach died out because it became clear that industry was not going to utilize it in the US. Of course, the situation in Japan is quite different etc. Regardless, our earlier work should be of some benefit but we just have to resurrect it and review etc. In thinking ahead just a bit, I suspect that we will need to put together some sort of Task Force or think tank type group to analyze possible paths forward for the overall decommissioning of the site and for the related waste management etc. Of course, we have some time to think about this issue but not too long etc.

AG / 842

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 1:53 PM  
**To:** Kauffman, John  
**Subject:** FW: Need talking points on GSI-199

More insight on what is needed...

---

**From:** Hayden, Elizabeth  
**Sent:** Wednesday, March 23, 2011 1:51 PM  
**To:** Anderson, Brian  
**Cc:** Burnell, Scott; Sheehan, Neil; Screnci, Diane; Leeds, Eric; Beasley, Benjamin  
**Subject:** FW: Need talking points on GSI-199

Brian,

Scott's plate is overflowing, so could you please take on this task (see below) that explains what the agency has done and is planning to do with respect to GSI-199 (including GL, planned inspections, analysis) with an approximate timeline? NRR contacts would be Pat Hiland and David Skein and in RES it would be Annie Kammerer. FYI—we put out a press release Sept. 8 about the seismic research. There was also a communication plan developed with a list of 27 plants (which may now be expanded). If you could pull a very rough set of bullets together by COB today or early tomorrow morning, that would help immensely.

Also, check the NRR Sharepoint site and Bob Nelson, NRR, about communications regarding the Temporary Instruction that Eric Leeds said will go out today—we need to find out more on what that is about.

Thanks,

*Beth Hayden*  
*Office of Public Affairs*  
*U.S. Nuclear Regulatory Commission*  
*— Protecting People and the Environment*  
301-415-8202  
[elizabeth.hayden@nrc.gov](mailto:elizabeth.hayden@nrc.gov)

---

**From:** Hayden, Elizabeth  
**Sent:** Wednesday, March 23, 2011 12:30 PM  
**To:** Burnell, Scott  
**Cc:** Screnci, Diane; Sheehan, Neil  
**Subject:** Need talking points on GSI-199

Scott, Neil

I need you to draft some talking points on GSI-199 that summarizes briefly what has happened between the USGS data in 2008 to what we did with that information and what we are doing now and plan to do in the future (GL, analysis, inspections per what timeline?) We also need to clarify what the list of 27 plants means, whether it has expanded to include all plants, etc.

A specific question from Hannah Northey, Greenwire, is when did NRC start looking at plants with regard to the 2008 data from USGS? Please call her at 202-446-0468 to clarify specifics on GSI-199.

*Beth Hayden*  
*Senior Advisor*

AG/843

*Office of Public Affairs*  
*U.S. Nuclear Regulatory Commission*  
*— Protecting People and the Environment*  
301-415-8202  
[elizabeth.hayden@nrc.gov](mailto:elizabeth.hayden@nrc.gov)

## **Beasley, Benjamin**

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 1:57 PM  
**To:** Hayden, Elizabeth; Anderson, Brian  
**Cc:** Burnell, Scott  
**Subject:** RE: Need talking points on GSI-199

Beth and Brian,

Annie Kammerer is not the best resource for GI-199. She is able to speak to it from a general seismology perspective, but Dr. Jon Ake was the seismologist supporting the GI-199 Safety / Risk Assessment.

You are also welcome to contact John Kauffman who was the GI-199 project manager for the safety / risk assessment. He can coordinate with Dr. Ake and Marty Stutzke, who wrote the safety / risk assessment report.

Ben Beasley

---

**From:** Hayden, Elizabeth  
**Sent:** Wednesday, March 23, 2011 1:51 PM  
**To:** Anderson, Brian  
**Cc:** Burnell, Scott; Sheehan, Neil; Screnci, Diane; Leeds, Eric; Beasley, Benjamin  
**Subject:** FW: Need talking points on GSI-199

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*Beth Hayden*  
*Office of Public Affairs*  
*U.S. Nuclear Regulatory Commission*  
*— Protecting People and the Environment*  
301-415-8202  
[elizabeth.hayden@nrc.gov](mailto:elizabeth.hayden@nrc.gov)

---

**From:** Hayden, Elizabeth  
**Sent:** Wednesday, March 23, 2011 12:30 PM  
**To:** Burnell, Scott  
**Cc:** Screnci, Diane; Sheehan, Neil  
**Subject:** Need talking points on GSI-199

Scott, Neil

AG/849



I need you to draft some talking points on GSI-199 that summarizes briefly what has happened between the USGS data in 2008 to what we did with that information and what we are doing now and plan to do in the future (GL, analysis, inspections per what timeline?) We also need to clarify what the list of 27 plants means, whether it has expanded to include all plants, etc.

A specific question from Hannah Northey, Greenwire, is when did NRC start looking at plants with regard to the 2008 data from USGS? Please call her at 202-446-0468 to clarify specifics on GSI-199.

*Beth Hayden*  
*Senior Advisor*  
*Office of Public Affairs*  
*U.S. Nuclear Regulatory Commission*  
*--- Protecting People and the Environment*  
*301-415-8202*  
*elizabeth.hayden@nrc.gov*

**From:** [NRC Announcement](#)  
**To:** [NRC Announcement](#)  
**Subject:** General Interest: Latest NRC Reporter Now On Line  
**Date:** Wednesday, March 23, 2011 1:58:18 PM

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NRC Daily Announcements



Highlighted Information and Messages



**Wednesday March 23, 2011 -- Headquarters Edition**

**General Interest: Latest NRC Reporter Now On Line**

### **General Interest: Latest NRC Reporter Now On Line**

The latest edition of the [NRC Reporter](#) is now on line, with links and photos related to Monday's Commission meeting, an announcement of the winners of NRC's special Science Fair competition, and much, much more.

The Reporter is published weekly, on Wednesdays, for the benefit of NRC employees. To help make it a better publication, be sure to send your news, calendar entries, and other material to [Glenn Ellmers](#).



(2011-03-23 00:00:00.0)

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**[Frequently Asked Questions About the NRC Daily Announcements Email](#)**

AG/845

**From:** Leeds, Eric  
**To:** McNamara, Nancy  
**Subject:** RE: FYI - More NY State involvement  
**Date:** Wednesday, March 23, 2011 2:01:00 PM

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Thanks Nancy – you just put a big smile on my face – and I need that these days. Hope you're well!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** McNamara, Nancy  
**Sent:** Wednesday, March 23, 2011 12:29 PM  
**To:** Leeds, Eric  
**Subject:** FW: FYI - More NY State involvement

Hey Eric...And you thought those women in NH and MA were bad!!! Miss those days?  
When we were riding the VY/VT wave I took comfort in THIS TOO SHALL PASS.

Hang in there.  
Nancy

---

**From:** Lew, David  
**Sent:** Wednesday, March 23, 2011 12:09 PM  
**To:** Leeds, Eric  
**Cc:** Dean, Bill; McNamara, Nancy; Tifft, Doug; Screnci, Diane; Sheehan, Neil  
**Subject:** FW: FYI - More NY State involvement

Thanks Eric.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 12:08 PM  
**To:** Dean, Bill; Lew, David  
**Cc:** Roberts, Darrell; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Borchardt, Bill; Brenner, Eliot; Hayden, Elizabeth; Powell, Amy; Schmidt, Rebecca; Wittick, Brian  
**Subject:** FYI - More NY State involvement

FYI – We've heard that NY City – Mayor Bloomberg or his staff – is interested in meeting with the NRC to express a different point of view than we received from the NY State group that we met with yesterday. That meeting is not yet set up. In addition, I have a teleconference with Congresswoman Nan Hayworth – she took over the IP district that had been held by John Hall – tomorrow at 11 am.

I'll keep you informed.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission

AG 1846

301-415-1270

**From:** Leeds, Eric  
**To:** Dean, Bill  
**Subject:** RE: FYI - More NY State involvement  
**Date:** Wednesday, March 23, 2011 2:09:00 PM

---

Much obliged – thanks!!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Dean, Bill  
**Sent:** Wednesday, March 23, 2011 2:07 PM  
**To:** Leeds, Eric  
**Subject:** Re: FYI - More NY State involvement

Haven't gotten intel but let me see if nancy or doug can help.  
Bill Dean  
Regional Administrator  
Region I, USNRC  
Sent from NRC BlackBerry

---

**From:** Leeds, Eric  
**To:** Dean, Bill  
**Sent:** Wed Mar 23 14:00:57 2011  
**Subject:** RE: FYI - More NY State involvement

Can only speculate – I heard that Bloomberg is in favor of IP continuing to operate and disagrees with Gov. Cuomo. I don't know what they want or will tell us. If you have any intelligence on the issue, I'm all ears.

What do you know about Congresswoman Dr. Hayworth? She's a republican, but I don't know where she stands on IP. I brief her tomorrow.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

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**From:** Dean, Bill  
**Sent:** Wednesday, March 23, 2011 1:43 PM  
**To:** Leeds, Eric  
**Subject:** Re: FYI - More NY State involvement

Interesting. What would you interpret different point of view as????  
Bill Dean  
Regional Administrator  
Region I, USNRC  
Sent from NRC BlackBerry

AG / 847

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**From:** Leeds, Eric

**To:** Dean, Bill; Lew, David

**Cc:** Roberts, Darrell; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Borchardt, Bill; Brenner, Eliot; Hayden, Elizabeth; Powell, Amy; Schmidt, Rebecca; Wittick, Brian

**Sent:** Wed Mar 23 12:07:30 2011

**Subject:** FYI - More NY State involvement

FYI – We’ve heard that NY City – Mayor Bloomberg or his staff – is interested in meeting with the NRC to express a different point of view than we received from the NY State group that we met with yesterday. That meeting is not yet set up. In addition, I have a teleconference with Congresswoman Nan Hayworth – she took over the IP district that had been held by John Hall – tomorrow at 11 am.

I’ll keep you informed.

Eric J. Leeds, Director

Office of Nuclear Reactor Regulation

U.S. Nuclear Regulatory Commission

301-415-1270

**From:** King, Mark  
**Subject:** IOEB Clearinghouse Screening Summary for Wednesday, March 23, 2011  
**Date:** Wednesday, March 23, 2011 2:10:29 PM

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**NOTE: THIS SUMMARY IS OFFICIAL USE ONLY**  
**\*\*\*MAY CONTAIN SENSITIVE/ PROPRIETARY OR NRC INTERNAL USE ONLY**  
**INFORMATION\*\*\***  
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**PERMISSION FROM ORIGINATOR**

**Issues for Resolution (IFR): None**

**OpE Forum Postings (COMMS): None**

**Management Requests: None**

**Follow-up/Other Tasks: Ten (10)**

*[Note - The information in this part of the Summary is often preliminary in nature and is provided to help IOEB staff communicate and track noteworthy items being followed up by either the Regions or HQ staff.]*

**1) EN 46689 - FORT CALHOUN - CONTAINMENT COOLERS DECLARED INOPERABLE**

See EN text: Forward to TRG Lead for Containment (Jerome Bettle), HVAC (Nageswara Karipineni), I&C (David Rahn) and Human Performance (Michael Boggi): assigned to Russ Haskell

**2) EN 46690 - FORT CALHOUN - POTENTIAL FLOODING OF RAW WATER PUMP**

See EN text: Forward to TRG Lead for Flood Protection/Missiles (Ed Smith), Station Service Water/UHX (Gerard Purciarello): assigned to Russ Haskell

**3) HARRIS – SMALL FIRE WITH LIGHT SMOKE ON GENERATOR RELAY LOCKOUT AUX RELAY**

On 3/22/11 (@ 1133) in the Main Control room, two separate and distinct flashes, popping noise and a blue flame (which lasted approximately 10 seconds) were observed in the Main Generator Protective relay panel, with light smoke briefly observed from Generator relay lockout aux relay G1B. The blue flame went out when the relay was apparently deenergized by the burned out coil. The fire brigade responded and the light smoke dissipated in less than a minute. No EAL entries were made. The relay is approximately 15 feet from the shift manager's desk in the control room. The residents immediately responded to the control room. The licensee's initial investigation indicated the generator trip functions remain available. Thermography was performed on the relay and surrounding area and the results indicated no temperature abnormalities. The licensee is reviewing their troubleshooting and repair options, and performing extent of condition checks. The residents are following this issue. Pass to the TRG Leads for Electrical Power Systems (Roy Mathew) and Fire Protection (Brian Metzger). Assigned to Bob Bernardo.

AG 1848

#### **4) EN 46562 - KEWAUNEE 1 - STEAM EXCLUSION DOOR DECLARED INOPERABLE - (RETRACTED)**

See EN text: Info Only

#### **5) OCONEE 1 - INCREASING COUNT TREND ON CCW RADIATION MONITOR DUE TO SUSPECTED LEAKAGE FROM A LETDOWN HEAT EXCHANGER (1/31) – UPDATE**

\*\*\*3/23/2011\*\*\* The licensee isolated the 1A letdown cooler yesterday (3/22). The current CC rad monitor reading for Unit 1 is 570,000 counts (down from 925,000 before the cooler was isolated). Current leak rate is 25 gpd (down from 150 gpd before isolation) based on U1 CC Surge tank level increase. The licensee continues to monitor surge tank level. They are not sure if this leakage is from the 1B cooler or from the isolation valves of the 1A cooler. The licensee has implemented the following actions until the outage on 4/1: With the 1A LD Cooler isolated, if leakage is indicated at a rate of 3 inches per hour (576 gpd) increase in the CC Surge Tank or rapid degradation is indicated, an evaluation will be made concerning placing the 1A Letdown Cooler back in service and isolating 1B Letdown Cooler. This is directed by OP/1/A/1104/008. Pass to the TRG Leads for Health Physics (Steve Garry) and Primary Materials/Piping (Keith Hoffman). Assigned to Bob Bernardo.

#### **6) PEACH BOTTOM 2 - HIGH PRESSURE COOLANT INJECTION DECLARED INOPERABLE**

Update \*\*\*3/23/2011\*\*\* The licensee discovered a leaking relief valve in the lube oil and gland seal condenser cooling supply from the HPCI Booster pump. The relief valve was replaced and the HCPI system successfully passed the fill and vent Surveillance Test, lined up to both the CST and Torus, and HPCI was declared operable on Friday, 3/18, at 17:45 (approximately 2 days into the 14-day unplanned LCO action statement). The licensee is conducting a past operability review to determine if the HPCI system was inoperable due to the apparent piping void created by the leaking relief valve (and potential reduced flow to the HPCI LO cooler and Gland seal condenser) and also to determine if they need to submit and LER or if they can retract the 50.72. Original EN 46677 reported on 3/17/2011. Pass to the TRG Lead for ECCS (Sam Miranda); Assigned to Bob Bernardo

#### **7) ROBINSON 2 – PZR LEVEL INDICATION SPIKE DURING RECORDER CONNECTION - HUMAN PERFORMANCE EVENT**

The licensee had a Human Performance event when two technicians were working in the back panel (Hagan Room) area of the Control Room . While connecting a recorder to various Hagan inputs, control room operators observed a momentary spike in the indicated pressurizer level. The plant received various annunciators that indicated an instrument failure of level transmitter LT-459. The licensee entered AOP-025 for RTGB Instrument Failure. Due to the low spike in LT-459, the "A" charging pump speed increased slightly to account for the indicated drop in Pressurizer Level. Pressurizer level increased 1-2% before the operators took manual control of charging pump speed and stabilized level. Other indications and plots indicated that LT-459, the controlling pressurizer level channel being worked on, had momentarily dropped to zero and immediately returned to normal. RCS Pressure remained stable throughout the event. LT-



459 was taken out of service while the licensee investigated the event. The licensee has since restored the channel to service following successful testing of the transmitter. The plant conditions remained stable and there was no change in plant risk. The residents are following up on the event. Pass to the TRG Lead for Human Performance (Mike Boggi). Assigned to Bob Bernardo.

#### **8) ST. LUCIE 2 – FAILURE OF EDG FAN RADIAL BEARING**

Early this morning 3/23 during Unit 2 'A' Train safeguards testing, the 2A1 EDG north end fan shaft radial bearing overheated and destroyed the bearing race assembly (See Picture in PITA). The engine was stopped and the safeguards testing aborted. The licensee is investigating the event. The 2B EDG remained operable and is the only train required by TS in Mode 5. Pass to the TRG Lead for EDGs (Bob Wolfgang). Assigned to Bob Bernardo.

#### **9) WATERFORD 3 - MEDIA REPORT ABOUT THE SITE**

– MSNBC TODAY show video tour of unit - Info Only

#### **10) EN 46685 - WOLF CREEK - SAFETY INJECTION (SI) DISCHARGE TO THE REACTOR**

\*\*\* 3/23/2011 \*\*\* UPDATE: Regions final MD 8.3 assessment of SI event concluded low risk. Region recommending Residents to proceed with Baseline Inspections. No additional inspection at this time.

Forward to update TRG Lead for Pump & Valve (Michael Farnan), ECCS (Samuel Miranda), Human Performance (Mike Boggi), Safety Culture (Eric Fries) and IOLB Branch Chief (Jack McHale); assigned to Russ Haskell

**New Reactors Items: None**

**Research (RES) Items: None**

#### **Items Screened Out\*: Four (4) - four (4) Event Notifications (ENs)**

- 1) EN 46689 - FORT CALHOUN - CONTAINMENT COOLERS DECLARED INOPERABLE
- 2) EN 46690 - FORT CALHOUN - POTENTIAL FLOODING OF RAW WATER PUMP
- 3) EN 46562 - KEWAUNEE 1 - STEAM EXCLUSION DOOR DECLARED INOPERABLE - (RETRACTED)
- 4) EN 46685 - WOLF CREEK - SAFETY INJECTION (SI) DISCHARGE TO THE REACTOR

*\*(i.e., Screened /reviewed against LIC-401 criteria for initiating an "Issue for Resolution" (IFR), which is IOEB's process for conducting further evaluation of an issue to determine what, if any, additional actions should be taken to communicate and organizationally learn*

from OpE.)

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~~INFORMATION\*\*\*~~

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PERMISSION FROM ORIGINATOR**

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Attendees at Screening Meeting:

Mark King  
Bob Bernardo  
Russ Haskell  
Jesse Robles  
Dave Garmon  
Mary Wegner – RES (by phone)  
May Cheng – NSIR  
Bruce Jones – NSIR  
Tom Alexion- PGCB  
Doug Copeland – NRO

**From:** Isakovic, Nadja  
**To:** Wucher, John  
**Cc:** Coe, Doug; Nelson-Wilson, Carlyleamaryllis; Frampton, Julie  
**Subject:** FW: Good news about Carly  
**Date:** Wednesday, March 23, 2011 2:12:20 PM  
**Importance:** High

---

John, please update move request for Carly for April 8<sup>th</sup>.

Thank you  
Nadja

---

**From:** Coe, Doug  
**Sent:** Wednesday, March 23, 2011 1:41 PM  
**To:** Ma, May; Isakovic, Nadja  
**Cc:** Correia, Richard  
**Subject:** RE: Good news about Carly

May – The April 8<sup>th</sup> date is hard. I can't go further than that.

Nadja – please arrange Carly's move back to her RES/DRA location on April 8<sup>th</sup>, so she can report for work at CSB on April 11<sup>th</sup>.

---

**From:** Ma, May  
**Sent:** Wednesday, March 23, 2011 1:32 PM  
**To:** Adkison, Carol; Clarkson, Sharon; Curran, Bridget; Harvey, Sue; Howard, Tabitha; Hutton, Carmean; Ma, May; Nelson-Wilson, Carlyleamaryllis  
**Cc:** Coe, Doug; Rheume, Cynthia; Abraham, Susan; Williams, Evelyn; Correia, Richard  
**Subject:** Good news about Carly

FYI: Cindy just told me that RES would let Carly to stay with us for two more weeks (till April 8<sup>th</sup>). Carly will keep supporting our ROMA implementation activities.

Rich/Doug--- Thanks much for your support!!\*

Sincerely,  
May

May Ma, Chief  
NSIR/PMDA/FMB  
301-415-7266

AG/849

**From:** [Hurd, Sapna](#)  
**To:** [RES\\_DE](#)  
**Subject:** Source Selection Justification  
**Date:** Wednesday, March 23, 2011 2:12:35 PM  
**Attachments:** [Independent Review of Source Selection Justifications.pptx](#)  
[Market Research Attachment.pdf](#)  
[Interim Guidance March 14 2011.pdf](#)

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All,

Please see attached email/attachments in regards to Source Selection Justification.

Thanks.

Sapna Hurd  
Management Analyst  
Division of Engineering  
Office of Nuclear Regulatory Research  
U.S. NRC  
Ph: 301-251-7687  
5C04

---

**From:** Colon, Heriberto  
**Sent:** Wednesday, March 23, 2011 1:49 PM  
**To:** Hurd, Sapna; Shaffer, Sarah; Bowlin, Elizabeth; Davis, Chon; Littlejohn, Jennene; Goldfeiz, Banu; Barnes, Robin; Walston, Chris  
**Cc:** Grancorvitz, Teresa; Bamford, Lisa; Schofer, Maria  
**Subject:** Interim Guidance For Placing and Monitoring of Work with DOE Labs

MA's,

As discussed in a recent meeting, attached is a copy of the memorandum signed by OEDO on March 14, 2011 and enclosure regarding the subject interim guidance, which includes changes to the review process of source selection justifications.

I've also attached a one page power point slide we shared with the BC's and TL's last week highlighting the requirements in the memo for independent review of SSJ's by the Division of Contracts.

If you have any questions, please contact me.

Thanks,

*Heriberto (Eddie) Colón, Jr.*

U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Financial and Performance Management Branch  
Procurement Oversight & Funds Control Team (POFCT)  
Acting Team Leader

AG 1850

301-251-3302

Email: [Heriberto.Colon@nrc.gov](mailto:Heriberto.Colon@nrc.gov)



Save a tree... please don't print this e-mail unless you really need to do so.

Attachment Independent Review of Source Selection Justif.pptx (74351 Bytes) cannot be converted to PDF format.

## **What is market research?**

Market research is the foundation for an effective acquisition. Market research is the process of collecting and analyzing information about capabilities within the marketplace to satisfy agency needs. For a specific acquisition, market research can help shape the Request for Proposal or Request for Quotation to ensure a more clear definition of requirements and scope. Market research can also help the project officer (PO) develop a sound Independent Government Cost Estimate. Moreover, market research should identify any businesses from the Federal portfolio of small business programs<sup>1</sup> that are capable of meeting agency requirements.

When conducting market research, do NOT ask for more than the minimum amount of information necessary. Do not include any comparison evaluation of the information received; as that comes later, in the proposal evaluation stage. Do not request resumes, cost proposals, or detailed technical solutions, and do not disclose sensitive or proprietary information regarding U.S. Nuclear Regulatory Commission's (NRC) requirements. With respect to small businesses, the only purpose of market research is to determine if they have the capacity and capability to perform the work as required.

Items such as resumes, cost proposals and detailed technical solutions should not be requested and are not appropriate at this stage in the process. Reviewers should not make determinations on technical acceptability based on responses received to a pre-solicitation notice. The only purpose for evaluating responses to pre-solicitation notices, with regard to small business set-asides, is to decide if the small businesses have demonstrated the capacity and capability to perform the work required. To use the pre-solicitation or sources sought for a purpose other than that listed in Federal Acquisition Regulation (FAR) Part 10 is prohibited.

## **Why is market research so important?**

In the absence of quality market research, the NRC risks wasting valuable time and resources developing solicitations that: (1) do not meet NRC needs, (2) result in insufficient competition, (3) are ambiguous, or (4) are too costly. As stated above, good market research is the foundation of the acquisition process.

## **Who conducts market research, and what are their responsibilities?**

Market research is best executed as a collaboration between the program office, the Division of Contracts (DC), and the Office of Small Business and Civil Rights (SBCR).

At the NRC, within the program office, the project manager (PM) -- also known as the PO or Contracting Officer's Technical Representative -- is usually most familiar with the technical requirements for a given acquisition and is generally more aware of what is available within the

---

<sup>1</sup> The Federal portfolio of small business programs includes: 8(a) Business Development Program (sole source or competitive), small business set-asides, partial small business set-asides, service-disabled veteran-owned small businesses (set-aside or sole source), HUBZones (set-aside or sole source), woman-owned small businesses (set-aside), and the Federal subcontracting program. Any reference to small business concerns in this document refers to the entire portfolio of programs.

marketplace. It is for this reason that the PM has the lead responsibility for conducting market research. The PM can provide suggested sources to the contracting officer/contract specialist (CO/CS) for a specific acquisition on NRC Form 400, "Request for Procurement Action (RFPA)." The PM should take care that the information gathered does not exceed the boundaries of market research and should also take care to not share any procurement sensitive information with potential offerors. Any communications regarding procurement sensitive information must be communicated through the CO/CS. All details of market research should be provided to the CO/CS for inclusion in the official contract file. (See more below under "How do I conduct market research?")

However, DC, through the CO/CS, also has a key role in market research. Because the CO/CS may have worked on other, similar contracts, he or she may have ideas to share with the PM, such as identification of standard commercial practices, terms, or conditions. The CO/CS should also provide guidance and assistance on how to conduct market research to the PM. Ultimately, the CO/CS is responsible for ensuring that all market research required by the FAR and NRC policy, including adequate research as to the capacity and capability of small business concerns, has been completed prior to the solicitation stage.

#### **When should market research take place?**

The PM should identify the requirement and work with the appropriate CO/CS as early in the project as possible to ensure that all necessary market research is completed and that there is sufficient time for the acquisition to be processed. Even if budget funds are not yet available for an acquisition, market research can begin.

The market research must be completed before the solicitation is issued. If, at some point in the acquisition process, a significant change in the scope or type of work required occurs, then additional market research will be necessary if the CO/CS in collaboration with the PM determines that such changes would enhance the ability of small businesses to compete for the work. However, minor changes in scope or type of work will not typically require additional market research.

#### **How does market research affect awards to small businesses?**

For micro-purchases under \$3,000, there are no requirements with respect to small businesses.

For acquisitions over \$3,000 but under the simplified acquisition threshold of \$150,000, if two or more responsible small businesses that have the capacity and capability to do the work are identified through market research, the CO/CS must set aside the requirement for small business participation if he or she expects to receive offers from the small businesses at a fair and reasonable price. If only one small business with the capacity and capability to do the work at a reasonable price is identified, the requirement cannot be set aside. Unless the requirement is set aside under the 8(a) program, the procurement action must be competitively awarded. Otherwise, the award will be made through commercial competition.

For acquisitions over the simplified acquisition threshold of \$150,000 -- if two or more responsible small businesses that have the capacity and capability to do the work are identified through market research, then the CO/CS must set aside the requirement for small business participation if he or she expects to receive offers from the small businesses at a fair and



reasonable price. If only one small business that has the capacity and capability to do the work at a reasonable price is identified, the CO/CS will either compete the award or pursue a justification for pursuing the acquisition on an other than full and open basis (i.e., Sole Source). If the acquisition can be separated into components where a small business could perform the work at a reasonable price, then a partial set-aside may be established. The determination to establish a set-aside may be made unilaterally by the CO/CS or jointly with the Small Business Administration (SBA).

### **How do I conduct market research?**

The amount of market research conducted should be based on the return expected as a result of the market research. Compare the benefits of market research (improved performance, lower cost) to the cost of conducting the research (time, available resources, etc).

#### Under \$3,000 (Micro-purchase Threshold)

- There is no requirement for market research to be conducted for purchases under the micro-purchase threshold. However, the PM or Purchase Card Holder may get quotations in order to obtain the best pricing for the government.

#### \$3,000 - \$150,000 (Simplified Acquisition Threshold)

- These acquisitions are 100 percent set aside for small business.
- The PM should conduct market research under the simplified acquisition threshold when adequate information is not available and circumstances justify the time and cost.
- Techniques used for market research may include:
  - use of the Internet (see attached consolidated list of Web sites)
  - posting the requirement on FedBizOpps (mandatory over \$25,000)
  - knowledge of the marketplace (as the technical expert)
  - reviewing the Thomas Register
  - contacting SBCR programs

#### Over \$150,000

- Techniques used for market research can include the methods identified for acquisitions under the simplified acquisition threshold (above), as well as:
  - posting a pre-solicitation sources sought notice on FedBizOpps
  - contacting knowledgeable individuals in Government and industry regarding market capabilities to meet requirements
  - reviewing the results of recent market research undertaken to meet similar or identical requirements that were conducted in the last 12 months
  - publishing formal requests for information in appropriate technical or scientific journals or business publications, such as sources sought or pre-solicitation notices
  - querying Government (Federal, State or local) databases that provide information relevant to agency acquisitions
  - participating in interactive, online communication among industry, acquisition personnel, and customers

- obtaining source lists of similar items from trade associations or other sources
- reviewing catalogs and other generally available product literature published by manufacturers, distributors, and dealers or reviewing the same information online
- conducting interchange meetings or holding pre-solicitation conferences to involve potential offerors early in the acquisition process
- consulting the Consumer Price Index or Producer Price Index to gauge price changes in particular commodities
- contacting prospective contractors or trade associations to obtain certain information unavailable from other sources.

## **Web-based Market research – Sources of Information**

### **Government Contracting Vehicles:**

General Service Administration (GSA) Government Wide Acquisitions Contracts, available at <http://www.gsa.gov/portal/content/104874>.

GSA Schedules, available at <http://www.gsa.gov/portal/content/104447>.

National Aeronautics and Space Administration (NASA) Solutions for Enterprise Wide Procurement, available at <http://www.force3.com/federalsolutions/governmentcontracts/SEWPIV.aspx>.

### **Government Portals:**

Small Business Administration, available at <http://www.sba.gov/aboutsba/sbaprograms/8abd/>.

Central Contractor Registration database, available at <http://www.bpn.gov/ccrsearch/Search.aspx>.

GSA's "Advantage" service, available at <http://www.gsaadvantage.gov/>.

FedBizOpps, available at <http://www.fbo.gov/>.

Acquisition Central, available at <http://acquisition.gov>.

e-Portals in Commerce system, available at <https://epic.od.nih.gov>.

NASA's Contract Consolidation Initiative, available at <https://www.contractdirectory.gov/contractdirectory/>.

Department of Labor/Bureau of Labor Statistics Producer Price Index, available at <http://www.bls.gov/ppi/>.

### **General Business Information:**

Thomas Regional Electronic, available at <http://www.thomasregional.com>.

BizWeb, available at <http://www.bizweb.com>.

U.S. Securities Exchange Commission, available at <http://www.sec.gov/edaux/searches.htm>.

Big Yellow!, available at <http://www.bigyellow.com>.

Hoover's Online MasterList Plus, available at <http://hoovers.com>.

Building/Construction Products, available at [sweets.construction.com](http://sweets.construction.com).

Price Watch, available at <http://www.pricewatch.com>.

The Electronic Industries Association, available at <http://www.eia.org>.

Better Buys for Business, available at <http://www.betterbuys.com>.

Attachment NRC\_12.joboptions (13738 Bytes) cannot be converted to PDF format.

March 14, 2011

MEMORANDUM TO: Those on the Attached List

FROM: R. W. Borchardt */RA Darren Ash for/*  
Executive Director for Operations

SUBJECT: INTERIM GUIDANCE FOR PLACING AND MONITORING OF  
WORK WITH DEPARTMENT OF ENERGY LABORATORIES

The purpose of this memorandum is to inform you of interim guidance for enhanced oversight of the process for placing work with Department of Energy (DOE) laboratories, consistent with recommendations from the Office of the Inspector General audit report, "Audit of NRC's Management of Agreements with Department of Energy Laboratories (OIG-10-A-12)." This report reviewed the extent to which the U.S. Nuclear Regulatory Commission (NRC) has established and implemented an effective system of internal control over the placement and monitoring of work with DOE laboratories. The audit revealed several areas for improvement which will be addressed through this enhanced oversight.

Issuance of this interim guidance will provide an opportunity for offices to work with the Division of Contracts (DC) to collaborate on updating and incorporating these revisions to Management Directive 11.7, "NRC Procedures for Placement and Monitoring of Work With the U.S. Department of Energy (DOE)," which will soon be distributed for formal comment.

The enclosed interim guidance, effective immediately, addresses the following:

1. The need for offices to consider the use of commercial sources through market research (e.g., sources-sought announcements, procurement history, expert knowledge, etc.) as part of the decision-making process in choosing to use a laboratory and fully document the results/conclusions in the agreement files.
2. Clarification for offices regarding the requirement to fully document the rationale and basis for using a DOE laboratory.

CONTACT: Sharlene McCubbin, ADM/DC  
(301) 492-3616

Those on the Attached List

-2-

3. The requirement for when offices shall submit Source Selection Justifications to DC for independent review to ensure that commercial sources are fully considered.
4. Milestones for more robust market research requirements prior to awarding DOE laboratory agreements.

Enclosures:

As stated

cc: S. Dingbaum, OIG

Those on the Attached List

-2-

3. The requirement for when Offices shall submit Source Selection Justifications to DC for independent review to ensure that commercial sources are fully considered.
4. Milestones for more robust market research requirements prior to awarding DOE Laboratory agreements.

Enclosures:

As stated

cc: S. Dingbaum, OIG

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NAME	SMcCubbin (DHall for)	DHall	ASanchez	VAHuth	SStewart-Clark	KOGreene (SStewart-Clark for)
DATE	2/16/2011	2/16/2011	2/17/2011	2/17/2011	3/5/2011	3/5 /2011
OFFICE	DEDCM	EDO				
NAME	DAsh	RWBorchardt  (DAsh for)				
DATE	3/14/2011	3/14/2011				

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MEMORANDUM TO THOSE ON THE ATTACHED LIST DATED: March 14, 2011

SUBJECT: INTERIM GUIDANCE FOR PLACING AND MONITORING OF WORK WITH  
DEPARTMENT OF ENERGY LABORATORIES

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## **GUIDANCE FOR OFFICE CONSIDERATION OF THE USE OF COMMERCIAL SOURCES THROUGH MARKET RESEARCH, INCLUDING DOCUMENTATION OF THE RESULTS/CONCLUSIONS**

The extent to which market research should be conducted should be commensurate with the estimated cost of the work and the degree to which the type of work could be commercial in nature.

Documentation of the results and conclusions from the market research shall be addressed in the Source Selection Justification (SSJ) as follows. The office must include in the SSJ a discussion of the specific market research performed, and any results, including:

1. The information sources used and their relevancy to the project work (i.e., what technical or scientific papers, journals, and business publications were reviewed and how are they relevant to the project work; were any formal requests for information published in technical or scientific journals, etc.; were any sources sought notices performed such as an announcement in FedBizOpps?).
2. The government or industry personnel contacted and how they were selected, including the relevancy of their knowledge, training, and experience to the project work.
3. The relevant information obtained from each information source or personnel contact.
4. The subsequent conclusions made regarding the availability of a commercial source to perform the project work and how the market research results support those conclusions.

For more detailed information on conducting market research, refer to Attachment A.

Two examples of a SSJ that adequately document the market research conducted and how the information obtained contributed to the staff conclusions on the limited capability of commercial sources to perform the work are available at the following link to the Division of Contracts Sharepoint site under the Project Manager Corner, MD 11.7 Document Library:  
<http://portal.nrc.gov/edo/adm/dc/pms/MD%20117%20Documents/Forms/AllItems.aspx>.

Attachment:  
As stated

## **GUIDANCE FOR DOCUMENTATION OF THE RATIONALE AND BASIS FOR USING A DEPARTMENT OF ENERGY LABORATORY**

The Source Selection Justification (SSJ) shall clearly explain the rationale and basis for using a Department of Energy (DOE) laboratory, including how the results of the market research conducted directly support one of the following reasons for using a DOE laboratory, instead of a commercial source.

- (a) **Unique Technical Disciplines or Combinations of Disciplines.**  
The project manager (PM) shall clearly identify the unique technical capabilities or the unique combination of technical skills and highly specialized experience that necessitate going to the DOE laboratory.
- (b) **Specialized Facilities or Equipment.**  
The PM shall specifically identify the specialized facilities or equipment required and state the rationale and reasoning for the use of the specialized facilities or equipment that can only be obtained from the DOE laboratory.
- (c) **Use of Patents, Copyrights, Proprietary Information, or Secret Processes.**  
The PM shall clearly state why one or a combination of patents, copyrights, proprietary information, or secret processes are essential to the successful completion of the effort and are not available to the commercial sector.
- (d) **Accrued Knowledge and Equipment or Facilities.**  
The PM shall clearly document the reason that a source other than DOE cannot realistically perform the necessary work without expending significant time and effort to understand previous project work and achieve results that are essential to the successful completion of the project's current phase.
- (e) **Urgent Requirements.**  
The PM shall clearly identify why the completion of the work is urgent including the harm from delaying performance while market research can be conducted. The use of "Urgent Requirements" as the basis for using a DOE laboratory should be reserved for those emerging requirements that could not be foreseen and that necessitate an immediate initiation of work under the project in order to fulfill the office mission. The basis for the urgency, as determined by the U.S. Nuclear Regulatory Commission (NRC) division director or designee, shall clearly document that delay in placing the work will compromise the office in fulfilling its mission.

- (f) Engineering, Developmental, or Research Capability.  
The PM shall clearly document the SSJ when it is determined by NRC and/or DOE that the work under the project supports essential engineering, research, or developmental capability or facilities at the laboratory, which must be maintained in the event of a national emergency.

## **GUIDANCE FOR SUBMISSION OF THE SOURCE SELECTION JUSTIFICATION TO THE DIVISION OF CONTRACTS FOR INDEPENDENT REVIEW**

### **THRESHOLD FOR DIVISION OF CONTRACTS PRE-AWARD REVIEW:**

Offices shall submit their Source Selection Justification (SSJ) to the Division of Contracts (DC) for review prior to the award when the project meets the following criteria:

- a) All new projects with a value greater than \$500K.
- b) Modifications to basic agreements that were previously reviewed by DC, which involve a change in scope of work that is greater than 20 percent of the ceiling amount of the initial award.

Note: Modifications for incremental funding that do not involve a change in the scope of work are not subject to this advance review by DC.

### **PROCESS FOR OBTAINING DIVISION OF CONTRACTS PRE-AWARD REVIEW:**

When an office identifies a project that meets one of the criteria listed above, the office shall submit the SSJ first to the Office Associate Competition Advocate for review, and upon approval, to the Team Leader of the Policy Oversight Team in DC; however, submission may be simultaneous at the office's discretion. Submission of the SSJ by e-mail is acceptable. DC has up to 5 business days to review the SSJ, with the exception of requirements that are specifically designated as urgent and compelling in nature. DC will review the SSJ for urgent and compelling requirements within 2 business days, or as otherwise negotiated.

DC will respond to the office within 5 business days with either an approval or a determination that the SSJ has not sufficiently addressed the SSJ evaluation criteria. If DC determines the SSJ needs additional documentation, the office has the opportunity to expand upon its justification and resubmit to DC. At that time, DC shall have an additional 5 days for review (or 2 days if the request is urgent and compelling). Consistent with the intent that this review will not impede performance of the work in a timely manner, if DC does not respond within the applicable number of business days, offices are allowed to move forward with an award.

This implementation of a DC advance review of the SSJ is intended to ensure that commercial sources are fully considered, with minimal delays to the program office.

## **MILESTONES FOR MORE ROBUST MARKET RESEARCH PRIOR TO AWARDING DEPARTMENT OF ENERGY LABORATORY AGREEMENTS**

All U.S. Nuclear Regulatory Commission projects, regardless of cost or importance, are subject to the requirement to conduct market research to determine if a commercial source is available. Accordingly, even requirements that have routinely been directed to Department of Energy laboratories should undergo a review to ensure that market conditions have not changed.

Therefore, market research must be completed sufficiently in advance of the planned project start date to allow for the possibility that a commercial award is the appropriate acquisition method. As reflected below, a typical project can take 22-80 business days to determine the acquisition strategy, including market research. Subsequently, the Division of Contracts (DC) requires 30-120 business days to process a competitive commercial award.

As a planning tool, the following table is a general outline of the time that may be required to complete the key pre-award milestones for a project, recognizing that, as stated in Enclosure 1, "The extent to which market research should be conducted should be commensurate with the estimated cost of the work and the degree to which the type of work could be commercial in nature."

### MILESTONES FOR MARKET RESEARCH REQUIREMENTS

1	5-30 business days for the office to:	Complete a market research survey of available information sources such as: contacting knowledgeable individuals in Government and industry regarding market capabilities and reviewing technical and scientific papers, journals and business publications. During this period, an office may also choose to supplement their market research efforts by contacting DC to request that a Sources Sought Notice (SSN) be posted on FedBizOpps. The SSN can be advertised for 10-20 business days, and sufficient time should also be allowed for any analysis of responses to the SSN. Note that if an SSN is not posted at this stage, DC may still require one to be posted at Milestone 3.
2	2-5 business days for the office to:	Document in the Source Selection Justification (SSJ) for that project: (1) the dates and methods used to perform the market research, (2) information that was obtained from the market research conducted, (3) subsequent staff conclusions derived from the market research.
3	15-45 business days for the office and DC to:	Reach consensus on the final acquisition strategy. Should DC determine that the SSJ is not adequate, the office shall issue a SSN to afford commercial sources the opportunity to identify their capabilities for the subject work. A subsequent review of the responses received, or the lack thereof, shall form the basis for the final determination as to whether the work can be performed by a DOE laboratory. Accordingly, the office should allow time for the SSN to be advertised for at least 10 business days, and thereafter a technical evaluation performed by the office of any responses.
4	30-120 business days for the office and DC to:	Process a competitive award with an estimated cost of \$150K or more to a commercial source, if that is the chosen procurement method. The project's total estimated cost and type of competitive commercial procurement method used to process the award will affect the amount of DC Procurement Administrative Lead Time (PALT) required. As an office initially begins developing the project's pre-award milestones, the office should allow up to 120 business days for PALT in the overall pre-award project schedule to allow for the possibility that a commercial source will perform the project.

**From:** Rini, Brett  
**To:** Deegan, George; Richards, Stuart; Camper, Larry  
**Cc:** RST01 Hoc; Bowman, Gregory; Hickman, John; Lee, Richard; Case, Michael; McConnell, Keith; Watson, Bruce  
**Subject:** RE: Decommissioning Type Information  
**Date:** Wednesday, March 23, 2011 2:14:29 PM

---

George et al,

I discussed these questions with Brian Sheron. He recommended that we send any questions regarding entombment (original questions 6 and 8) to DOE via the Liaison Team in the Ops Center. DOE was heavily involved with the response to Chernobyl and would be the best source of historical information.

I've passed this information to Greg over the phone.

Thanks,

Brett

*Brett A. Rini*

Technical Assistant  
Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
(301)251-7615  
Brett.Rini@nrc.gov

---

**From:** Deegan, George  
**Sent:** Wednesday, March 23, 2011 2:05 PM  
**To:** Richards, Stuart; Camper, Larry  
**Cc:** RST01 Hoc; Bowman, Gregory; Hickman, John; Lee, Richard; Rini, Brett; Case, Michael; McConnell, Keith; Watson, Bruce  
**Subject:** RE: Decommissioning Type Information

Stu- As your email came in, Brett Rini and I were speaking with one another. I indicated that FSME will be working on #7 (licensing requirements) and #9 (whatever relevant info we can pull together from the TMI event), but that the best shop for criticality type issues (Question #8) is probably NMSS.

---

**From:** Richards, Stuart  
**Sent:** Wednesday, March 23, 2011 1:51 PM  
**To:** Camper, Larry  
**Cc:** Deegan, George; RST01 Hoc; Bowman, Gregory; Hickman, John; Lee, Richard; Rini, Brett; Case, Michael  
**Subject:** RE: Decommissioning Type Information

Larry

RES might be able to help you with Question #8. Richard Lee in DSA is our POC on this one.

We can provide you some thoughts on enclosures, but I agree that a good answer will

AG/851



take a lot of time and a lot more information on the status of the units.

Stu

---

**From:** Camper, Larry  
**Sent:** Wednesday, March 23, 2011 12:49 PM  
**To:** Dorman, Dan  
**Cc:** Deegan, George; RST01 Hoc; Bowman, Gregory; Hickman, John  
**Subject:** Decommissioning Type Information

Dan,

Greetings! Trust you are holding up well over there! Regarding your message of earlier today, we will be able to provide feedback on Question number 6 today by the 18:00 timeframe. Questions 6,8 and 9 will require a bit of review and interface with RES but we will start that process today. Standby for a better timeline on those. The staff did some work on the entombment issue via a couple of SECY's but the approach died out because it became clear that industry was not going to utilize it in the US. Of course, the situation in Japan is quite different etc. Regardless, our earlier work should be of some benefit but we just have to resurrect it and review etc. In thinking ahead just a bit, I suspect that we will need to put together some sort of Task Force or think tank type group to analyze possible paths forward for the overall decommissioning of the site and for the related waste management etc. Of course, we have some time to think about this issue but not too long etc.

**From:** Zabel, Joseph  
**To:** Flory, Shirley  
**Subject:** RE: THERE ARE TWO ONE-WEEK LOOK AHEADS IN THE MAGIC PLACE. Thanks - Shirley  
**Date:** Wednesday, March 23, 2011 2:17:00 PM

---

Hi Shirley:

Try it again this time.

Joe

---

**From:** Flory, Shirley  
**Sent:** Wednesday, March 23, 2011 2:01 PM  
**To:** Zabel, Joseph  
**Subject:** RE: THERE ARE TWO ONE-WEEK LOOK AHEADS IN THE MAGIC PLACE. Thanks - Shirley

First item is too long.....stops as "compone"

Thanks - Shirley

---

**From:** Zabel, Joseph  
**Sent:** Wednesday, March 23, 2011 1:39 PM  
**To:** Flory, Shirley  
**Subject:** RE: THERE ARE TWO ONE-WEEK LOOK AHEADS IN THE MAGIC PLACE. Thanks - Shirley

All done!

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
*U.S. Nuclear Regulatory Commission*  
*Office of Nuclear Regulatory Research*  
*PMDA/Document Control Branch*  
[joseph.zabel@nrc.gov](mailto:joseph.zabel@nrc.gov)  
06D05

---

**From:** Flory, Shirley  
**Sent:** Wednesday, March 23, 2011 1:00 PM  
**To:** Zabel, Joseph  
**Subject:** THERE ARE TWO ONE-WEEK LOOK AHEADS IN THE MAGIC PLACE. Thanks - Shirley  
**Importance:** High

AG/852

**From:** Coe, Doug  
**To:** Nelson-Wilson, Carlyleamaryllis  
**Cc:** Ma, May; Rheaume, Cynthia; Abraham, Susan; Williams, Evelyn; Correia, Richard; Coyne, Kevin; Demoss, Gary  
**Subject:** RE: Carly's Rotation Extension  
**Date:** Wednesday, March 23, 2011 2:24:00 PM

---

Carly – We are juggling a lot of bowling pins right now, so I'm sorry these decisions seem to take place at the last minute. We do look forward to having you back on April 11!  
Doug

---

**From:** Correia, Richard  
**Sent:** Wednesday, March 23, 2011 2:16 PM  
**To:** Nelson-Wilson, Carlyleamaryllis; Coe, Doug  
**Cc:** Ma, May; Rheaume, Cynthia; Abraham, Susan; Williams, Evelyn  
**Subject:** RE: Carly's Rotation Extension

You are welcome Carly.

---

**From:** Nelson-Wilson, Carlyleamaryllis  
**Sent:** Wednesday, March 23, 2011 2:03 PM  
**To:** Coe, Doug; Correia, Richard  
**Cc:** Ma, May; Rheaume, Cynthia; Abraham, Susan; Williams, Evelyn  
**Subject:** Carly's Rotation Extension

Rich/Doug,

Thank you for allowing me to continue my rotation with NSIR to fully implement ROMA and have a efficient system in the Financial Management Branch.

Everyone- I appreciate the consideration and confidence from RES and NSIR about my capabilities to perform quality Program Analyst duties.

I look forward learning more skills in the procurement oversight and budget execution processes and ROMA.

*Sincerely,*

*Carly*

AG/853

**From:** Coe, Doug  
**To:** Isakovic, Nadja; Purdie, Deonna  
**Cc:** Oklessen, Edward  
**Subject:** RE: Good news about Carly  
**Date:** Wednesday, March 23, 2011 2:25:00 PM

---

Sure –

Deonna – please note that Carly's rotation to NSIR has been extended to April 8<sup>th</sup>. This is the last extension. She will return to RES on April 11<sup>th</sup>.

Doug

---

**From:** Isakovic, Nadja  
**Sent:** Wednesday, March 23, 2011 2:13 PM  
**To:** Coe, Doug  
**Subject:** RE: Good news about Carly

Thank you kindly!

---

**From:** Coe, Doug  
**Sent:** Wednesday, March 23, 2011 1:41 PM  
**To:** Ma, May; Isakovic, Nadja  
**Cc:** Correia, Richard  
**Subject:** RE: Good news about Carly

May – The April 8<sup>th</sup> date is hard. I can't go further than that.

Nadja – please arrange Carly's move back to her RES/DRA location on April 8<sup>th</sup>, so she can report for work at CSB on April 11<sup>th</sup>.

---

**From:** Ma, May  
**Sent:** Wednesday, March 23, 2011 1:32 PM  
**To:** Adkison, Carol; Clarkson, Sharon; Curran, Bridget; Harvey, Sue; Howard, Tabitha; Hutton, Carmean; Ma, May; Nelson-Wilson, Carlyleamaryllis  
**Cc:** Coe, Doug; Rheaume, Cynthia; Abraham, Susan; Williams, Evelyn; Correia, Richard  
**Subject:** Good news about Carly

FYI: Cindy just told me that RES would let Carly to stay with us for two more weeks (till April 8<sup>th</sup>). Carly will keep supporting our ROMA implementation activities.

Rich/Doug--- Thanks much for your support!!

AG/854

Sincerely,  
*May*

May Ma, Chief  
NSIR/PMDA/FMB  
301-415-7266

**From:** Richards, Stuart  
**To:** Rini, Brett  
**Cc:** Case, Michael  
**Subject:** RE: Ops Center Action Item for Ticketing  
**Date:** Wednesday, March 23, 2011 2:25:41 PM  
**Importance:** High

---

Brett

It wasn't clear to me if the question was directed at entombment, which could be a long term issue certainly not needing an answer by 6 pm tonight, or whether the question relates to a short term issue to try to mitigate on-going releases from the plants.

Assuming that the question involves the short term issue, I drafted the response below as a starting point to float around. If we are looking at entombment, I agree with Brian, plus there is no urgency.

Let me know if we need to pursue the possible short term question.

Thanks  
Stu

Question: -Regarding the best type of enclosure for the plant, does NRC have any thoughts? Do we have any regulations applicable to this condition or thoughts on the role of the regulatory authority in this decision?

Answer: It is difficult to provide a response without knowing more details regarding the radiation levels in various parts of the plant, the release paths from the plant (if any), the amount of fuel damage, and the extent of damage to the reactor building structures. Additionally, are the enclosures being discussed meant to be for the short-term, or the longer-term?

The short term principles which apply regardless are to 1) provide decay heat removal to prevent damage to (or further damage to) the fuel located in the reactor vessels and the spent fuel pools; and 2) minimize the release of radioactivity to the environment.

Assuming that the reactor coolant systems (RCS) and primary containment vessels (PCV) are intact, then the RPVs and PCVs provide an enclosure for the fuel in the reactors. Therefore the short-term focus regarding enclosures should likely focus on preventing or controlling radioactive releases from fuel that has been damaged in the spent fuel pools, which are apparently open to the environment due to explosive damage to the higher elevations of the reactor buildings.

It may not be feasible to cover the damaged portions of the reactor buildings due to radiation levels and possible damage to the structural steel. However it may be possible to fabricate a temporary enclosure to place over the top of the SFP. Even a relatively simple and light-weight enclosure may be sufficient to direct airborne releases thru a filtering system or a water spray.

AG/1855

Consideration of enclosures for the longer term will require much more detailed information and time to complete.

The NRC does not have specific regulations applicable to enclosures for severe accidents.

Under the American regulatory system, the licensee (in this case, TEPCO) has primary responsibility for the safety of the plant and protection of the surrounding people and environment. The regulatory responsibility is to ensure that the licensee is doing so. However under the present unique circumstances, the NRC would expect TEPCO to draw on resources and advice from various technical experts, worldwide. The Japanese regulator can help promote that exchange of information, but must still retain their role of assessing the correctness of the licensee's actions.

Questions which the regulator could ask include:

- How urgent is the need to enclose portions of the units?
- Can the installation of enclosures make the situation worse if problems occur?
- Will enclosures have any impact on providing decay heat removal?
- What radiological conditions must exist before the construction of enclosures can occur?

**From:** Leeds, Eric  
**To:** Hiland, Patrick; Skeen, David; Grobe, Jack  
**Subject:** ACTION: GI-199  
**Date:** Wednesday, March 23, 2011 2:29:00 PM

---

Please see email below. Please do NOT respond to Mr. Glazer - I need to do that. But I need your help in answering his question. Please formulate a response and send to me - thanks!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Wednesday, March 23, 2011 11:24 AM  
To: Leeds, Eric; R D; Richard Bamberger; Thomas Congdon  
Cc: Batkin, Joshua; Brenner, Eliot  
Subject: RE:

One specific clarification if you can: In her statement, Elizabeth said that the seismic review would not start until 2012. Is that accurate? Our understanding yesterday that you expected consensus seismic data this year and would begin requesting licensee information this year but did not expect to complete until 2012. Can you provide clarity on that? Thanks.

-----Original Message-----

From: Leeds, Eric [<mailto:Eric.Leeds@nrc.gov>]  
Sent: Wednesday, March 23, 2011 7:35 AM  
To: Howard Glaser; R D; Richard Bamberger; Thomas Congdon  
Cc: Batkin, Joshua; Brenner, Eliot  
Subject: RE:

Got it. I'm sharing with the NRC Director of Public Affairs.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Wednesday, March 23, 2011 1:05 AM  
To: Leeds, Eric; R D; Richard Bamberger; Thomas Congdon  
Cc: Batkin, Joshua  
Subject: RE:

Eric -- just to confirm, yesterday at meetings end we had agreement on 3 things: IP would be the top priority in NRC's seismic review; NRC would share data; and NY could have its people accompany NRC on related inspections. We then reported precisely these things back to Governor and in our statement about the meeting. The Lt. Gov also read verbatim our statement to the Chairman in 2nd phone conversation in the afternoon. So we were a little surprised to see your spokesman's comments that "this is not a serious concern". Your chairman certainly expressed that he thought this was a serious concern, enough so that he would agree to make a personal visit to IP.

"This is really not a serious concern," said NRC spokeswoman Elizabeth Hayden, referring to a new safety review of the Indian Point plant by her agency in the wake of Japan's nuclear crisis.

AG/1856



That is, it's not so serious that it would be started anytime this year, she said. "I know what [Cuomo] said," Hayden explained yesterday, but the NRC's review "won't start until 2012."

Copying the Lt Gov and our director of communications.

Thanks. hg

---

From: Leeds, Eric [Eric.Leeds@nrc.gov]  
Sent: Tuesday, March 22, 2011 5:15 PM  
To: Howard Glaser  
Cc: Batkin, Joshua  
Subject: RE:

Understand the issue - it's not where any of us what to be. I spoke with the Chairman right after LTGOV Duffy. Here's the answer to your question:

1 in 1,000 (10<sup>-3</sup>) - requires consideration of immediate action.  
So Indian Point is in the range of 10<sup>-4</sup> (1 in 10,000)- which in accordance with our processes means to continue performing prudent regulatory evaluation.

Hope this helps.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Tuesday, March 22, 2011 12:26 PM  
To: Leeds, Eric  
Cc: Batkin, Joshua  
Subject:

Thanks for today. Expedited review is what we all really need. Duffy spoke to Chair.

One point; your guy said one in 13K. But ur report says 1 in 10K at IP. Which is your standard for immediate review.

Dinh  
**Laur, Steven**

---

**From:** Gallucci, Ray  
**Sent:** Wednesday, March 23, 2011 2:35 PM  
**To:** Iqbal, Naeem  
**Cc:** Klein, Alex; Lain, Paul; Moulton, Charles; Harrison, Donnie; Barrett, Harold; Howe, Andrew; Dinsmore, Stephen; Laur, Steven; Hyslop, JS; Dinh, Thinh; Metzger, Brian  
**Subject:** "Big" FM Question  
**Attachments:** MEFS-LFS 4PSA2011 Rev 1 4pdf.docx; PSA2011 MEFS-LFS Rev 1.ppt

I don't know how a purely PRA-free transition to NFPA 805 can be accomplished unless (1) somehow the applicant deterministically demonstrates the impossibility of the MEFS ever reaching the LFS (physical limitations maybe?), or (2) we pre-determine some criteria analytically/probabilistically that enables us to "declare" (via a RG?) that a margin of X in HRR is deemed to deterministically equate to a sufficient margin between MEFS and LFS to render attaining the LFS "impossible." One way the latter might be accomplished is attempted in my paper (attached, with presentation).

## EXAMINATION OF THE EFFICACY OF THE NFPA-805 “FIRE MODELING” APPROACH (COMPARISON BETWEEN “MAXIMUM EXPECTED” AND “LIMITING” FIRE SCENARIOS)

Raymond HV Gallucci, PhD, PE<sup>1</sup>  
U.S. Nuclear Regulatory Commission (NRC)  
MS O10-C15, Washington, D.C. 20555  
Ray.Gallucci@nrc.gov

### ABSTRACT

National Fire Protection Association Standard 805 permits the use of fire modeling to quantify the fire risk and margin of safety when using the performance-based approach to demonstrate compliance, provided that there is a “sufficiently large” margin between the “maximum expected” and “limiting” fire scenarios. This paper attempts to develop quantitative insight to determine what might constitute this “sufficiently large” margin based on heat release rates (HRRs) typical of ignition sources (combustibles) at nuclear power plants. The results indicate that this comparative approach may be practical only for “low” HRRs (say on the order of 100 kW), for which there is relatively small uncertainty (narrow variability) in the HRR distribution. In general the efficacy of this comparative approach increases as the uncertainty in the HRR decreases and the magnitude of the “limiting” HRR relative to the “maximum expected” HRR increases.

*Key Words:* NFPA 805, fire modeling, fire risk, fire scenario, heat release rate

### 1 INTRODUCTION

National Fire Protection Association (NFPA) Standard 805 [1] permits the use of fire modeling to quantify the fire risk and margin of safety when using the performance-based approach to demonstrate compliance. As discussed in Nuclear Energy Institute (NEI) 04-02 [2], and endorsed by Regulatory Guide (RG) 1.205 [3], this is accomplished by determining if there is a “sufficiently large” margin between the “maximum expected” and “limiting” fire scenarios to address uncertainties in fire modeling. If sufficient fire modeling margin exists, then the fire scenario can be screened from the quantitative risk assessment as having a minimal impact on risk.

NFPA 805 defines these two fire scenarios, and provides some insights, as follows:

***Maximum Expected Fire Scenarios [MEFSs].*** Scenarios that represent the most challenging fire that could be reasonably anticipated for the occupancy type and conditions in the space. These scenarios can be established based on electric power industry experience with consideration for plant-specific conditions and fire experience ... The input data for the fire modeling of the MEFS should be based on the following:

- (1) Existing in-situ combustibles in the fire area;
- (2) Types and amounts of transient combustibles that industry experience and specific plant conditions indicate can reasonably be anticipated in the fire area;
- (3) Heat release and fire growth rates for the actual in-situ and assumed transient combustibles that are realistic and conservative based on available test data and applicable fire experience;

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<sup>1</sup> This paper was prepared by an employee of the U.S. NRC. The views presented do not represent an official staff position.

- (4) Ventilation within normal operating parameters with doors in the open or closed position;
- (5) Active and passive fire protection features operating as designed

**Limiting Fire Scenarios [LFSs].** Fire scenario(s) in which one or more of the inputs to the fire modeling calculation (e.g., heat release rate, initiation location, or ventilation rate) are varied to the point that the performance criterion is not met. The intent of this scenario(s) is to determine that there is a reasonable margin between the expected fire scenario conditions and the point of failure ... [T]he LFS can be based on a maximum possible, though unlikely, value for one input variable or an unlikely combination of input variables. ... The values used for LFS input should remain within the range of possibility but can exceed that determined or judged to be likely or even probable.

Of these two concepts, the LFS seems more easily conceived, in that it involves starting with a fixed physical layout, including room dimensions; ventilation rates; types, amounts and locations of targets and *in situ* combustibles, as well as potentially most damaging transient combustibles; and varying individually these parameters until the minimum fire size, whether plausible or not, required to cause target damage is calculated via fire modeling (usually in terms of heat release rate [HRR]). The MEFS appears somewhat more subjective, involving repeated use of terms such as “reasonably anticipated” and “realistic and [yet] conservative.” And the criterion for utilizing the fire modeling approach to determine compliance relies on a similarly subjective term, “sufficiently large” (margin). This paper attempts to develop quantitative insight that can be used to determine what might constitute a “sufficiently large” margin between the MEFS and LFS to demonstrate compliance with NFPA 805 in light of fire modeling uncertainties.

## 2 HEAT RELEASE RATES FOR NUCLEAR POWER PLANT COMBUSTIBLES

NUREG/CR-6850 (Electric Power Research Institute [EPRI] 1011989) [4] provides HRR distributions for eight common combustibles found at nuclear power plants (see Table E-1, “List of HRR Distributions”), as follows.

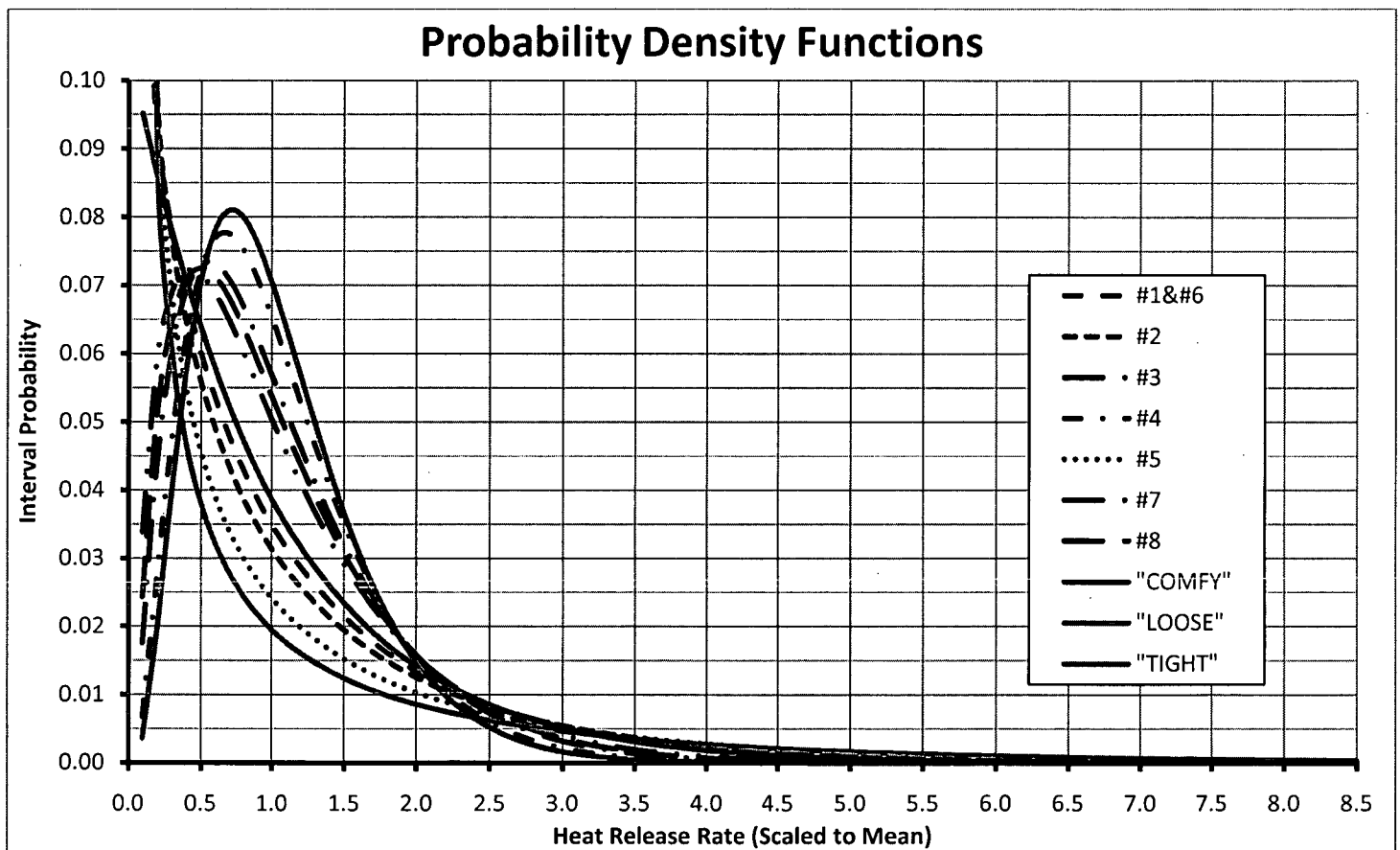
	Ignition Source (Combustible)	HRR kW (Btu/s)		Gamma Distribution	
		75 <sup>th</sup> %ile	98 <sup>th</sup> %ile	$\alpha$	$\beta$
1	Vertical cabinets with qualified cable, fire limited to one cable bundle	69 (65)	211 (200)	0.84 (0.83)	59.3 (56.6)
2	Vertical cabinets with qualified cable, fire in more than one cable bundle	211 (200)	702 (665)	0.7 (0.7)	216 (204)
3	Vertical cabinets with unqualified cable, fire limited to one cable bundle	90 (85)	211 (200)	1.6 (1.6)	41.5 (39.5)
4	Vertical cabinets with unqualified cable, fire in more than one cable bundle closed doors	232 (220)	464 (440)	2.6 (2.6)	67.8 (64.3)
5	Vertical cabinets with unqualified cable, fire in more than one cable bundle open doors	232 (220)	1002 (950)	0.46 (0.45)	386 (366)
6	Pumps (electrical fires)	69 (65)	211 (200)	0.84 (0.83)	59.3 (56.6)
7	Motors	32 (30)	69 (65)	2.0 (2.0)	11.7 (11.1)
8	Transient Combustibles	142 (135)	317 (300)	1.8 (1.9)	57.4 (53.7)

**Table I. List of HRR Distributions (from NUREG/CR-6850; EPRI 1011989)**

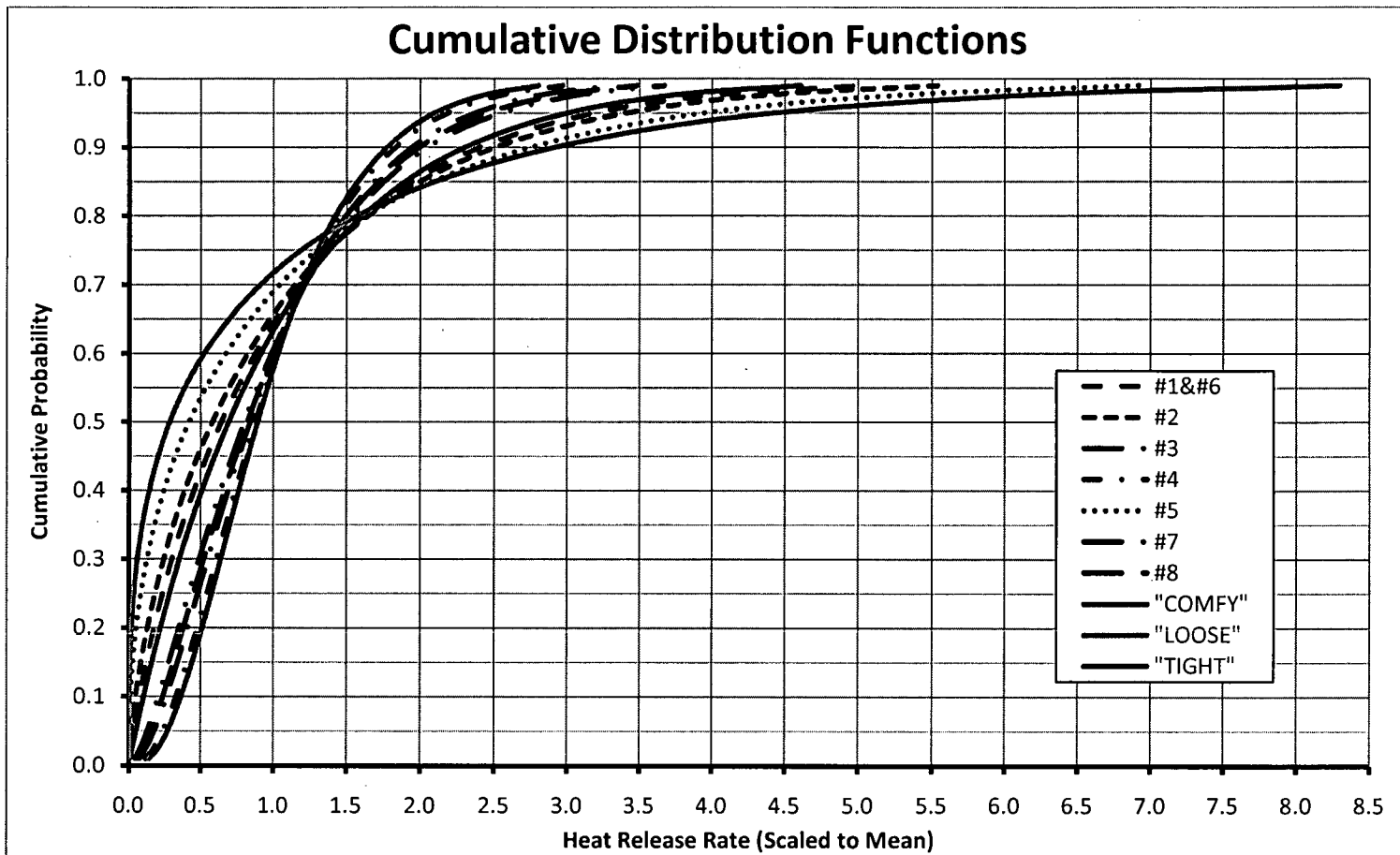
Each HRR is characterized by a gamma probability distribution, of which there are seven distinct ones (note that #6 is the same as #1). Discretized histograms for each are provided in NUREG/CR-6850. Note that the mean of each distribution, representing the expected HRR, is the product  $(\alpha)(\beta)$ , which occurs between the 58<sup>th</sup> and 70<sup>th</sup> %iles for the seven distinct distributions. That is, in all cases, both the reported 75<sup>th</sup> and 98<sup>th</sup> %ile HRRs are greater than the expected HRR, so this can be taken as a starting point for postulating the HRR that can be used for the MEFS.

## 2.1 Scaled Gamma Distributions

The shape parameter  $\alpha$  ranges from 0.46 to 2.6 (using units of kW) and, as its name implies, characterizes the shape of each distribution. In order to examine the behavior of these seven distributions on the same scale, we first scale each by its mean, i.e., we define the mean for each to be 1.0 by dividing all the percentile values by the mean value. This leads to the seven distributions shown in Figures 1 and 2 as both probability density and cumulative distribution functions (curves in black only).



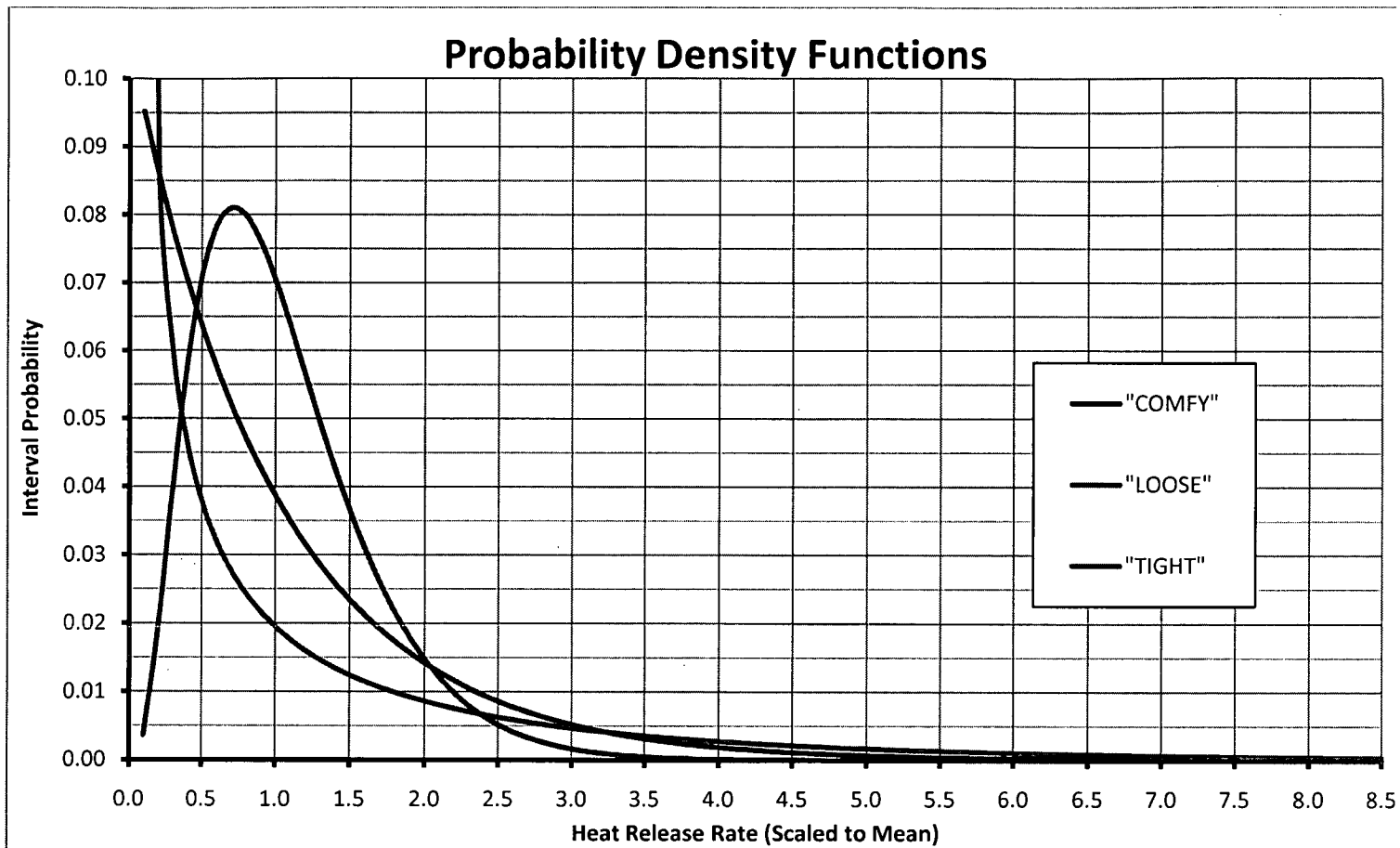
**Figure 1. Probability Density Functions Scaled to Means**



**Figure 2. Cumulative Distribution Functions Scaled to Means**

Accompanying these curves in each figure are two additional ones, representing bounding gamma distributions, loosely termed “loose” and “tight” to indicate the degree of variability (uncertainty) in the distribution (wider variability and more uncertainty for “loose,” vs. narrower variability and less uncertainty for “tight”), and a third that indicates the central tendency among the seven curves, termed “comfy” (for “comfortable”), for lack of a better term (all three shown in color).

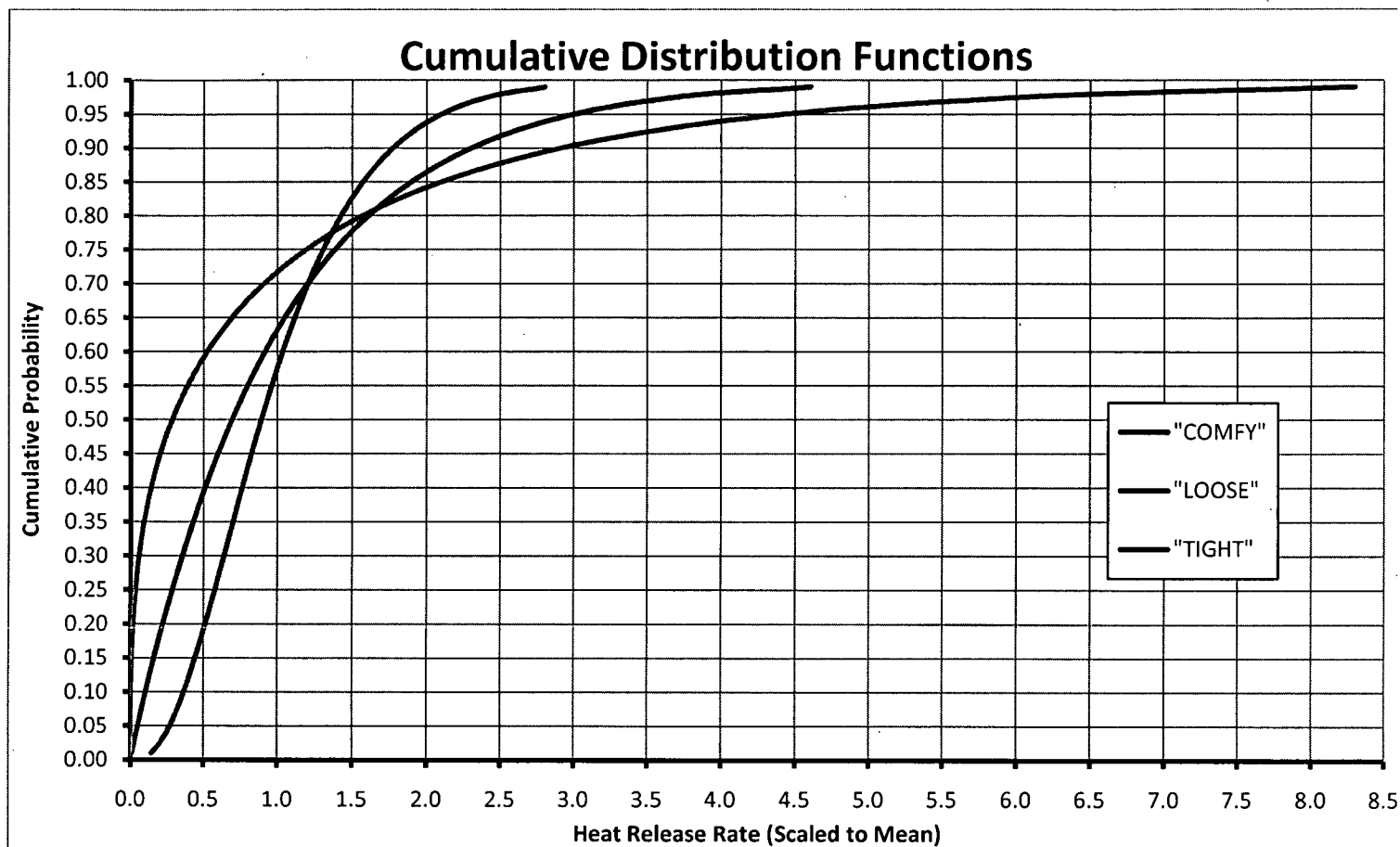
These three “idealized” curves have the following ( $\alpha$ ,  $\beta$ ) parameters such that each has a mean = 1.0: (1) “comfy” = (1, 1); (2) “loose” = (1/3, 3); (3) “tight” = (3, 1/3). The  $\alpha$  parameters of the “loose” and “tight” distributions (1/3 and 3) are chosen to span the  $\alpha$  range from the NUREG/CR-6850 curves (0.46 to 2.6), with the corresponding  $\beta$  parameters taken as their reciprocals to preserve the mean value of 1.0. These bound the most extreme of the seven curves, with #5 being the “loosest” and #4 the “tightest.” As can be seen, the “comfy” distribution lies roughly midway among the seven scaled distributions from NUREG/CR-6850 (closest to the #1 and #6 curve), while the “loose” and “tight” distributions bound all seven scaled ones. For ease of visualizing, the two figures are reproduced as Figures 3 and 4 without the seven distributions from NUREG/CR-6850.



**Figure 3. "Comfy," "Loose" and "Tight" Probability Density Functions**

Each of these curves shows the distributions ranging from the 1<sup>st</sup> to the 99<sup>th</sup> %ile, with this latter value corresponding to HRRs of 4.61, 8.30 and 2.80 for means = 1.0 (see 99<sup>th</sup> %ile column in Table II). The means occur at the 63<sup>rd</sup>, 58<sup>th</sup> [57.7<sup>th</sup>] and 72<sup>nd</sup> %iles for the "comfy," "loose" and "tight" distributions, respectively, spanning the range at which the means occur in the NUREG/CR-6850 curves (58<sup>th</sup> [58.2<sup>nd</sup>] to 70<sup>th</sup> %iles). Clearly, the "loose" distribution shows the greatest variation, with the 99<sup>th</sup> %ile HRR being 8.30 times its mean. The least variation occurs for the "tight" distribution, where the 99<sup>th</sup> %ile HRR is "only" 2.80 times its mean.

From NFPA 805, the only guidance as to specifying the HRR for the MEFS cites the following qualitative characteristics: "most challenging fire that could be reasonably anticipated ... [with a HRR that is] realistic and conservative." Clearly, this implies a HRR greater than "anticipated" (or "expected"), i.e., greater than the mean. While the 75<sup>th</sup> %ile value satisfies the notion of "realistic," being no more than 40% greater than the mean in all three curves; with 25% of the HRR distribution still lying above this value, it could hardly be considered "conservative." Let us consider five more conservative candidates (95<sup>th</sup> to 99.99<sup>th</sup> %iles), as shown in Table II.



**Figure 4. “Comfy,” “Loose” and “Tight” Cumulative Distribution Functions**

**Table II. Selected Upper %iles for “Comfy,” “Loose” and “Tight” Gamma Distributions**

Gamma Distribution			Mean		Value at %ile of HRR Distribution					
Name	Alpha	Beta	Value	%ile	75	95	98	99	99.9	99.99
“Comfy”	1	1	1.00	63.2	1.39	<b>3.00</b>	3.91	4.61	6.91	<b>9.21</b>
“Loose”	1/3	3	1.00	71.7	1.19	4.42	6.58	8.30	14.30	20.57
“Tight”	3	1/3	1.00	57.7	1.31	2.10	2.51	2.80	3.74	4.64

## 2.2 Percentiles at Upper Extremes

Typical of the uncertainty range employed in PRA is the 95<sup>th</sup> %ile, which indicates values up to 4.42 times the mean. Next, we consider that both NUREG/CR-6850 and its derivative, the Fire Protection Significance Determination Process (FPSDP) [4], cite the 98<sup>th</sup> %ile as the upper bound HRR for use in “two-point” HRR fire modeling, and this can be seen to be as much as 6.58 times the mean. If we would like the maximum expected HRR to be as high as possible but still remain within an order of magnitude of the mean, then we can go out to the 99.99<sup>th</sup> %ile value for both the “comfy” and “tight” distributions, but not beyond the 99<sup>th</sup> %ile for the “loose” one. We note that the probability of reaching these upper %iles are just 1 minus the fractional equivalent of the %ile value, so both the 99.9<sup>th</sup> and 99.99<sup>th</sup> %ile values are very unlikely to be reached (0.001 and 0.0001, respectively). If the MEFS is assumed to be



initiated by a fire source with no greater than a frequency of 0.001/yr, typically bounding the frequency for most single ignition sources, this would assure an MEFS frequency of no greater than 1E-6/yr.<sup>2</sup>

However, one must ask if it is “reasonable” to “expect,” even as a “maximum,” a HRR that is at least several times greater than the mean value? If the mean HRR is relatively low, say on the order of 100 kW, then a “maximum expected” HRR several times this value is conceivable. For significantly higher mean HRRs, say on the order of 1 MW, even a doubling of this as the “maximum expected” may seem somewhat extreme. Therefore, depending upon the behavior of the HRR curve (“comfy,” “loose” or “tight”) and the absolute magnitude of the mean HRR, even the 95<sup>th</sup> %ile HRR from the above could be overly conservative, if the mean HRR is “high;” while the 99.99<sup>th</sup> %ile HRR could still be considered a reasonable candidate, if the mean HRR is “low” and the HRR behavior is no worse than “tight.” What other guidance might we consider?

In Table III, we examine the ratio of the difference between the %ile values for a selected pair of LFS and MEFS HRRs and the probability of reaching the LFS HRR, i.e., if the selected LFS HRR is the 99.99<sup>th</sup> %ile value and the selected MEFS HRR is the 99.9<sup>th</sup> %ile value, this ratio would be  $(0.9999 - 0.999)/(1 - 0.9999) = 9.0$ .<sup>3</sup> This ratio can be viewed as a measure of the “closeness” of the HRR for the MEFS to that for the LFS (i.e., the margin between the HRRs for the MEFS and LFS). Equivalently, it can be viewed as how much more likely the “true” HRR is to lie between the MEFS and LFS HRRs than at or above the LFS HRR. Larger ratios are desirable, as this indicates the HRR for the MEFS is much lower than that for the LFS (“sufficiently large” margin).

**Table III. Ratios of Differences between Probabilities of HRRs for LFS and MEFS to Probability of Reaching LFS HRR**

Case #	Gamma Distribution			LFS HRR (Scaled to Mean)	Ratio: $(P_{LFS} - P_{MEFS})/(1 - P_{LFS})$				
	Name	$\alpha$	$\beta$		95 <sup>th</sup>	98 <sup>th</sup>	99 <sup>th</sup>	99.9 <sup>th</sup>	99.99 <sup>th</sup>
1	“Comfy”	1	1	10	1.1E+03	4.4E+02	2.2E+02	2.1E+01	1.2E+00
	“Loose”	1/3	3		8.8E+00	2.9E+00	9.5E-01		
	“Tight”	3	1/3		1.1E+09	4.4E+08	2.2E+08	2.2E+07	2.2E+06
2	“Comfy”	1	1	5	6.4E+00	2.0E+00	4.8E-01		
	“Loose”	1/3	3		2.9E-01				
	“Tight”	3	1/3		1.3E+03	5.1E+02	2.5E+02	2.4E+01	1.5E+00
3	“Comfy”	1	1	3	4.3E-03				
	“Loose”	1/3	3						
	“Tight”	3	1/3		7.0E+00	2.2E+00	6.0E-01		

### 2.2.1 Case #1

<sup>2</sup> The FPSDP estimates ignition frequencies per component for “typical” nuclear power plants. Of these only the following “single” components have ignition frequencies above 0.001/yr: (1) non-qualified cables (high loading); (2) Main Control Room service cabinets; (3) diesel generators; (4) BWR hydrogen recombiners; (5) main turbine-generators; (6) main feedwater pumps (oil fires); (7) outdoor or yard transformers; (8) transients (high loading). The peak value is ~0.06/yr (diesel generators and BWR hydrogen recombiners).

<sup>3</sup> For example, in Table III, Case #1 for the 95<sup>th</sup> %ile of the “comfy” distribution, the ratio is calculated as follows. For the LFS HRR scaled to 10 times the mean, the corresponding %ile from the gamma distribution would be 99.9955 (beyond the right-most column in Table II, since  $10 > 9.21$ ). The ratio with respect to an MEFS at the 95<sup>th</sup> %ile (a scaled value of 3.00, from Table II) is then  $(0.999955 - 0.95)/(1 - 0.999955) \approx 1100$ .

This first case assumes the HRR for the LFS is 10 times that of the mean HRR. Clearly, if the HRR distribution is “tight,” the choice of which %ile to use as the MEFS HRR is irrelevant, as indicated by the extremely large ratios signifying that it is a relative certainty that the “true” HRR will lie between the MEFS and LFS HRRs rather than at or above the LFS HRR. That is, the margin between the HRRs for the MEFS and LFS will always be “sufficiently large.” At the other extreme, if the HRR distribution is “loose,” the relative likelihood of the “true” HRR lying between the MEFS and LFS HRR only becomes greater than that of lying at or above the LFS HRR when the MEFS HRR drops below the 99<sup>th</sup> %ile value. And, even at the 95<sup>th</sup> %ile value, the ratio is still < 10. This suggests that comparison between an MEFS HRR and LFS HRR for a “loose” HRR distribution will rarely indicate a “sufficiently large” margin if the LFS HRR is 10 times the mean value. The central tendency case (“comfy”) shows that the ratio of the relative likelihood of the between MEFS-LFS HRR and > LFS HRR does not drop below a factor of 10 until somewhere between the 99.9<sup>th</sup> and 99.99<sup>th</sup> %ile values (calculation shows it occurs at the 99.95<sup>th</sup> %ile). Thus, an MEFS vs. LFS HRR comparison for a “comfy” HRR distribution when the LFS HRR is 10 times its mean will likely indicate a “sufficiently large” margin.

While the results for Case #1 are not surprising, it remains relatively restrictive, applicable only if an LFS HRR is 10 times the mean value. This is unlikely to occur for “high” HRRs, leaving Case #1 potentially beneficial for the MEFS-LFS HRR comparison to screen a fire scenario from the quantitative risk assessment as having a minimal impact on risk only for “low” HRRs (and HRR distributions that are not “loose”).

### 2.2.2 Case #2

This second case drops the LFS HRR to be “only” 5 times that of the mean HRR, and the resulting ratios show a significant change from Case #1. Clearly there is no situation where the MEFS-LFS HRR comparison will show the necessary “sufficiently large” margin for a “loose” HRR distribution. However, now the “comfy” HRR distribution indicates no ratios as high as 10, suggesting that the comparison even for a “comfy” HRR distribution will rarely indicate a “sufficiently large” margin if the LFS HRR is “only” 5 times the mean value. And, while the ratios for the “tight” HRR distribution still remain above 10 up to somewhere between the 99.9<sup>th</sup> and 99.99<sup>th</sup> %iles (calculation shows it occurs at the 99.96<sup>th</sup> %ile), the choice of MEFS HRR is now relevant for demonstrating a “sufficiently large” margin between the MEFS and LFS HRRs.

Case #2 is potentially less restrictive than the first case since the LFF HRR now is “only” 5 times the mean value. However, only for “tight” HRR distributions might the MEFS-LFS HRR comparison prove beneficial to demonstrate the necessary “sufficiently large” margin and, given that the LFS HRR is still 5 times its mean value, the approach may still only be practical for “low” HRRs.

### 2.2.3 Case #3

This third case “relaxes” the constraint on the LFS HRR so that it is now “only” 3 times its mean value. However, the continuing trend from the previous cases that indicates less potential applicability for the MEFS-LFS HRR comparison approach could now be considered “complete” because there is no ratio > 10 for any of the types of HRR distributions. Thus, when the LFS HRR is “only” 3 times its mean, the MEFS-LFS HRR comparison is unlikely to demonstrate a “sufficiently large” margin even for a “tight” HRR distribution and “low” HRRs.

## 3 CONCLUSION

The conclusions from the three cases evolved from assuming that the “true” HRR should be at least ~ 10 times more likely to lie between the MEFS and LFS HRRs than at or above the LFS HRR for the

MEFS-LFS HRR comparison to screen a fire scenario from the quantitative risk assessment as having a minimal impact on risk ("sufficiently large" margin). The results indicate that this approach may be practical only for "low" HRRs (say on the order of 100 kW), for which there is relatively small uncertainty (narrow variability) in the HRR distribution ("tight" distribution), and for which the LFS HRR is at least 5 times its mean value. In general the efficacy of the MEFS-LFS comparison approach increases as the uncertainty in the HRR decreases (i.e., "tighter" distribution with less variability) and the magnitude of the LFS HRR relative to the MEFS HRR (or, equivalently, the ratio of the LFS HRR to the mean of the HRR distribution) increases.

#### 4 REFERENCES

1. NFPA, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants," NFPA Standard 805, February 9, 2001.
2. NEI, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program under 10 CFR §50.48[c]," NEI 04-02, Revision 2, April 2008.
3. USNRC, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," RG 1.205, Revision 1, December 2009.
4. USNRC/EPRI, "Fire PRA Methodology for Nuclear Power Facilities," NUREG/CR-6850 (EPRI TR-1011989), September 2005.
5. USRC, "Fire Protection Significance Determination Process," Inspection Manual Chapter 0609, Appendix F, February 28, 2005.

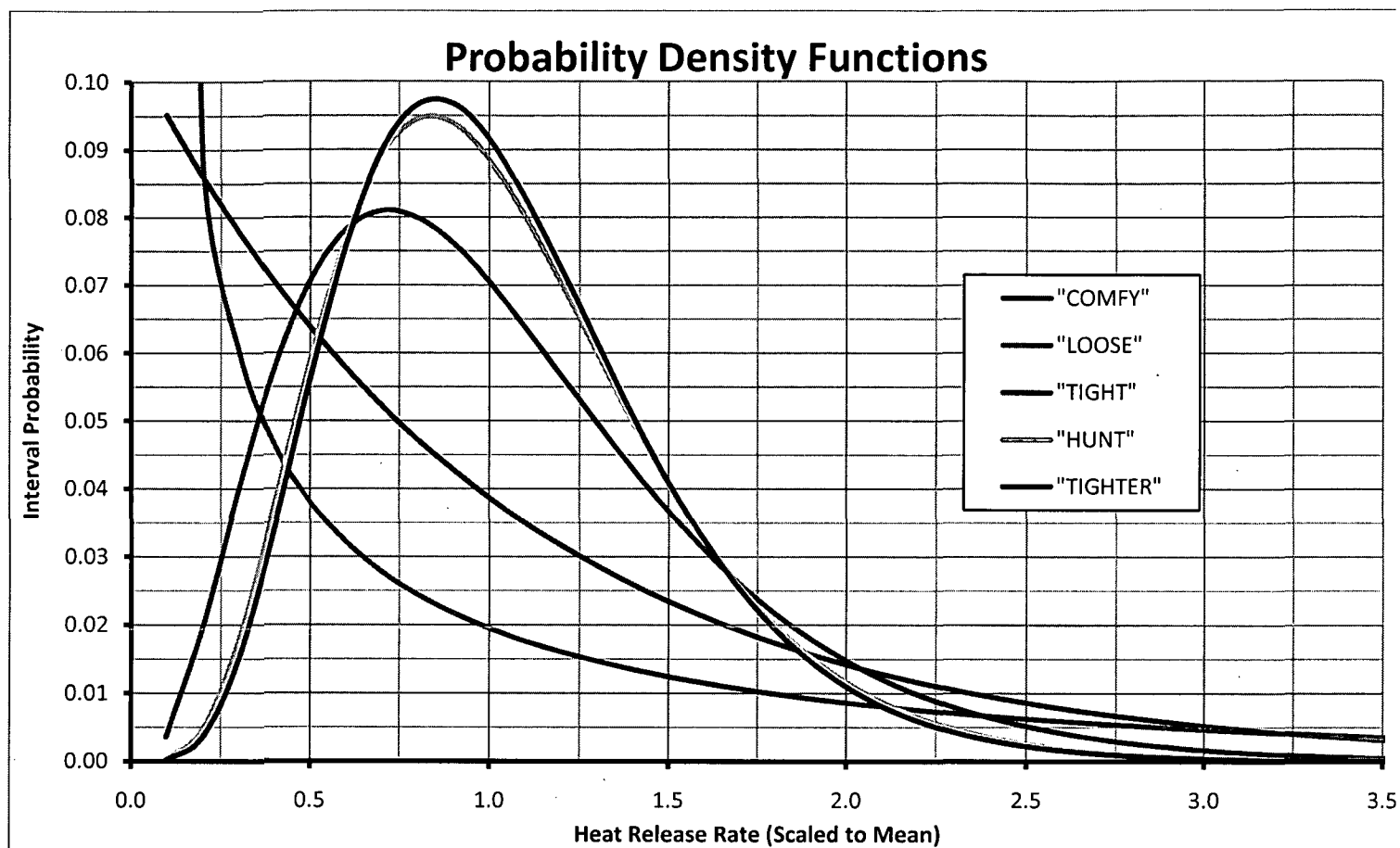
#### APPENDIX A

At the 2009 NEI Fire Protection Information Forum, Sean Hunt of Hughes Associates, in conjunction with the Kleinsorg Group, presented an analysis of HRRs in electrical cabinets of specific configurations entitled "Maximum Fire Size in Closed Vent Electrical Panels." As part of the analysis, he provided updated estimates of the HRR distributions for Ignition Source (Combustible) Types 1 through 4 from NUREG/CR-6850 (shown previously in Table I). His analysis indicated that the HRR distributions for Types 2 and 4 would potentially "tighten" (experience a reduction in the probability of reaching the higher HRRs) such that the effective 98<sup>th</sup> %ile HRRs for these would drop from 702 to 410 kW for Type 2 and from 464 to 384 kW for Type 4. The effect of this "tightening" also reduced the 75<sup>th</sup> %ile and mean values, resulting in corresponding changes to the  $\alpha$  and  $\beta$  parameters of their gamma distributions, as follows: (1) for Type 2, ( $\alpha$ ,  $\beta$ ) changes from (0.7, 216) to (1.6, 81); (2) for Type 4, from (2.6, 67.8) to (4.7, 38). While the new values for Type 2 are still bounded by the "loose" and "tight" HRR distributions, and therefore provide no new insight, those for Type 4 suggest an even "tighter" HRR distribution is possible, which could lead to new insights.

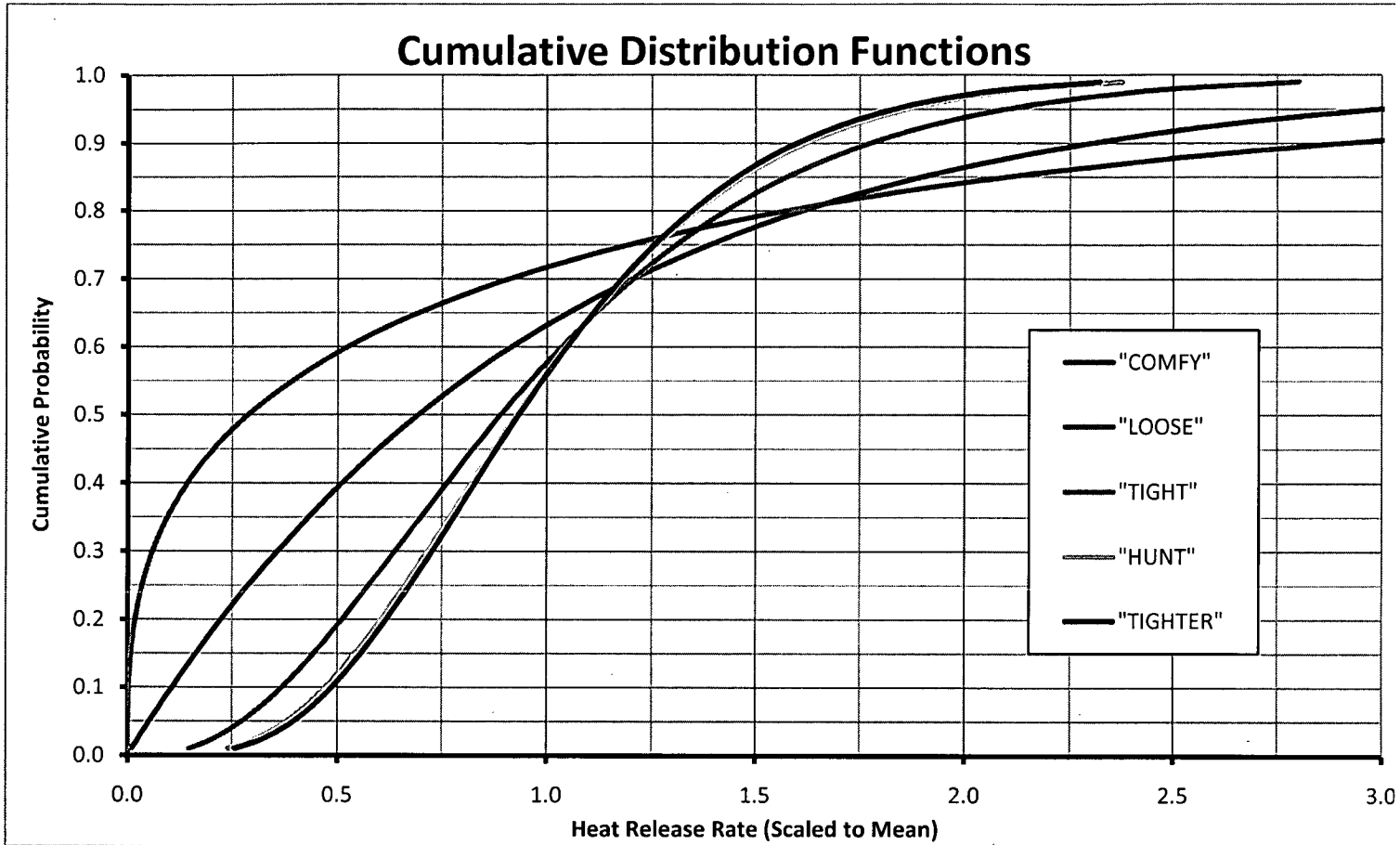
Let us consider a bounding "tighter" HRR distribution, scaled again to a mean value of 1.0, with  $\alpha = 5$  and  $\beta = 1/5$  (reciprocal of  $\alpha$ ).<sup>4</sup> Both the "Hunt" and "tighter" HRR distributions are shown in Figures 5 and 6, representing updated versions of Figures 3 and 4. In both cases, the horizontal axis has been magnified to more clearly show the inclusion of the "Hunt" and "tighter" HRR distributions with respect to the "tight" one.

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<sup>4</sup> For the "tighter" HRR distribution, the mean now occurs at the 56<sup>th</sup> %ile.



**Figure 5. Figure 3 Updated to Include "Hunt" and "Tighter" Probability Density Functions**



**Figure 6.** Figure 4 Updated to Include "Hunt" and "Tighter" Cumulative Distribution Functions

**Table IV.** Ratios of Differences between Probabilities of HRRs for LFS and MEFS to Probability of Reaching LFS HRR

Case #	Gamma Distribution			LFS HRR (Scaled to Mean)	Ratio: $(P_{LFS} - P_{MEFS}) / (1 - P_{LFS})$				
	Name	$\alpha$	$\beta$		95 <sup>th</sup>	98 <sup>th</sup>	99 <sup>th</sup>	99.9 <sup>th</sup>	99.99 <sup>th</sup>
1	"Tight"	3	1/3	10	1.1E+09	4.4E+08	2.2E+08	2.2E+07	2.2E+06
	"Tighter"	5	1/5		Essentially Infinite				
2	"Tight"	3	1/3	5	1.3E+03	5.1E+02	2.5E+02	2.4E+01	1.5E+00
	"Tighter"	5	1/5		1.9E+05	7.5E+04	3.7E+04	3.7E+03	3.7E+02
3	"Tight"	3	1/3	3	7.0E+00	2.2E+00	6.0E-01		
	"Tighter"	5	1/5		5.7E+01	2.2E+01	1.1E+01	1.7E-01	
4	"Tighter"	5	1/5	2.5	8.4E+00	2.7E+00	8.7E-01		

Examining the three Cases from before (and considering a fourth), we conclude the following.

#### Case #1

Since the “tighter” HRR distribution indicates even larger ratios than the “tight” case, there is no change in the conclusions for the first case. That is, even an MEFS vs. LFS HRR comparison for a “comfy” HRR distribution when the LFS HRR is 10 times its mean will likely indicate a “sufficiently large” margin. Nonetheless, this case remains relatively restrictive, applicable only if an LFS HRR is 10 times the mean value. This is unlikely to occur for “high” HRRs, leaving Case #1 potentially beneficial for the MEFS-LFS HRR comparison to screen a fire scenario from the quantitative risk assessment as having a minimal impact on risk only for “low” HRRs (and HRR distributions that are not “loose”).

#### Case #2

As before, the ratios for the “tight” HRR distribution still remain above 10 up to somewhere between the 99.9<sup>th</sup> and 99.99<sup>th</sup> %iles (calculation shows it occurs at the 99.96<sup>th</sup> %ile). However, for the “tighter” HRR distribution, these ratios now remain above 10 beyond even the 99.99<sup>th</sup> %ile. Therefore, for a “tighter” HRR distribution where the LFS is 5 times the mean value, the MEFS vs. LFS HRR comparison will likely indicate a “sufficiently large” margin. Nonetheless, given that the LFS HRR is still 5 times its mean value, the approach may still only be practical for “low” HRRs.

#### Case #3

Whereas, not even for the “tight” HRR distribution was there a ratio  $> 10$ , now this will occur for a “tighter” HRR distribution up to slightly above the 99<sup>th</sup> %ile (calculation shows this occurs at the 99.05<sup>th</sup> %ile). Thus, when the LFS HRR is “only” 3 times its mean, the MEFS-LFS HRR comparison may demonstrate a “sufficiently large” margin at least for a “tighter” HRR distribution, possibly now for some HRRs approaching “high.”

#### Case #4

Given the more positive trend resulting from the “tighter” HRR distribution, we considered a fourth case which “relaxes” the constraint on the LFS HRR so that it is now “only” 2.5 times its mean value. However, now not even the “tighter” HRR distribution produces a ratio  $> 10$ . Thus, when the LFS HRR is “only” 2.5 times its mean, the MEFS-LFS HRR comparison is unlikely to demonstrate a “sufficiently large” margin even for a “tighter” HRR distribution and “low” HRRs.

#### Summary

If the “Hunt” and its derivative “tighter” HRR distributions are thrown into the mix of potential HRR distributions, we find results that are somewhat more positive when the LFS HRR is only  $\sim 3$  times its mean value. That is, at this level, it is possible for the MEFS-LFS HRR comparison to screen a fire scenario from the quantitative risk assessment as having a minimal impact on risk (“sufficiently large” margin) not only for “low” HRRs, but also for HRRs approaching “high.” However, below this level (i.e., LFS HRRs  $< 3$  times their means), this approach remains practical only for “low” HRRs when there is narrow variability and relatively small uncertainty in the HRR distribution.



## EXAMINING THE EFFICACY OF THE NFPA-805 “FIRE MODELING” APPROACH (MEFS-LFS)

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NRC Office of Nuclear Reactor Regulation  
PSA 2011: March 13-17, 2011

1



### Background

- NFPA 805 permits the use of fire modeling to quantify the fire risk and margin of safety when using the performance-based approach
- NEI 04-02 (NFPA-805 Implementation Guidance), via endorsement by RG 1.205
  - If a “sufficiently large” margin between the “maximum expected” (MEFS) and “limiting” fire scenarios (LFS) exists, then a scenario can be screened from the quantitative risk assessment due to minimal risk impact

2



## Outline

- Develop quantitative insight as to what might constitute a “sufficiently large” margin between the MEFS and LFS in light of fire modeling uncertainties
  - NUREG/CR-6850 (EPRI 1011989) heat release rate (HRR) probability distributions
  - Addendum for Hunt’s (Hughes Associates) HRRs from “Maximum Fire Size in Closed Vent Electrical Panels” (NEI FP Info. Forum, 2009)

3



## NFPA-805 Definitions

- Maximum Expected Fire Scenario (MEFS):
  - “the most challenging fire that could be reasonably anticipated for the occupancy type and conditions in the space”
- Limiting Fire Scenario (LFS):
  - “one or more of the inputs to the fire modeling calculation ... are varied to the point that the performance criterion is not met”

4





## MEFS vs. LFS

- MEFS “can be established based on electric power industry experience ... consider[ing] plant-specific conditions and fire experience”
  - “Existing” *in-situ* combustibles
  - “Reasonably anticipated” transient combustibles
  - “Realistic and conservative” heat release and fire growth rates
  - Ventilation within “normal operating parameters”
  - Fire protection features “operating as designed”

5



## MEFS vs. LFS (cont.)

- LFS “intent ... is to determine that there is a reasonable margin between the expected fire scenario conditions and the point of failure”
  - “Maximum possible, though unlikely,” value for one input variable or an “unlikely combination”
  - Input should remain “within the range of possibility” but can “exceed that determined or judged to be likely or even probable”

6



## MEFS vs. LFS (cont.)

- LFS is more easily conceived  $\approx$  “worst case”
  - For fixed physical layout, vary individual fire parameters to determine minimum fire size, whether plausible or not, that will cause damage
- MEFS is more subjective
  - “Reasonably anticipated” and “realistic and [yet] conservative”
  - NEI 04-02, via RG 1.205, is also subjective
    - “Sufficiently large” margin between MEFS and LFS

7



## NUREG/CR-6850 HRRs

Combustible Type	HRR kW (BTU/s)		Gamma Distribution	
	75 <sup>th</sup> %ile	98 <sup>th</sup> %ile	$\alpha$	$\beta$
1 & 6	69 (65)	211 (200)	0.84 (0.83)	59.3 (56.6)
2	211 (200)	702 (665)	0.7 (0.7)	216 (204)
3	90 (85)	211 (200)	1.6 (1.6)	41.5 (39.5)
4	232 (220)	464 (440)	2.6 (2.6)	67.8 (64.3)
5	232 (220)	1002 (950)	0.46 (0.45)	386 (366)
7	32 (30)	69 (65)	2.0 (2.0)	11.7 (11.1)
8	142 (135)	317 (300)	1.8 (1.9)	57.4 (53.7)

Mean (expected) HRR =  $\alpha \cdot \beta$ , each occurring between the 58<sup>th</sup> and 70<sup>th</sup> %iles. In all cases both the 75<sup>th</sup> and 98<sup>th</sup> %ile HRRs are greater, so the mean can serve as a starting point for the HRR characterizing the MEFS.

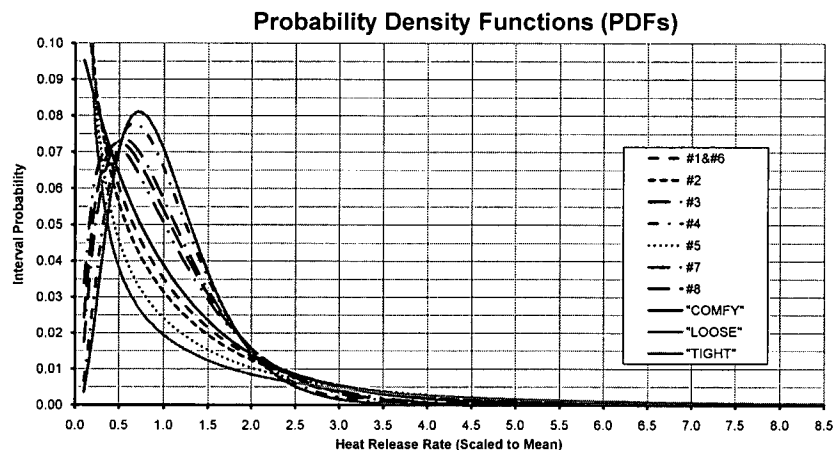
8

## Scaled HRRs

- Gamma parameter  $\alpha$  ranges from 0.46 to 2.6 (using units of kW) and characterizes shape
- To examine distributions on the same scale, ratio each to its mean (i.e., define each mean = 1.0), by dividing all %ile values by the mean
  - Characterize scaled distributions by two bounding extremes (“loose” [ $\alpha = 1/3$ ,  $\beta = 3$ ] and “tight” [ $\alpha = 3$ ,  $\beta = 1/3$ ]) and one for central tendency (“comfy” [ $1, 1$ ])

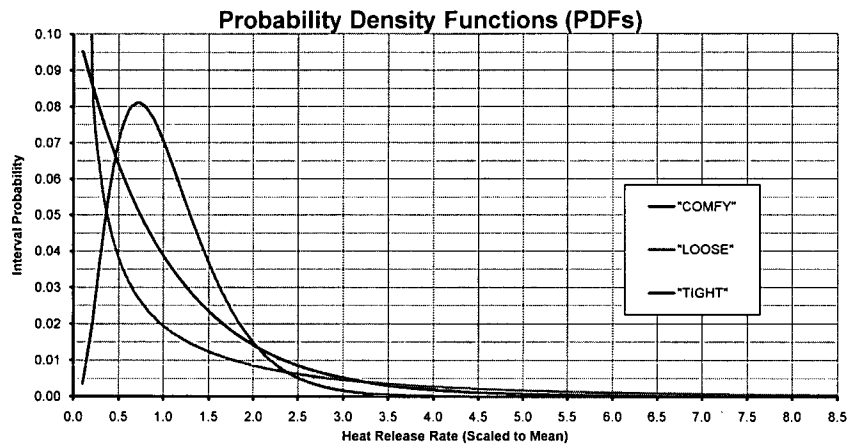
9

## PDFs Scaled to Means



10

## PDFs Scaled to Means ("Clean")



11

## Upper %iles for Selected Gammas

Gamma Distribution			Mean ( $\alpha\beta$ )		Value at %ile of HRR Distribution					
Name	$\alpha$	$\beta$	Value	%ile	75	95	98	99	99.9	99.99
"Comfy"	1	1	1.00	63.2	1.39	3.00	3.91	4.61	6.91	9.21
"Loose"	1/3	3	1.00	71.7	1.19	4.42	6.58	8.30	14.30	20.57
"Tight"	3	1/3	1.00	57.7	1.31	2.10	2.51	2.80	3.74	4.64

%ile values are scaled to the mean (1.00) and indicate "spread" of distribution at upper end, with "loose" showing most variability, as expected.

HRR for MEFS should be "realistic and [yet] conservative" and characterize "most challenging fire that could be reasonably anticipated." Thus, HRR should be > mean ("expected/anticipated"); but just which upper %ile value should be chosen?

12

## Which %ile HRR for MEFS?

- The typical 95<sup>th</sup> %ile values as employed in PRA range up to 4.42x the mean. Both NUREG/CR-6850 and its derivative, the FPSDP, cite the 98<sup>th</sup> %ile as the upper bound HRR for use in “two-point” HRR fire modeling, and this is as much as 6.58x the mean.
- Assume that the maximum expected HRR (for the MEFS) should be as high as possible but still remain within, say, 10x the mean
  - This holds out to the 99.99<sup>th</sup> %ile value for both the “comfy” (9.21x) and “tight” distributions (4.64x), but not beyond the 99<sup>th</sup> %ile for the “loose” (8.30x)
  - The 99.9<sup>th</sup> and 99.99<sup>th</sup> %iles are unlikely to occur (0.001 and 1E-4) which, if the MEFS is assumed to evolve from a fire with a frequency < 0.001/yr (typically bounding for most single ignition sources), assures an MEFS frequency < (0.001/yr)(0.001) = 1E-6/yr

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## Which %ile HRR for MEFS? (cont.)

- However, is it “reasonable” to “expect,” even as a “maximum,” a HRR that is at least several times greater than the mean value?
  - For a relatively low mean HRR, say ~ 100 kW, a “maximum expected” HRR several times higher is conceivable
  - For a much higher mean HRR, say ~1 MW, even doubling this as the “maximum expected” seems somewhat extreme
- Proposed “Figure of Merit” → Ratio =  $(P_{LFS} - P_{MEFS}) / (1 - P_{LFS})$ 
  - Ratio of difference between %ile values for selected pair of LFS and MEFS HRRs and probability of reaching or exceeding LFS HRR
  - Ratio measures “closeness” of HRR<sub>MEFS</sub> to HRR<sub>LFS</sub> (i.e., the margin between these HRRs), or how much more likely the “true” HRR is to lie between HRR<sub>MEFS</sub> and HRR<sub>LFS</sub> than at or above HRR<sub>LFS</sub>
  - Large ratio suggests “sufficiently large” margin (HRR<sub>MEFS</sub> << HRR<sub>LFS</sub>)

14

## “Figure of Merit”

Case #	Gamma Distribution			LFS HRR (Scaled to Mean = 1)	Ratio = $(P_{LFS} - P_{MEFS}) / (1 - P_{LFS})$				
	Name	$\alpha$	$\beta$		95 <sup>th</sup>	98 <sup>th</sup>	99 <sup>th</sup>	99.9 <sup>th</sup>	99.99 <sup>th</sup>
1	“Comfy”	1	1	10	1100	440	220	21	1.2
	“Loose”	1/3	3		8.8	2.9	0.95		
	“Tight”	3	1/3		1.1E+9	4.4E+8	2.2E+8	2.2E+7	2.2E+6
2	“Comfy”	1	1	5	6.4	2.0	0.48		
	“Loose”	1/3	3		0.29				
	“Tight”	3	1/3		1300	510	250	24	1.5
3	“Comfy”	1	1	3	0.0043				
	“Loose”	1/3	3						
	“Tight”	3	1/3		7.0	2.2	0.60		

For the LFS HRR scaled to 10x the mean, the corresponding %ile from the gamma distribution would be 99.9955. The ratio with respect to an MEFS at the 95<sup>th</sup> %ile (a scaled value 3x the mean) is then  $(0.999955 - 0.95) / (1 - 0.999955) \approx 1100$ .

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## “Figure of Merit” (cont.)

- When might comparison between  $HRR_{MEFS}$  and  $HRR_{LFS}$  suggest “sufficient margin?”
  - Case #1 ( $HRR_{LFS} = 10x \langle HRR \rangle$ )
    - “Tight” → ALWAYS (assume any upper %ile for  $HRR_{MEFS}$ )
    - “Loose” → NEVER (no practical upper %ile for  $HRR_{MEFS}$ )
    - “Comfy” → ALMOST ALWAYS (assume any but uppermost %ile)
  - Case #2 ( $HRR_{LFS} = 5x \langle HRR \rangle$ )
    - “Tight” → ALMOST ALWAYS (assume any but uppermost %ile)
    - “Loose” or “Comfy” → NEVER (no practical upper %ile)
  - Case #3 ( $HRR_{LFS} = 3x \langle HRR \rangle$ )
    - “Tight,” “Loose” or “Comfy” → NEVER (no practical upper %ile)

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## Conclusion

- Assuming “true” HRR should be at least 10x more likely to lie between  $HRR_{MEFS}$  and  $HRR_{LFS}$  than at or above  $HRR_{LFS}$  (“Figure of Merit” for “sufficiently large” margin) to screen a fire scenario as having a minimal impact on risk,
  - MEFS-LFS comparison may be practical only for “low” HRRs (~100 kW), for which there is relatively small uncertainty (narrow variability) in the HRR distribution (“tight” distribution), and for which the  $HRR_{LFS}$  is at least 5 times its mean value

17

## Conclusion (cont.)

- In general the efficacy of the MEFS-LFS comparison increases as the uncertainty in the HRR decreases (i.e., “tighter” distribution with less variability) and the magnitude of the  $HRR_{LFS}$  relative to the  $HRR_{MEFS}$  (or, equivalently, the ratio of the  $HRR_{LFS}$  to the mean HRR) increases

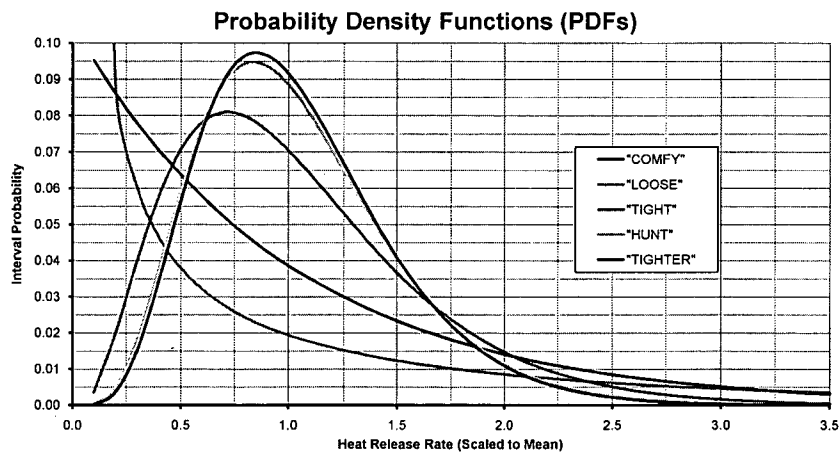
18

## Addendum - Hunt's HRRs

- At the 2009 NEI Fire Protection Info. Forum, Sean Hunt of Hughes Associates presented analysis of HRRs in electrical cabinets of specific configurations
  - “Tightened” NUREG/CR-6850 HRR gamma distributions for Combustible Types 2 and 4
    - #2 ( $\alpha, \beta$ ): (0.7, 216)  $\rightarrow$  (1.6, 81)
    - #4 ( $\alpha, \beta$ ): (2.6, 67.8)  $\rightarrow$  (4.7, 38)
  - Hunt’s #4 suggests even “tighter” distribution

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## PDFs Scaled to Means (“Clean”)



20



## “Figure of Merit”

Case #	Gamma Distribution			LFS HRR (Scaled to Mean = 1)	Ratio = $(P_{LFS} - P_{MEFS}) / (1 - P_{LFS})$				
	Name	$\alpha$	$\beta$		95 <sup>th</sup>	98 <sup>th</sup>	99 <sup>th</sup>	99.9 <sup>th</sup>	99.99 <sup>th</sup>
1	“Tight”	3	1/3	10	1.1E+9	4.4E+8	2.2E+8	2.2E+7	2.2E+6
	“Tighter”	5	1/5		Essentially Infinite				
2	“Tight”	3	1/3	5	1300	510	250	24	1.5
	“Tighter”	5	1/5		1.9E+5	7.5E+4	3.7E+4	3700	370
3	“Tight”	3	1/3	3	7.0	2.2	0.60		
	“Tighter”	5	1/5		57	22	11	0.17	
4	“Tighter”	5	1/5	2.5	8.4	2.7	0.87		

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## “Figure of Merit” (cont.)

- When is “sufficient margin” suggested?
  - Case #1 ( $HRR_{LFS} = 10x \langle HRR \rangle$ )
    - No change in conclusions from NUREG/CR-6850 HRR analysis
  - Case #2 ( $HRR_{LFS} = 5x \langle HRR \rangle$ )
    - “Tight” → No change in conclusions from previous HRR analysis
    - “Tighter” → Change from ALMOST ALWAYS to ALWAYS
  - Case #3 ( $HRR_{LFS} = 3x \langle HRR \rangle$ )
    - “Tight” → No change in conclusions from previous HRR analysis
    - “Tighter” → Change from NEVER to SOMETIMES ( $\leq 99^{th}$  %ile)
  - Case #4 ( $HRR_{LFS} = 2.5x \langle HRR \rangle$ )
    - “Tighter” → NEVER (no practical upper %ile for  $HRR_{MEFS}$ )

22



## Conclusion (with Hunt HRRs)

- With the “Hunt” and its derivative “tighter” HRR distributions, results are somewhat more positive when  $HRR_{LFS}$  is only  $\sim 3x \langle HRR \rangle$ 
  - MEFS-LFS HRR comparison may now screen a fire scenario not only for “low” HRRs, but also for HRRs approaching “high”
  - However, below this level ( $HRR_{LFS} < 3x \langle HRR \rangle$ ), approach remains practical only for “low” HRRs with narrow variability and relatively small uncertainty in HRR distribution

**From:** Beasley, Benjamin  
**To:** Coe, Doug; Boska, John; Chokshi, Niles  
**Cc:** Coyne, Kevin; Hiland, Patrick; Munson, Clifford  
**Subject:** RE: Outcomes from Meeting With New York State Officials  
**Date:** Wednesday, March 23, 2011 2:27:41 PM

---

I confirm that OEGIB is working items 1 and 2 in the IOUs.

Ben

---

**From:** Coe, Doug  
**Sent:** Tuesday, March 22, 2011 6:14 PM  
**To:** Boska, John; Beasley, Benjamin; Chokshi, Niles  
**Cc:** Coyne, Kevin; Hiland, Patrick; Munson, Clifford  
**Subject:** RE: Outcomes from Meeting With New York State Officials

John – Some comments and one correction provided in attached (see red text).

Ben – please confirm that you will provide items 1 and 2 in the “items we promised” category.

Niles – please let us know if you concur with the change of responsibility in item 4.

Thanks,  
Doug

---

**From:** Sheron, Brian  
**Sent:** Tuesday, March 22, 2011 2:40 PM  
**To:** Coe, Doug; Beasley, Benjamin  
**Cc:** Uhle, Jennifer  
**Subject:** FW: Outcomes from Meeting With New York State Officials  
**Importance:** High

---

**From:** Boska, John  
**Sent:** Tuesday, March 22, 2011 2:31 PM  
**To:** Leeds, Eric  
**Cc:** Grobe, Jack; Salgado, Nancy; Schwarz, Sherry; Sheron, Brian; Bickett, Brice; Hiland, Patrick; Galloway, Melanie; Salgado, Nancy  
**Subject:** Outcomes from Meeting With New York State Officials  
**Importance:** High

Attached are the agreements and the items we promised during the meeting, with a proposed responsible organization.

John Boska  
Indian Point Project Manager, NRR/DORL  
U.S. Nuclear Regulatory Commission  
301-415-2901  
email: john.boska@nrc.gov

AG/858

## Beasley, Benjamin

---

**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 2:35 PM  
**To:** Kauffman, John  
**Subject:** FW: Outcomes from Meeting With New York State Officials  
**Attachments:** Outcomes From Meeting With New York State On Indian Point Seismic Concerns - with RES comments.docx

When it rains it pours.

Please handle our IOUs as described by Doug below and in the attachment.

For item 1, my thought is to bundle up PDF versions of the memo, enclosure and all appendices into a zip file and send it with a link to the public Web site version (<http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML100270582>) to John Boska (IP PM).

For item 2, in addition to the seismic ruggedness of spent fuel pools, we need to identify when the IP pools had a seismic evaluation. (IPEEE review, licensing review, etc.) Of course, the more recent the better.

We have been given no timeline for this but we should do it relatively quickly (days).

Thanks!

Ben

---

**From:** Coe, Doug  
**Sent:** Tuesday, March 22, 2011 6:14 PM  
**To:** Boska, John; Beasley, Benjamin; Chokshi, Nilesh  
**Cc:** Coyne, Kevin; Hiland, Patrick; Munson, Clifford  
**Subject:** RE: Outcomes from Meeting With New York State Officials

John – Some comments and one correction provided in attached (see red text).

Ben – please confirm that you will provide items 1 and 2 in the “items we promised” category.

Nilesh – please let us know if you concur with the change of responsibility in item 4.

Thanks,  
Doug

---

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**Sent:** Tuesday, March 22, 2011 2:40 PM  
**To:** Coe, Doug; Beasley, Benjamin  
**Cc:** Uhle, Jennifer  
**Subject:** FW: Outcomes from Meeting With New York State Officials  
**Importance:** High

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**From:** Boska, John  
**Sent:** Tuesday, March 22, 2011 2:31 PM

**To:** Leeds, Eric

**Cc:** Grobe, Jack; Salgado, Nancy; Schwarz, Sherry; Sheron, Brian; Bickett, Brice; Hiland, Patrick; Galloway, Melanie; Salgado, Nancy

**Subject:** Outcomes from Meeting With New York State Officials

**Importance:** High

Attached are the agreements and the items we promised during the meeting, with a proposed responsible organization.

John Boska

Indian Point Project Manager, NRR/DORL

U.S. Nuclear Regulatory Commission

301-415-2901

email: john.boska@nrc.gov

## Outcomes From Meeting With New York State On Indian Point Seismic Concerns

March 22, 2011

Notes by John Boska

### **Agreements between NRC and NYS:**

1. State inspectors may join NRC inspectors for seismic inspections at Indian Point. (Region I)
2. NRC will share our data on seismic studies with NYS as soon as it is available, as long as there is no legal prohibition (such as proprietary). (Research) – The GI-199 Safety/Risk Assessment Report is already public and when the final analyses are completed following the receipt of licensee information from the intended generic communication we will also make that information public. No immediate action for RES/DRA at this time.
3. When the plant information on seismic is received from a response to the NRC's Generic Letter that will be issued to the licensees, the NRC will give top priority to reviewing the Indian Point data. (DE)- This is actually a joint RES/DRA and NRR/DPR responsibility, since RES/DRA will do the initial analysis of licensee-supplied information and NRR/DPR will need to complete the Regulatory Analysis based on RES/DRA input.
4. Spent fuel pool leakage and its effect on the spent fuel pool structure was part of the license renewal review. (DLR)

### **Items we promised to New York State:**

1. We will provide the GI-199 Risk Assessment Review report to NYS. (Research) – This is already public and RES/DRA will provide the link to our public website, via the NRR PM.
2. We will provide information on why the spent fuel pools are not included in GI-199, including any information we have on the seismic ruggedness of the pools. (Research) – RES/DRA will provide references (weblinks or documents if necessary) to previous studies, via the NRR PM.
3. We will provide examples of improvements made at Indian Point during the IPEEE seismic review. (DORL)
4. We will provide the raw data being used to develop the new consensus seismic hazard curves, or will meet with NYS experts to explain it. (Research) – This should actually be an NRO responsibility (Cliff Munson).

**Murphy, Andrew**

---

**From:** Hurd, Sapna  
**Sent:** Wednesday, March 23, 2011 2:38 PM  
**To:** RES\_DE  
**Subject:** 3rd Quarter APP

All PM's:

I am in the process of compiling 3<sup>rd</sup> quarter APP list. I will be using the Spending Balance Report in ROMA to enter the funding amount. Please make sure you update all your MLSR's by C.O.B. tomorrow (3/24).

Please feel free to email me any questions/concerns (especially questions regarding CR, how far we are funding thru, etc...).

*Sapna Hurd  
Management Analyst  
Division of Engineering  
Office of Nuclear Regulatory Research  
U.S. NRC  
Ph: 301-251-7687  
5C04*

**From:** [National Governors Association](#)  
**To:** [Leeds, Eric](#)  
**Cc:** [Schwarz, Sherry](#)  
**Subject:** Registration Confirmed - Governors' Energy Advisors Policy Institute  
**Date:** Wednesday, March 23, 2011 2:39:28 PM

---

Dear Eric:

Thank you for registering to attend the "Governors' Energy Policy Advisors Policy Institute" on April 5-6, 2011 in Arlington, Virginia.

Your registration has been confirmed. Please save this email for future reference.

If you need to download the specific meeting details - including hotel, travel and reimbursement information - click on the link below. Then go to "My Registration", enter your confirmation number and click on "Modify Registration". Links to the meeting information are located at the top of the registration page.

If you have any questions regarding the program, please contact Greg Dierkers at 202.624.7789 or [gdierkers@nga.org](mailto:gdierkers@nga.org). If you have any questions regarding registration process, please contact Amanda Hoey at 202.624.8572 or [ahoey@nga.org](mailto:ahoey@nga.org).

We look forward to seeing you!

Event: Governors' Energy Advisors Policy Institute  
Attending: Eric Leeds  
Date: April 05, 2011

Confirmation number: 7JNKLXETYPB

To view, modify or cancel your registration, click the link below.

[Click here to view the event summary](#) \* \* \* \* \*

Having trouble with the link? Simply copy and paste the entire address listed below into your web browser:

[http://guest.cvent.com/d/t9Y7CB54LUe\\_S\\_-NJyKnmA/0777/P1/5S?](http://guest.cvent.com/d/t9Y7CB54LUe_S_-NJyKnmA/0777/P1/5S?)  
\* \* \* \* \*

If you no longer want to receive emails from National Governors Association please click the link below.  
[Opt-Out](#)

---



AG/861



## Murphy, Andrew

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**From:** Murphy, Andrew  
**Sent:** Wednesday, March 23, 2011 2:41 PM  
**To:** Ray, Neil  
**Subject:** Declined: FW: Applicability of ASME Section III for iPWRs

AG/862

**From:** Ott, William  
**To:** Case, Michael  
**Subject:** Sorry, Mike. Focus group meeting popped up on my calendar and I was just making sure there wasn't one.  
**Date:** Wednesday, March 23, 2011 3:04:55 PM

---

AG/863

**From:** Hogan, Rosemary  
**To:** Grancorvitz, Teresa; Case, Michael  
**Subject:** RE: TRAVEL FUNDS CERTIFICATION QUESTION  
**Date:** Wednesday, March 23, 2011 3:17:18 PM

---

Yes, it should be.

---

**From:** Grancorvitz, Teresa  
**Sent:** Wednesday, March 23, 2011 6:36 AM  
**To:** Case, Michael; Hogan, Rosemary  
**Subject:** FW: TRAVEL FUNDS CERTIFICATION QUESTION

I assume this is the same trip Madhumita is going on and should be approved.

Thanks,  
Teresa

---

**From:** Graves, Herman  
**Sent:** Tuesday, March 22, 2011 6:50 PM  
**To:** Mulgrew, Yvonne  
**Cc:** Pires, Jose; Hogan, Rosemary  
**Subject:** TRAVEL FUNDS CERTIFICATION QUESTION

Hello Yvonne,

I am scheduled to travel to Tampa, FL on April 3, 2011 for the following trip:

<u>Traveler Name</u>	<u>Trip ID</u>	<u>Trip Status</u>
HERMAN GRAVES	2788323	Pending Authorization Approval (RES TA FUNDS CERT - YM/KL/BG/TG)

Any idea of when the funds will be certified for my trip? I need to amend the travel to leave one day earlier.

Thank you very much,

<<Herman>>

<<301.251.7625>>

mail to: Herman.Graves@nrc.gov

AG/864

**From:** Case, Michael  
**To:** Ott, William  
**Subject:** RE: Sorry, Mike. Focus group meeting popped up on my calendar and I was just making sure there wasn't one.  
**Date:** Wednesday, March 23, 2011 3:20:00 PM

---

Thanks. I was late in arriving anyway so I didn't see who was initially there. I have an unrelated question for you. What's the latest story on RG 4.4?

---

**From:** Ott, William  
**Sent:** Wednesday, March 23, 2011 3:05 PM  
**To:** Case, Michael  
**Subject:** Sorry, Mike. Focus group meeting popped up on my calendar and I was just making sure there wasn't one.

AG/865

**From:** NRO ARP ARB1 2 Cal Resource  
**To:** RES DSA Calendar Resource; Reckley, William; Mayfield, Michael; Uhle, Jennifer; Gibson, Kathy; Valentin, Andrea; Rubin, Stuart; Zaki, Tarek; Basu, Sudhamay; Carlson, Donald; Scott, Michael; NRO Division Directors; Norato, Michael; Coffin, Stephanie; Magruder, Stewart; Ray, Neil  
**Cc:** Kelly, Joseph; Coe, Doug; Lui, Christiana; Case, Michael; Richards, Stuart; Gavrilas, Mirela; Coyne, Kevin; Bergman, Thomas  
**Subject:** Weekly RES/NRO Advanced Reactor Meeting/Conference Call

---

When: Wednesday, March 23, 2011 3:30 PM-4:30 PM (GMT-05:00) Eastern Time (US & Canada).  
Where: T7A01

Note: The GMT offset above does not reflect daylight saving time adjustments.

\*~\*~\*~\*~\*~\*~\*~\*~\*~\*

In view of conflicting schedules and the NRO All-Hands meeting this Wed. we are cancelling this week's meeting.

Good afternoon,

All NRO Staff wishing to attend this video-teleconference with RES, please be advised that this week's meeting will be held in T7A01. I have invited all Division Directors to attend if they would like. Please forward to any others who may be interested.

AG/866

**From:** RES DSA Calendar Resource  
**To:** Gibson, Kathy; Scott, Michael; Basu, Sudhamay; Rubin, Stuart; Zaki, Tarek; Case, Michael; Coe, Doug; Coyne, Kevin  
**Subject:** Canceled: RES/NRO Advanced Reactor Coordination Meeting  
**Importance:** High

---

When: Wednesday, March 23, 2011 3:30 PM-4:30 PM (GMT-05:00) Eastern Time (US & Canada).  
Where: CSB-02C19

Note: The GMT offset above does not reflect daylight saving time adjustments.

\*~\*~\*~\*~\*~\*~\*~\*~\*~\*

AG 1867

**From:** Boska, John  
**To:** Leeds, Eric; Brenner, Eliot  
**Cc:** Salgado, Nancy; Galloway, Melanie; Wrona, David; Green, Kimberly; Nelson, Robert  
**Subject:** Material on Indian Point to be provided to New York State  
**Date:** Wednesday, March 23, 2011 3:31:42 PM  
**Attachments:** Pages from NUREG-1930 Vol 2 on IP2 SFP leak.pdf

---

(I apologize if you received this twice, there were some glitches).

Eric and Eliot,

I was asked to have you review any material we plan to send to New York State. One of the items we promised to New York State was information on how the leak in the Indian Point 2 spent fuel pool was addressed during license renewal. Attached is an excerpt from the Indian Point license renewal safety evaluation, NUREG-1930 Vol. 2, showing how it was addressed. The NUREG is publicly available in ADAMS (ML093170451, ML093170671). I can't email the complete NUREG with a reference to the pages because it is too large to email. I will provide these pages to Nancy McNamara, the SLO in Region I, along with the ADAMS reference, for forwarding to New York State.

Please concur with sending this material to New York State. Thanks.

John Boska  
Indian Point Project Manager, NRR/DORL  
U.S. Nuclear Regulatory Commission  
301-415-2901  
email: john.boska@nrc.gov

AG/868

concrete has been exposed to the leakage during refueling outages for at least 16 years with no visible signs of degradation. If the 2010 inspections also show no degradation after 16 plus years of intermittent leakage, there is reasonable assurance that a follow-up inspection within 10 years will detect any future degradation prior to a loss of intended function of the refueling cavity structures.

Based on the inspections conducted to date and the actions the applicant is planning to take prior to and during the period of extended operation, the staff finds that the aging effects on the IP2 refueling cavity concrete will be adequately managed during the period of extended operation, as required by 10 CFR 54.21(a)(3). Therefore, Open Item 3.0.3.2.15-1 is closed.

#### **IP2 Spent Fuel Pool Crack/Leak Paths (Audit Item 360)**

In its response for IP2 spent fuel pool (SFP) crack/leak paths, Entergy described the noted degraded conditions in greater detail, summarized corrective actions taken, and identified the current status of the degradation. The leakage was first discovered during excavation for the IP2 Fuel Storage Building in 2005. Entergy believes the conditions leading to leakage have been corrected.

For the extended period of operation, Entergy will rely on the Structures Monitoring Program for aging management of the spent fuel pool concrete, and rely on the Water Chemistry Control – Primary and Secondary Program and monitoring of the pool level per technical specifications for aging management of the spent fuel pool stainless steel liner. However, Entergy made no commitment for augmented inspection during the extended period of operation. The staff informed Entergy that its responses to Items (g) and (h) needed additional clarification. Due to the lack of a leak-chase channel system at IP2 to monitor, detect and quantify potential leakage through the SFP liner, the staff is concerned that there has been insufficient time following the corrective actions to be certain that the leakage problems have been permanently corrected. In a follow-up discussion with regard to Audit Question 360, the staff requested Entergy to provide the technical basis as to why augmented inspection during the extended period of operation is not necessary.

The applicant provided its detailed response in a letter dated August 14, 2008. In its response, the applicant stated that all known sources of leakage from the IP2 spent fuel pool have been eliminated based on the inspections and repairs already implemented. The licensee stated that it completed, in 2007, a one-time inspection of the accessible 40 percent of the SFP liner above the fuel racks and 100 percent of the SFP transfer canal liner using general visual, robotic cameras and vacuum box testing techniques. To provide additional indication of potential spent fuel pool leakage, the applicant has committed to test the groundwater outside the IP2 spent fuel pool for the presence of tritium from samples taken from adjacent monitoring wells, every 3 months. The presence of tritium in the groundwater could be indicative of a continuing leak from the spent fuel pool (Commitment 25). The applicant has also revised the LRA description of its Structures Monitoring AMP to include this special testing as an enhancement.

Although Entergy has taken corrective action and has committed to quarterly monitoring for tritium in the groundwater, the staff was concerned that hidden degradation of concrete and rebar may have resulted from prior leakage, and may be continuing if there is still an active leakage mechanism. In a telephone call with Entergy on September 3, 2008, the staff requested the applicant to submit additional relevant information on the condition of concrete



and rebar in areas where leakage was detected, and the existing design margins in these areas.

By letter dated November 6, 2008, the applicant submitted a supplemental response to Audit Item 360, which provided a detailed description of (1) the design margins for the spent fuel pool concrete walls; and (2) the results of prior concrete core sample testing and rebar corrosion testing. At the time of issuance of the SER with Open Items, the staff was in the process of reviewing the applicant's response. Therefore, this issue was identified as Open Item 3.0.3.2.15-2. The applicant's letter of November 6, 2008, provided the following information:

IPEC analyzed the capability of the east spent fuel pool pit wall and the south spent fuel pool pit wall to resist the design basis loads considering potential concrete and reinforcement steel degradation due to observed leakage of fluids through these walls. Finite Element models for both the east and south walls were developed to determine the actual forces in the walls due to loading resulting from the design basis earthquake, hydrostatic forces and dead weight. Due to the symmetry of the spent fuel pit structure, results from the evaluation of these two walls are applicable to the remaining north and west walls. The following summarizes the results and conclusions from these two analyses.

#### East Wall Evaluation

The capacity of the east wall was evaluated in response to possible degradation due to an observed leak in 1992. It was determined that work in the spent fuel pool in 1990 initiated the leak by inadvertently creating a small hole in the stainless steel liner. This condition was repaired in 1992. A total of 20 core bores were taken from 5 locations on the east wall in the vicinity of the observed leakage to determine the condition of the concrete following exposure to borated water leakage. At each of the 5 locations, 4 individual cores 4" in diameter and 15" in length were taken, resulting in a total depth of penetration into the wall of 60". In addition, several windows in the outer surface of the wall were created to allow inspection of the outer layer of reinforcing steel. Of the 20 cores taken, all but one had compressive strengths that exceeded the design strength of 3000 psi. This one core outlier had a measured compressive strength of 2400 psi.

The lower value was attributed to its close proximity to a known concrete sub-surface delamination in the wall and was not considered to be representative of the general condition of the wall. Analysis of the concrete matrix showed that the borated water had little or no effect on the concrete itself. Little or no corrosion was observed in the rebar except at a location in the wall where spalling had occurred exposing rebar to the elements. Analysis of the rust particles showed high chloride content and low boron concentration indicating that rainwater was the primary cause of the observed corrosion. To determine the available margin in the east wall, moments were calculated using a finite element plate model. The results of the analysis showed the east wall was capable of resisting the applicable forces without any reinforcing steel and would incur little or no cracking as a result of the design loading. Conservatively assuming that the

concrete would crack and the bending moments would be carried by the reinforcing steel, the following minimum margins exist with respect to the ultimate moment capacity of the wall. In other words, the load bearing capability of the wall is at least 31% greater than the required load bearing capability.

Northeast Corner 1/4 to 1/2 wall depth: 31%

Mid Span 1/4 to 1/2 wall depth: 43%

#### South Wall Evaluation

An evaluation determined the margins in the south wall due to possible rebar degradation as a result of observed fluid emanating from a crack discovered in the west corner during excavation for the dry cask storage project. The reinforcing steel in the area of the observed leak was exposed for inspection. The condition of the reinforcing steel was good with little or no corrosion. To determine the actual forces in the south wall due to the design basis loads, a finite element model of the wall was developed. Based on the resulting moments from the analysis, the margins in the south wall with respect to the ultimate moment capacity of the concrete section are as noted below:

Section with Horizontal Steel at Wall Center: 45%

Section with Horizontal Steel at Crack Location: 51%

Section with Vertical Steel at Crack Location: 57%

Section with Vertical Steel at Base: 25%

The available margins in the east and south walls of the spent fuel pool pit with respect to the as-designed condition range from a low of 25% at the base of the wall for the vertical steel to a high of 57% for the vertical steel at the crack location in the west corner of the wall. The margins for the horizontal rebar at wall mid span range from 43%-45% and up to 51% in the vicinity of the observed crack.

The staff reviewed the applicant's November 6, 2008 response, and determined that additional clarifications were necessary before it could conclude that the applicant's proposed aging management program for the extended period of operation is sufficient.

In an effort to resolve this open item, the staff issued follow-up RAI 2: Open Item 3.0.3.2.15-2 (Audit Question 360), dated April 3, 2009, which requested the following:

- (a) In Commitment 25, the applicant commits to sample for tritium in groundwater wells in close proximity to the IP2 spent fuel pool at least every three months to assess for potential indications of spent fuel pool leakage. This commitment does not describe what actions will be taken if leakage continues. If sampling indicates continued leakage, the applicant's AMP should include a method to determine if a degraded condition exists during the period of extended operation, or the applicant should explain how the Structures Monitoring Program will adequately manage potential aging of the inaccessible concrete of the IP2 spent fuel

pool due to borated water leakage during the period of extended operation.

- (b) The second paragraph on page 2 of Attachment 1 of the clarification letter dated November 6, 2008, states in part: "[l]ittle or no corrosion was observed in the rebar except at a location in the wall where spalling had occurred exposing rebar to the elements. Analysis of the rust particles showed high chloride content and low boron concentration indicating that rainwater was the primary cause of the observed corrosion." The staff requests the applicant to identify any Unit 2 and Unit 3 operating experience related to rebar corrosion, in light of the chloride content in rainwater, and identify the likely source for the high chloride content in the rainwater. Additionally, the applicant is requested to explain whether and how the AMP is adequate to address this environment and the related potential aging effects to ensure there is no loss of intended function during the period of extended operation.

By letter dated May 1, 2009, Entergy provided the following response to follow-up RAI 2: Open Item 3.0.3.2.15-2 (Audit Question 360):

- (a) As indicated in Entergy letter NL-08-127, dated August 14, 2008, Audit Question 360, degradation has not been attributed to the effects of aging, but to poor construction and workmanship practices during initial construction activities. Consequently, future degraded conditions are not expected:

The method to determine if a degraded condition exists during the period of extended operation is continued monitoring for leakage by monitoring SFP level and monitoring ground water in the vicinity of the pool exterior walls for indications of pool leakage. The absence of leakage will indicate no degraded condition exists. Leakage, if any, indicates potential degradation. If leakage is found, it will be evaluated under the corrective action program (i.e., Element 7 of the SMP). If sampling indicates that ground water contains constituents indicating pool leakage then evaluation is required under the corrective action program to assess the potential for degradation and determine appropriate corrective actions. An example of the aggressive corrective actions expected in response to identified leakage is found in the condition report described in response to Audit Question 360, Entergy Letter NL-08-127, dated August 14, 2008. Corrective actions for that condition included inspections of all accessible surfaces of the SFP liner, installation of monitoring wells in the vicinity, performance of UT examinations, bore samples, rebar inspections and inspections using remote camera technology.

As stated in the Statement of Consideration (SOC) for the license renewal rule, 'Given the Commission's ongoing obligation to oversee the safety and security of operating reactors, issues that are relevant to current plant operation will be addressed by the existing regulatory process within the present license term rather than deferred until the time

of license renewal.' Since the issue of SFP leakage is currently being addressed by the existing licensing and regulatory process that process provides reasonable assurance that appropriate corrective actions will be taken during the current license term. Those actions will continue as appropriate through the period of extended operation.

- (b) The original 1993 consultant analysis associated with the degraded concrete area speculated that the likely source for the high chloride content was condensation of chloride laden air (chlorides from the brackish Hudson River water) on the outer surface of the pool wall. It has since been concluded that the chloride source was likely associated with the use of rock salt or storage of chemicals or materials in the area.

Studies of the chloride content in rain water and ground water do not support the levels that were found in 1993. Studies typically show the national average of chlorides in rain water to be a maximum of 1.0 to 1.5 parts per million (PPM) with values inland approaching 0.2 PPM. The National Atmospheric Deposition Program (NAPD), Hudson Valley location West Point station, located upriver from the plant, chloride data from 1983 to 2007 shows values from 0.18 to 0.66 PPM. This is significantly lower than the values initially reported and does not support the supposition that chlorides originated from rainwater. No IP operating experience has linked high chlorides in rainwater to corrosion of embedded rebar. The pool wall was repaired eliminating the spent fuel pool rebar exposure to rainwater.

The aging management programs for concrete exposed to the elements, the Structures Monitoring Program and the Containment ISI Program, are adequate to address this environment and the related potential aging effects to ensure there is no loss of intended function during the period of extended operation. Visual inspections performed under these programs have confirmed no loss of intended function due to aging effects. These programs will continue to monitor potential future degradation of the concrete cover that could result in exposure of the underlying rebar to the outdoor environment.

Minor degradation that has been observed during these inspections has shown little change between inspections confirming the adequacy of the inspection frequency of the Structures Monitoring and Containment ISI Programs. If rebar degradation is identified during future inspections (e.g., observation of concrete staining during visual inspection), the condition will be evaluated in accordance with the program requirements to ensure necessary corrective actions are taken to prevent loss- of intended function.

The staff reviewed the applicant's response dated May 1, 2009 and the applicant's previous responses concerning spent fuel pool leakage. The staff noted the following:

- A leak in the East wall of the spent pool liner was originally observed and repaired in 1992. This leak was traced to work performed in the spent fuel pool during 1990. The applicant took 20 core bore samples of the concrete from the affected wall and tested them. In addition, the condition of the reinforcement in the core bored areas was visually examined. Detailed structural analysis of the spent fuel pool structure was performed that concluded that the condition of the spent fuel pool walls was adequate to resist the postulated design loads.
- Spent fuel pool leakage was again observed in 2005. The applicant performed extensive testing of the spent pool liner using visual, robotic camera, and vacuum box testing techniques in 2007 and eliminated all known sources of spent fuel pool leakage.
- Currently there is no evidence of continued leakage from the IP2 spent fuel pool.
- The applicant has committed to sample for tritium in the groundwater wells in close proximity to the IP2 spent fuel pool every three months (Commitment 25). Tritium in the groundwater would indicate leakage from the spent fuel pool, which may lead to degradation. Any identified leakage will be reviewed and the corrective action program will be used to determine the appropriate actions.

Based on inspections conducted under the applicant's Structures Monitoring Program, and the applicant's additional commitment to monitor the groundwater samples from monitoring wells adjacent to the spent fuel pool, there is reasonable assurance that any degradation of the IP2 spent fuel pool would be identified, and evaluated within the corrective action program prior to loss of intended function. Therefore, the staff concludes that the effects of aging will be adequately managed during the period of extended operation as required by 10 CFR 54.21(a)(3). On this basis, Open Item 3.0.3.2.15-2 is closed.

UFSAR Supplement. In LRA Sections A.2.1.35 and A.3.1.35, the applicant provided the UFSAR supplement for the Structures Monitoring Program. By letter dated March 24, 2008, the applicant revised LRA Sections A.2.1.35 and A.3.1.35 and Commitment 25 to: (1) include inspection of anchorages of certain commodities; (2) inspect inaccessible concrete areas that are exposed by excavation for any reason, and inspect inaccessible concrete areas in environments where observed conditions in accessible areas exposed to the same environment indicate that significant degradation is occurring; (3) perform inspections of elastomers to identify cracking and change in material properties, and inspections of aluminum vents and louvers to identify loss of material; (4) obtain samples from at least five monitoring wells that are representative of the ground water surrounding below-grade site structures and perform an engineering evaluation of the results; (5) inspect normally submerged concrete portions of the intake structures at least once every 5 years, and inspect the baffling/grating partition and support platform of the IP3 intake structure at least once every 5 years; and (6) inspect the degraded areas of the water control structure once per 3 years rather than the normal frequency of once per 5 years during the period of extended operation. By letter dated June 12, 2009, the applicant revised Commitment 36, which complements the Structures Monitoring Program, as discussed above. The staff reviewed these sections, as revised, and determines

**From:** Flory, Shirley  
**To:** Armstrong, Kenneth; Bagley, Susan; Baxter, Brad; Biddison, John; Bonaccorso, Amy; Bowman, Gregory; Case, Michael; Chalk, Wayne; Clark, Theresa; Coe, Doug; Coyne, Kevin; Cruz, Holly; Cullison, David; Dion, Jeanne; Doolittle, Elizabeth; Gibson, Kathy; Harris, Paul; Hoxie, Chris; Hudson, Daniel; Uhle, Jennifer; Littlejohn, Jennene; Bano, Mahmooda; Muesse, Mary; Nerret, Amanda; Ott, William; Pederson, Perry; Pope, Tia; Resner, Mark; Richards, Stuart; Rini, Brett; Santiago, Patricia; Scott, Michael; Sheron, Brian; Flory, Shirley; Tabakov, Emil; Veltri, Debra  
**Subject:** RES STAFF MEETING  
**Date:** Wednesday, March 23, 2011 3:35:30 PM

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**RES STAFF MEETING**  
**Monday, March 28**  
**8:45 am**  
**Church Street 6B1**

**Thanks - Shirley**

AG 1869

**From:** Flory, Shirley  
**To:** Case, Michael  
**Subject:** REMEMBER TO DO YOUR TIME SHEET. Thanks much - Shirley  
**Date:** Wednesday, March 23, 2011 3:38:29 PM

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AG/870

## Beasley, Benjamin

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**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 3:40 PM  
**To:** Kauffman, John  
**Subject:** FW: Outcomes from Meeting With New York State Officials  
**Attachments:** Outcomes From Meeting With New York State On Indian Point Seismic Concerns - with RES comments.docx

On the spent fuel pool item, GI-182 may help and I was told that Herman Graves and Jose Pires of RES/DE may have prepared material on this topic for the Commission meeting last Monday.

Thanks for handling this.

BB

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**From:** Beasley, Benjamin  
**Sent:** Wednesday, March 23, 2011 2:35 PM  
**To:** Kauffman, John  
**Subject:** FW: Outcomes from Meeting With New York State Officials

When it rains it pours.

Please handle our IOUs as described by Doug below and in the attachment.

For item 1, my thought is to bundle up PDF versions of the memo, enclosure and all appendices into a zip file and send it with a link to the public Web site version (<http://adamswebsearch2.nrc.gov/idmws/ViewDocByAccession.asp?AccessionNumber=ML100270582>) to John Boska (IP PM).

For item 2, in addition to the seismic ruggedness of spent fuel pools, we need to identify when the IP pools had a seismic evaluation. (IPEEE review, licensing review, etc.) Of course, the more recent the better.

We have been given no timeline for this but we should do it relatively quickly (days).

Thanks!

Ben

---

**From:** Coe, Doug  
**Sent:** Tuesday, March 22, 2011 6:14 PM  
**To:** Boska, John; Beasley, Benjamin; Chokshi, Nilesh  
**Cc:** Coyne, Kevin; Hiland, Patrick; Munson, Clifford  
**Subject:** RE: Outcomes from Meeting With New York State Officials

John – Some comments and one correction provided in attached (see red text).

Ben – please confirm that you will provide items 1 and 2 in the “items we promised” category.

Nilesh – please let us know if you concur with the change of responsibility in item 4.

Thanks,  
Doug



---

**From:** Sheron, Brian  
**Sent:** Tuesday, March 22, 2011 2:40 PM  
**To:** Coe, Doug; Beasley, Benjamin  
**Cc:** Uhle, Jennifer  
**Subject:** FW: Outcomes from Meeting With New York State Officials  
**Importance:** High

---

**From:** Boska, John  
**Sent:** Tuesday, March 22, 2011 2:31 PM  
**To:** Leeds, Eric  
**Cc:** Grobe, Jack; Salgado, Nancy; Schwarz, Sherry; Sheron, Brian; Bickett, Brice; Hiland, Patrick; Galloway, Melanie; Salgado, Nancy  
**Subject:** Outcomes from Meeting With New York State Officials  
**Importance:** High

Attached are the agreements and the items we promised during the meeting, with a proposed responsible organization.

John Boska  
Indian Point Project Manager, NRR/DORL  
U.S. Nuclear Regulatory Commission  
301-415-2901  
email: [john.boska@nrc.gov](mailto:john.boska@nrc.gov)

## Outcomes From Meeting With New York State On Indian Point Seismic Concerns

March 22, 2011

Notes by John Boska

### **Agreements between NRC and NYS:**

1. State inspectors may join NRC inspectors for seismic inspections at Indian Point. (Region I)
2. NRC will share our data on seismic studies with NYS as soon as it is available, as long as there is no legal prohibition (such as proprietary). (Research) – The GI-199 Safety/Risk Assessment Report is already public and when the final analyses are completed following the receipt of licensee information from the intended generic communication we will also make that information public. No immediate action for RES/DRA at this time.
3. When the plant information on seismic is received from a response to the NRC's Generic Letter that will be issued to the licensees, the NRC will give top priority to reviewing the Indian Point data. (DE)- This is actually a joint RES/DRA and NRR/DPR responsibility, since RES/DRA will do the initial analysis of licensee-supplied information and NRR/DPR will need to complete the Regulatory Analysis based on RES/DRA input.
4. Spent fuel pool leakage and its effect on the spent fuel pool structure was part of the license renewal review. (DLR)

### **Items we promised to New York State:**

1. We will provide the GI-199 Risk Assessment Review report to NYS. (Research) – This is already public and RES/DRA will provide the link to our public website, via the NRR PM.
2. We will provide information on why the spent fuel pools are not included in GI-199, including any information we have on the seismic ruggedness of the pools. (Research) – RES/DRA will provide references (weblinks or documents if necessary) to previous studies, via the NRR PM.
3. We will provide examples of improvements made at Indian Point during the IPEEE seismic review. (DORL)
4. We will provide the raw data being used to develop the new consensus seismic hazard curves, or will meet with NYS experts to explain it. (Research) – This should actually be an NRO responsibility (Cliff Munson).

**From:** Bonaccorso, Amy  
**To:** Cady, Ralph  
**Cc:** Donaldson, Leslie; Coe, Doug  
**Subject:** RE: Revised Article on Ground-Water Contamination  
**Date:** Wednesday, March 23, 2011 3:57:43 PM

---

Hello Ralph,

I am almost finished with the newsletter and once I have your piece, I can wrap up this edition. Do you think you can have it ready by noon tomorrow?

Thank you,

Amy

---

**From:** Cady, Ralph  
**Sent:** Tuesday, March 22, 2011 3:35 PM  
**To:** Bonaccorso, Amy  
**Subject:** RE: Revised Article on Ground-Water Contamination

Thanks!

---

**From:** Bonaccorso, Amy  
**Sent:** Tuesday, March 22, 2011 3:31 PM  
**To:** Cady, Ralph  
**Subject:** FW: Revised Article on Ground-Water Contamination

Thanks for the help. I am putting the Researcher together now and juggling that with disaster response efforts, so I do appreciate your assistance.

Several photos were sent with this, but I thought I'd save your inbox capacity!

Thanks,

Amy

---

**From:** Nicholson, Thomas  
**Sent:** Thursday, March 03, 2011 7:21 PM  
**To:** Bonaccorso, Amy  
**Subject:** Revised Article on Ground-Water Contamination

Amy:

Attached is the subject article with graphics.

Thanks ..... Tom

\*\*\*\*\*

Thomas J. Nicholson, Senior Technical Advisor  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research

AG/872

Mail Stop CSB 2-A07  
11555 Rockville Pike  
Rockville, MD 20852  
Tel: (301) 251-7498  
Fax: (301) 251-7422  
E-mail: [Thomas.Nicholson@nrc.gov](mailto:Thomas.Nicholson@nrc.gov)  
\*\*\*\*\*

**From:** Johnson, Michael  
**To:** Cohen, Miriam; Leeds, Eric  
**Cc:** Borchardt, Bill  
**Subject:** Re: Process for selecting acting deputy office directors  
**Date:** Wednesday, March 23, 2011 3:54:16 PM

---

I want to consult succession planning.  
From my blackberry.

----- Original Message -----  
From: Cohen, Miriam  
To: Leeds, Eric; Johnson, Michael  
Cc: Borchardt, Bill  
Sent: Wed Mar 23 14:21:01 2011  
Subject: Re: Process for selecting acting deputy office directors

I think you should be fine. We have an ERB on Friday so I would propose that you inform the group of your decision and the rationale you used in making it.

I wonder if Mike will be ready.

----- Original Message -----  
From: Leeds, Eric  
To: Cohen, Miriam; Johnson, Michael  
Sent: Wed Mar 23 14:16:51 2011  
Subject: RE: Process for selecting acting deputy office directors

Thanks, Miriam. I had the same thought and tried that. Unfortunately, with all the folks acting throughout HQs (Moore for Carpenter, Dorman in Japan, Gary Holahan to near term team, Evans to NSIR, etc etc,) and supporting the OPs Center, the folks I tried were not available. I'm going to go with Bill Ruland.

Will that cause a disturbance with the ERB? I don't know that Mike and I have time to solicit and mess around.....

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----  
From: Cohen, Miriam  
Sent: Wednesday, March 23, 2011 1:43 PM  
To: Leeds, Eric; Johnson, Michael  
Subject: Process for selecting acting deputy office directors

Hello there. Just wanted to know if you need any support from OHR as you select your acting deputies? I assume you have the latest succession planning lists. If not, let us know.

Thanks.

Miriam

AG 1873

**From:** Zabel, Joseph  
**To:** Wach, Lisa  
**Subject:** RE: Request for Tech Editing  
**Date:** Wednesday, March 23, 2011 4:03:00 PM  
**Attachments:** Algama.red.docx  
Algama.cor.docx

---

Hi Lisa:

I have attached my edited redline (.red) and final corrected (.cor) versions of the HTGR memo for review and distribution.

Please feel free to call me with any questions or concerns.

Thanks,

Joe

*Joe Zabel*  
*Senior Program Analyst/Technical Editor*  
U.S. Nuclear Regulatory Commission  
Office of Nuclear Regulatory Research  
PMDA/Document Control Branch  
joseph.zabel@nrc.gov  
06D05

---

**From:** Wach, Lisa  
**Sent:** Monday, March 21, 2011 2:14 PM  
**To:** Zabel, Joseph  
**Subject:** Request for Tech Editing

Joe,

Can you please tech edit the attached, by COB tomorrow, if possible. Thanks.

AG/874

MEMORANDUM TO: Michael E. Mayfield, Director  
Advanced Reactor Program  
Office of New Reactors-

FROM: Kathy Halvey Gibson, Director  
Division of Systems Analysis  
Office of Nuclear Regulatory Research

SUBJECT: DEVELOPMENT OF NUCLEAR DATA LIBRARIES FOR HTGR:  
GENERATION OF A BROAD GROUP HTGR LIBRARY FOR USE  
WITH SCALE

The Division of Systems Analysis is forwarding the enclosed draft NUREG/CR-XXXX, "Development of Nuclear Data Libraries for HTGR: Generation of a Broad Group HTGR Library for Use with SCALE," for your review and comment. This report, developed by Oak Ridge National Laboratory, provides an overview of the process that developed the final High Temperature Gas Reactor (HTGR)-specific, SCALE 81 broad group library.

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This library is to be used to generate lattice parameters for input to the Purdue Advanced Reactor Core Simulator (PARCS) and, with the ORIGEN-S SCALE code, to calculate radionuclide concentration for input to the MELCOR code. For HTGR, the PARCS code is used to evaluate steady state and anticipated reactivity transients, and MELCOR is used for core wide fission products release and transport during normal and accident conditions.

We request that you provide us with any comments on this NUREG/CR by May 31, 2011. Should we receive no comments, or a request for extension, we will be determined that to be acceptance of the draft NUREG/CR as is. Consistent with this request, we provided your staff an electronic copy of this report on March 9, 2011. Please feel free to contact me or Don Algama of my staff if you have any questions or cannot accommodate this schedule.

Enclosure: As stated

CONTACT: Don Algama, RES/DSA/FSTB  
301-251-7940

MEMORANDUM TO: Michael E. Mayfield, Director  
Advanced Reactor Program  
Office of New Reactors

FROM: Kathy Halvey Gibson, Director  
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CONTACT: Don Algama, RES/DSA/FSTB  
301-251-7940

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NAME	D. Algama	R. Lee	J. Zabel (via e-mail)	K. Gibson
DATE	/ /11	/ /11	03-/23-/11	/ /11

**OFFICIAL RECORD COPY**



MEMORANDUM TO: Michael E. Mayfield, Director  
Advanced Reactor Program  
Office of New Reactors

FROM: Kathy Halvey Gibson, Director  
Division of Systems Analysis  
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Enclosure: As stated

CONTACT: Don Algama, RES/DSA/FSTB  
301-251-7940

MEMORANDUM TO: Michael E. Mayfield, Director  
Advanced Reactor Program  
Office of New Reactors

FROM: Kathy Halvey Gibson, Director  
Division of Systems Analysis  
Office of Nuclear Regulatory Research

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WITH SCALE

The Division of Systems Analysis is forwarding the enclosed draft NUREG/CR-XXXX, "Development of Nuclear Data Libraries for HTGR: Generation of a Broad Group HTGR Library for Use with SCALE," for your review and comment. This report, developed by Oak Ridge National Laboratory, provides an overview of the process that developed the final High Temperature Gas Reactor (HTGR)-specific, SCALE 81 broad group library.

This library is to be used to generate lattice parameters for input to the Purdue Advanced Reactor Core Simulator (PARCS) and, with the ORIGEN-S SCALE code, to calculate radionuclide concentration for input to the MELCOR code. For HTGR, the PARCS code is used to evaluate steady state and anticipated reactivity transients, and MELCOR is used for core wide fission products release and transport during normal and accident conditions.

We request that you provide us with any comments on this NUREG/CR by May 31, 2011. Should we receive no comments, or a request for extension, we will determine that to be acceptance of the draft NUREG/CR as is. Consistent with this request, we provided your staff an electronic copy of this report on March 9, 2011. Please feel free to contact me or Don Algama of my staff if you have any questions or cannot accommodate this schedule.

Enclosure: As stated

CONTACT: Don Algama, RES/DSA/FSTB  
301-251-7940

**DISTRIBUTION:**

DE r/f

**ADAMS Accession No.: ML**

OFFICE	RES/DSA/FSTB	BC:RES/DSA/FSTB	Tech. Editor	D:RES/DSA
NAME	D. Algama	R. Lee	J. Zabel (via e-mail)	K. Gibson
DATE	/ /11	/ /11	03/23/11	/ /11

**OFFICIAL RECORD COPY**

**Kauffman, John**

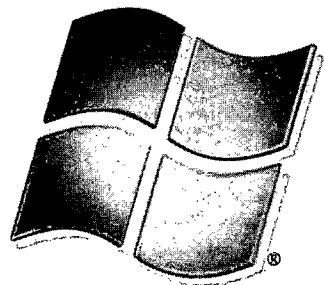
---

**From:** RESHelpDesk Resource  
**Sent:** Wednesday, March 23, 2011 4:08 PM  
**To:** RES Distribution  
**Subject:** FYI: Reminder about Q&A session on Windows 7/Office 10 migration with OIS  
**Attachments:** RES Windows 7 Presentation 3-24-11.pdf

Bob Randall from the Office of Information Services (OIS) will be conducting a Windows 7/Office 2010 Q&A session tomorrow, March 24th in room 5C19 from 1pm – 2pm. Bob will be presenting the information included in the attachment and addressing any other questions or concerns you may have regarding the Windows 7/Office 2010 migration. If you are unable to attend tomorrow's session, another one will be held on March 29<sup>th</sup> in room 2C19 from 11am -12pm.

If you have any questions please contact John Wucher on 301.251.7960 or via email at the [RESHelpDesk](#).

# Windows 7 Development & Application Testing Project



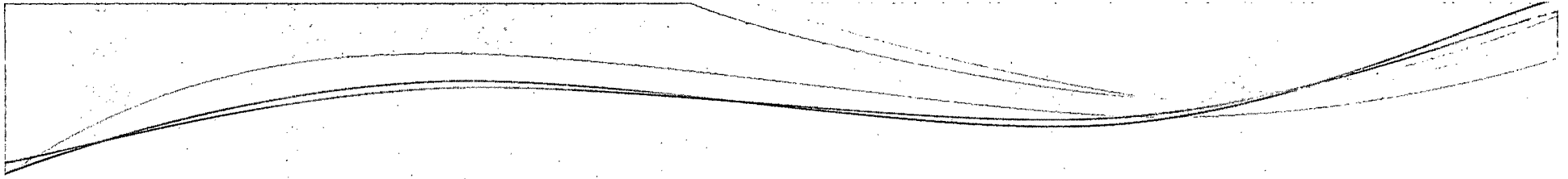
Windows 7™

Bob Randall  
Network Integration Team  
Office of Information Services



# Windows 7 Project Overview

- OIS developed a Windows 7 desktop/laptop image that will replace the existing Windows XP operating system on all agency desktop and laptop computers
- Office 2010 and Adobe Professional are included in the Windows 7 image
- The NRC deployment of Windows 7 will be a 64-bit operating system
  - 64-bit operating systems allow up to 192GB of RAM
  - Leverage existing processors for better performance
  - Allows installation of 64-bit applications
  - More stable operating system



# Impact of a 64-bit operating system

- Windows 7 supports most 32-bit and all 64-bit applications, but it does not support legacy 16-bit or DOS based applications
- 64-bit operating system platform can introduce compatibility issues with commercial or legacy NRC applications which could require modernization of these applications
- Cost to Program Offices associated with re-writing legacy NRC applications needs to be identified as soon as possible



# Application Testing

- **ALL** NRC custom developed or commercial off the shelf (COTS) application **must** be tested before they can be installed on the new desktop configuration
  - Applications that are **not** tested **will not** be approved for installation on Windows 7
  - Some COTS applications may require updated versions or patches to be fully supported and functional on the new platform
  - If COTS vendors state their application is Windows 7 compatible, it still must be tested in our environment
  - Applications with tight integration with Windows, Internet Explorer, or Microsoft Office (including macros) will need to be tested to ensure they will function on the new Windows 7 / Office 2010 platform



# Application Testing in the CTF

- A Windows 7 test environment is available in the CTF for offices to test their applications
  - 5 Physical workstations
  - Remote access to virtual workstations is available from your NRC desktop
- Testing on the Production network should be available soon
- SharePoint site is available to schedule time for testing
- All NRC custom and COTS applications must be identified and tested as soon as possible
- A list of known NRC custom and COTS applications is available on the SharePoint site
- Communications continue with the program offices, system owners, PMDA directors, and other staff and contractors





# Project Timeline

- Estimated Project Timeline:

Timeframe	Activity	Status
September 2010 - October 2010	Develop the initial Windows 7 / Office 2010 image	Completed
November 2010 - September 2011	Application testing performed and applications remediated as necessary	In Progress
October 2011 – December 2011	Final application testing with approved NRC Windows 7 / Office 2010 workstation image	
January 2012 - March 2012	Finalize Windows 7 / Office 2010 image and prepare for agency wide deployment	
April 2012 - June 2012	Agency wide deployment of Windows 7 / Office 2010 image	



# Next Steps

- Identify your applications
  - A spreadsheet is available on the Windows 7 SharePoint site for reference which will be maintained as testing progresses
- Start planning now to modernize legacy NRC custom developed applications
  - Work to get support contracts in place or leverage existing contracts to resolve application issues on Windows 7
- Schedule Testing!



Contact the Project team for questions or help!





# Questions?

- SharePoint Application tester's Site:  
<http://portal.nrc.gov/edo/ois/icod/ddb/MSW7/default.aspx>
- Project Points of Contact:
  - Bob Randall – *OIS/ICOD Project Lead*
  - Pamela Davis-Ghavami – *OIS/BPIAD Application Testing Coordinator*
  - Thomas Magee (Region 3) – *Regional Project Coordination*

**From:** [ManageBetter.biz Insider](#)  
**To:** [Case, Michael](#)  
**Subject:** 6 mentoring tips; Brainstorm, then act; What to ask a miserable colleague; and more ...  
**Date:** Wednesday, March 23, 2011 4:11:12 PM

#### *Motivational Manager*

### **Ask these questions to boost motivation and engagement**

Here are some questions that should help you understand what makes your employees tick...

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#### *Leading for Results*

### **Be wary of management fads**

Instead of silver bullets, rely on advice that addresses issues and problems specific to your organization and situation...

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#### *Employee Recruitment and Retention*

### **6 steps to being a more valuable mentor**

Mentoring calls for commitment and good communication, so follow these tips to forge a positive relationship...

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#### *Communication Solutions*

### **Questions to ask an associate who's miserable**

Unhappy employees can spread their malaise to the rest of the staff. Then you'll find yourself trying to communicate with and motivate an entire department of unhappy people. Try this approach...

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#### *Managers Intelligence Report*

### **Follow up brainstorming sessions with action**

You need a way to identify the most profitable suggestions so you can start putting them into action. Hold a follow-up session to explore four questions...

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## **BLOGS**

#### *Efficiency*

### **Work Life Balance: Defining it for Yourself**

As each of us is different, how we do our job and set our priorities is an individual undertaking. The same is true when defining who we are as people and determining our personal responsibility. The only person who can...

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#### *Coaching Success*

### **PowerPoint Presentation Tip for Spanish-Speaking Audience Members**

I recently delivered a presentation skills training program to a group of urologists from Mexico, Central and South America - with the training conducted in New York. These physicians mostly present slides in Spanish, and they

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### **Tweet, talk or text: How to effectively communicate in a high-tech world**

**Price: \$139**

**Member Price: \$99**

Wednesday, April 20, 2011  
2-3:15 p.m. Central

### **25 tips to lead your team through change**

**Price: \$139**

**Member Price: \$99**

Wednesday, April 6, 2011  
2-3:15 Central

### **Efficiency techniques for administrative professionals**

**Price: \$139**

**Member Price: \$99**

Tuesday, March 29, 2011  
2 - 3:15 p.m. Central

#### FEATURED BLOGGER:



**K.J. McCorry** is the CEO of Officiency Enterprises ® Inc., a professional productivity, efficiency and sustainability consulting company based out of Boulder, Colorado. K.J.'s work in office process simplification has been recognized locally and nationally in the New York Times, International Herald Tribune, Chicago Tribune, Real Simple, Better Homes & Gardens with TV and radio appearances on the Do It Yourself Network, The Peter Boyles Show, and World Talk Radio. She is also the author of *Organize Your Work Day In No Time*, released in April 2005 by Que Publishing. She is currently working on her second book on becoming a 'paperless' office.



AG 1876

taught me a few...

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Spark

### I'm Certain About Uncertainty

We all want the guarantee--our lovers will love us forever, our investments will increase in value, our jobs will last until we retire, our computers will never crash. If you are over the age of 15, you have come to learn there are no guarantees--your pa


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## WHAT OUR MEMBERS ARE READING NOW

 *Managers Intelligence Report*


### Keep teams on track with three tactics

Collaborating on a workplace project can maximize the talents of individual workers, but it calls for clear focus....

 *Leading for Results*


### Give goals some heft

To get employees emotionally invested in their goals, explore your objectives when you lay them out...

 *Employee Recruitment and Retention*


### Find the passion with these questions

Here are three questions that will help you get a better idea of a candidate's commitment to his or her chosen field...

 *Communication Solutions*

### Ask leaders to lead in appearance

One way to gradually achieve consistency in workplace apparel is to ask your supervisors to set the tone...

 *Motivational Manager*

### Don't sabotage incentives with salary inequity

Rewards and incentives can motivate higher performance, but you have to start out with a level playing field...

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### Recruitment & Retention

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This message was sent to michael.case@nrc.gov  
powered by the Ragan

**From:** [Johnson, Michael](#)  
**To:** [Leeds, Eric](#)  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?  
**Date:** Wednesday, March 23, 2011 4:11:12 PM

---

I have a retreat. Not free until 5:00pm. I catch up with you afterwards.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 2:26 PM  
**To:** Diane.JACKSON@oecd.org; Johnson, Michael  
**Cc:** Javier.REIG@oecd.org; Schwarz, Sherry  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?

Yes – I can move meetings to make it happen.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Diane.JACKSON@oecd.org [mailto:Diane.JACKSON@oecd.org]  
**Sent:** Wednesday, March 23, 2011 11:55 AM  
**To:** Johnson, Michael; Leeds, Eric  
**Cc:** Javier.REIG@oecd.org  
**Subject:** could you do 1-2 US time on Monday for CNRA call?

Mike and Eric - J-C is available 30 minutes later. Mike W is okay. Could you take the call 1 -2 pm US time (6-7p UK/ 7-8p Paris)?

Diane

AG 1877

**From:** [Boyce, Tom \(RES\)](#)  
**To:** [Case, Michael](#)  
**Cc:** [Richards, Stuart](#)  
**Subject:** RE: Daily: 4 New Items from Thursday, March 17, 2011  
**Date:** Wednesday, March 23, 2011 4:23:00 PM

---

Mike,

I've done some homework with HR regarding Rich Correia's request to open up the GG-15 position in RGDB to people who are non-908s. It would require redoing the Position Description, having it reclassified by HR, and reposting the position as well as the SOI.

I'm reluctant to do that because it will delay the process by at least a month, and even if I redo it I might lose the authority to repost. The vacancy announcement closed yesterday and there were 19 applicants, who may or may not be willing to reapply for a second vacancy. There will be an additional group that is applying to the SOI which closes on 3/31. From the numbers, I think I'll have a good set of candidates to select from.

I'd like to respond to Rich with this, but wanted to let you know my thinking first.

Tom

---

**From:** Boyce, Tom (RES)  
**Sent:** Monday, March 21, 2011 4:07 PM  
**To:** Correia, Richard; Case, Michael  
**Cc:** Richards, Stuart  
**Subject:** RE: Daily: 4 New Items from Thursday, March 17, 2011

I'd agree with Mike that the position could be opened up to non-801s.

A bit more effort, but worthwhile if the people are good.

Let me check with HR on what this entails and I'll get back to you.

Tom

---

**From:** Correia, Richard  
**Sent:** Monday, March 21, 2011 7:56 AM  
**To:** Case, Michael  
**Cc:** Boyce, Tom (RES); Richards, Stuart  
**Subject:** RE: Daily: 4 New Items from Thursday, March 17, 2011

Thx very much Mike. Appreciate your flexibility

---

**From:** Case, Michael  
**Sent:** Monday, March 21, 2011 7:40 AM  
**To:** Correia, Richard  
**Cc:** Boyce, Tom (RES); Richards, Stuart  
**Subject:** RE: Daily: 4 New Items from Thursday, March 17, 2011

I'm pretty flexible on that issue. It's Tom Boyce's posting so I'll check with him...

---

AG/878

**From:** Correia, Richard  
**Sent:** Friday, March 18, 2011 12:21 PM  
**To:** Case, Michael  
**Subject:** FW: Daily: 4 New Items from Thursday, March 17, 2011

Mike,

There are a couple of folks her in NSIR that are interested in doing some non-security type work. We think PM work might be a good place for them to rotate into. Your posting below requires an 801 person (engineer). How flexible is RES on allowing non 801s to apply for this position? If RES would accept non 801s, the opportunity would have to be reposted I'm sure.

Thx

---

**From:** NRC Announcement [mailto:nrc.announcement@nrc.gov]  
**Sent:** Thursday, March 17, 2011 10:00 PM  
**To:** NRC Announcement  
**Subject:** Daily: 4 New Items from Thursday, March 17, 2011

NRC Daily Announcements



Highlighted Information and Messages



#### Thursday March 17, 2011 -- Headquarters Edition

[General Interest: White Flint Complex Daily Parking](#)

[General Interest: Financial Seminars Planned](#)

[Employee Resources: Solicitation of Interest - RES/DE/RGDB, Sr. Program Manager, GG-15](#)

[General Interest: Relocation of the Supply Store](#)

#### **General Interest: White Flint Complex Daily Parking**

Effective Monday, March 21, 2011, the Office of Administration (ADM) will be suspending the issuance of daily parking passes at the White Flint Complex (WFC) garage to provide parking for the increased staff required to support the Operations Center 24/7 in response to the tragic events in Japan. During this time, staff are reminded that daily parking is available at the White Flint Metro for \$8.50 per day.

ADM has issued temporary emergency parking permits for staff supporting the Operations Center who do not currently possess a permanent WFC parking permit.

A subsequent announcement will be posted specifying the date when ADM will resume issuing daily parking permits. Thank you in advance for your patience and understanding.

**Contact: Administrative Services Center, 301-415-4272**



(2011-03-17 00:00:00.0)

[View item in a new window](#)



## General Interest: Financial Seminars Planned

The Employees Welfare and Recreation Association is sponsoring two sessions of a noontime financial seminar. Brian Thoms, a certified financial planner from Ameriprise Financial, will present a seminar: Investment Planning. During this seminar, you will learn ways to:

- Evaluate your investing progress.
- Keep emotions from affecting your financial decisions.
- Make smart, value-based decisions with your money.
- Manage risk to help optimize your portfolio.
- Understand how to coordinate various investment strategies to help support your investment goals.

Two sessions will be offered from 12 noon to 1 p.m. ET:

March 30, O-4 B-6

April 5, T-10 A-1

To ensure adequate seating, please make reservations by contacting Crystal Rivers at 240-314-4363.



(2011-03-17 00:00:00.0)

[View item in a new window](#)

## Employee Resources: Solicitation of Interest - RES/DE/RGDB, Sr. Program Manager, GG-15

The **Office of Nuclear Regulatory Research** is soliciting interest from **GG-15** employees for a lateral reassignment opportunity in the **Division of Engineering** as a **Sr. Program Manager** for the **Regulatory Guide Development Branch**.

Detailed information is available on the [NRC internal Web page](#).

-----  
If you have difficulty accessing a Web link in this announcement, contact the [NRC Announcement Coordinator](#), Beverly Martin, ADM/DAS, 301-492-3674.



(2011-03-17 00:00:00.0)

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## General Interest: Relocation of the Supply Store

On Monday, March 14, 2011, the Office of Administration (ADM) opened its new supply store, which has been relocated to O-P1 C12, adjacent to the loading dock guard station. The new supply store has improved lighting and better shelving to allow easier access to supplies. Operating hours remain Monday through Friday, 8:00 a.m. to 4:30 p.m. ADM looks forward to seeing you soon.

Contact: JoAnne Thweatt, 301-415-0187



(2011-03-17 00:00:00.0)

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[Frequently Asked Questions About the NRC Daily Announcements Email](#)

**From:** Leeds, Eric  
**To:** McCree, Victor  
**Subject:** RE: Feedback from Senator Graham's Visit to Oconee  
**Date:** Wednesday, March 23, 2011 4:26:00 PM

---

Thanks for the heads up, Vic. I'll alert our folks. It was bound to become public eventually.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** McCree, Victor  
**Sent:** Wednesday, March 23, 2011 11:58 AM  
**To:** Leeds, Eric  
**Cc:** Virgilio, Martin; Grobe, Jack; Wert, Leonard; Wiggins, Jim; Sanfilippo, Nathan; Brenner, Eliot; Munday, Joel; Croteau, Rick; Jones, William; Bartley, Jonathan; Ledford, Joey; Hannah, Roger  
**Subject:** Feedback from Senator Graham's Visit to Oconee

Eric,

As you know, Senator Lindsey Graham toured Oconee yesterday, 3/22, and met with the press. The feedback I received indicates that the Senator's site visit, meetings with the licensee and residents, and the press brief went well.

Today's edition of *The State*, a Columbia, SC, newspaper, includes the Senator's response to a question about the impact of a failure of the Jocassee Dam at Oconee: "*a broken dam at Lake Jocassee could affect the plant, but...Duke Energy is working on a plan to address such a disaster*" [see full article at <http://www.thestate.com/2011/03/23/1747337/graham-uses-tour-to-push-nuke.html>]. Apparently, a reporter for another local paper also indicated interest in flooding caused by a Jocassee Dam break and may ask additional questions of Duke and/or NRC.

Given that this matter involves security-related-information, Duke has developed the attached "messages on external flood events" to respond to public/media questions. So that we are best prepared to respond to similar questions, I asked my folks prepare a set of talking points that will be coordinated with your staff and OPA later today.

Vic

AG/879

**From:** Leeds, Eric  
**To:** Skeen, David; Hiland, Patrick  
**Cc:** Grobe, Jack; Cheok, Michael; Ruland, William; Boger, Bruce  
**Subject:** ACTION: Feedback from Senator Graham's Visit to Oconee  
**Date:** Wednesday, March 23, 2011 4:27:00 PM  
**Attachments:** External Flood rev. 3 FINAL.docx

---

Please see below. Please support RII in any way we can. Thanks!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** McCree, Victor  
**Sent:** Wednesday, March 23, 2011 11:58 AM  
**To:** Leeds, Eric  
**Cc:** Virgilio, Martin; Grobe, Jack; Wert, Leonard; Wiggins, Jim; Sanfilippo, Nathan; Brenner, Eliot; Munday, Joel; Croteau, Rick; Jones, William; Bartley, Jonathan; Ledford, Joey; Hannah, Roger  
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Vic

AG/880

## MESSAGES ON EXTERNAL FLOOD EVENTS

- The Keowee-Toxaway Project was built as part of an overall plan that included building Lakes Keowee and Jocassee, their respective hydroelectric stations, and Oconee Nuclear Station. From a seismic perspective, a design criterion similar to Oconee Nuclear's was applied to all Keowee and Jocassee dams and dikes, as well. The design was based on the project's ability to withstand an earthquake of greater magnitude than the region's worst-case earthquake, which was the Charleston earthquake of 1886.
- Duke Energy dams are safe. Our hydro fleet dams are routinely inspected by Duke Energy personnel. (This includes once a quarter for concrete structures, once every two weeks for earthen structures and once a week at Jocassee.) The structures are also inspected annually by our regulators and every five years by an independent engineering consultant.
  - Inspections are also done immediately following earthquakes or tremors. We receive instant alerts from the U.S. Geological Society and have our own seismic instrumentation at Jocassee's dam.
  - Additional inspections are also done if the area receives more than two inches of rain within 24 hours. (At Bad Creek, it's three inches of rain.)
- The standard, today, when building a new nuclear plant is to automatically assume the failure of an upstream dam and to factor in appropriate mitigation strategies.
  - Because the nuclear industry is based on continuous improvement, we have worked with the NRC to apply that same standard and assumption at Oconee Nuclear Station. Doing so further enhances the robustness of our site and ensures we're continuously making a safe plant safer.
- Based on our model that assumes an upstream dam failure, we've ensured we have mitigation strategies that would continue to provide cooling capabilities to the site's reactor cores and spent fuel pools.
- While we have applied an assumption of a dam failure, and added mitigation strategies, we have also added prevention strategies.
  - For example, we have improved monitoring capabilities that more quickly call attention to changes in the characteristics of our dams and allow us to take preventive actions.
- We're continuously making improvements and long-term investments to reduce the overall impact of external events. These improvements further add to the safety of Oconee Nuclear and its ability to withstand external forces, such as fires, floods, tornadoes and earthquakes.

**From:** Laufer, Richard  
**To:** Dozier, Jerry; Klein, Alex; Akstulewicz, Brenda; Baval, Rochelle; Belmore, Nancy; Brenner, Eliot; Poole, Brooke; Burns, Stephen; Hart, Ken; Hayden, Elizabeth; Joosten, Sandy; Laufer, Richard; Leeds, Eric; Mamish, Nader; Mayberry, Theresa; Muessle, Mary; Powell, Amy; Pulley, Deborah; Quesenberry, Jeannette; RidsEdoDraftSrmVote Resource; RidsOgcMailCenter Resource; Schmidt, Rebecca; Shea, Pamela; Vietti-Cook, Annette  
**Subject:** FW: VOTE SHEET FOR SECY-11-0033 (Proposed NRC Staff Approach to Address Resource Challenges Associated with Review of a Large Number of NFPA 805 License Amendment Requests)  
**Date:** Wednesday, March 23, 2011 4:29:46 PM  
**Attachments:** WCO-SECY-11-0033 vote with comments.pdf  
image003.png

---

## **SECY-11-0033 – PROPOSED NRC STAFF APPROACH TO ADDRESS RESOURCE CHALLENGES ASSOCIATED WITH REVIEW OF A LARGE NUMBER OF NFPA 805 LICENSE AMENDMENT REQUESTS**

Approved with comments.

Rich

---

**From:** Herr, Linda  
**Sent:** Wednesday, March 23, 2011 4:01 PM  
**To:** Lewis, Antoinette; Baggett, Steven; Batkin, Joshua; Blake, Kathleen; Bozin, Sunny; Bradford, Anna; Bubar, Patrice; Bupp, Margaret; Chairman Temp; Clark, Lisa; Coggins, Angela; Cordes, John; Crawford, Carrie; Davis, Roger; Fopma, Melody; Franovich, Mike; Gibbs, Catina; Hart, Ken; Harves, Carolyn; Hipschman, Thomas; KLS Temp; Kock, Andrea; Lepre, Janet; Loyd, Susan; Mamish, Nader; Marshall, Michael; Monninger, John; Orders, William; Pace, Patti; Poole, Brooke; Reddick, Darani; Laufer, Richard; Baval, Rochelle; Rothschild, Trip; Savoy, Carmel; Sharkey, Jeffrey; Shea, Pamela; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, WCO; Temp, WDM; Thoma, John; Warren, Roberta; Zorn, Jason; Apostolakis, George; Temp, GEA; Tadesse, Rebecca; Castleman, Patrick; Montes, David; Dhir, Neha; Adler, James; Jimenez, Patricia; Muessle, Mary; Nieh, Ho; Ostendorff, William; Warnick, Greg; Pearson, Laura; Lui, Christiana; Lisann, Elizabeth  
**Cc:** Wright, Darlene  
**Subject:** RE: VOTE SHEET FOR SECY-11-0033 (Proposed NRC Staff Approach to Address Resource Challenges Associated with Review of a Large Number of NFPA 805 License Amendment Requests)

Please find attached Commissioner Ostendorff's vote sheet w/comments.

---

**From:** Lewis, Antoinette  
**Sent:** Wednesday, March 23, 2011 2:46 PM  
**To:** Baggett, Steven; Batkin, Joshua; Blake, Kathleen; Bozin, Sunny; Bradford, Anna; Bubar, Patrice; Bupp, Margaret; Chairman Temp; Clark, Lisa; Coggins, Angela; Cordes, John; Crawford, Carrie; Davis, Roger; Fopma, Melody; Franovich, Mike; Gibbs, Catina; Hart, Ken; Harves, Carolyn; Herr, Linda; Hipschman, Thomas; KLS Temp; Kock, Andrea; Lepre, Janet; Loyd, Susan; Mamish, Nader; Marshall, Michael; Monninger, John; Orders, William; Pace, Patti; Poole, Brooke; Reddick, Darani; Laufer, Richard; Baval, Rochelle; Rothschild, Trip; Savoy, Carmel; Sharkey, Jeffrey; Shea, Pamela; Snodderly, Michael; Sosa, Belkys; Speiser, Herald; Svinicki, Kristine; Temp, WCO; Temp, WDM; Thoma, John; Warren, Roberta; Zorn, Jason; Apostolakis, George; Temp, GEA; Tadesse, Rebecca; Castleman, Patrick; Montes, David; Dhir, Neha; Adler, James; Jimenez, Patricia; Muessle, Mary; Nieh, Ho; Ostendorff, William; Warnick, Greg; Pearson, Laura; Lui, Christiana; Lisann, Elizabeth  
**Cc:** Wright, Darlene; Lewis, Antoinette  
**Subject:** VOTE SHEET FOR SECY-11-0033 (Proposed NRC Staff Approach to Address Resource Challenges Associated with Review of a Large Number of NFPA 805 License Amendment Requests)

AG/881

Please save the attached Word file for use in voting on the subject paper. In saving the file, be sure to replace the XXX with your Commissioner's initials and insert the Commissioner's name in the document. Upon completion of the vote, be sure to insert the date and the /RA/.

The ADAMS Accession # for the SECY is ML110550804.

**NOTATION VOTE**

**RESPONSE SHEET**

**TO:** Annette Vietti-Cook, Secretary

**FROM:** COMMISSIONER OSTENDORFF

**SUBJECT:** SECY-11-0033 – PROPOSED NRC STAFF APPROACH  
TO ADDRESS RESOURCE CHALLENGES  
ASSOCIATED WITH REVIEW OF A LARGE NUMBER  
OF NFPA 805 LICENSE AMENDMENT REQUESTS

Approved XX Disapproved \_\_\_\_\_ Abstain \_\_\_\_\_

Not Participating \_\_\_\_\_

**COMMENTS:** Below XX Attached \_\_\_\_\_ None \_\_\_\_\_

I approve the staff's recommendation to increase resources for NFPA 805 LAR reviews and the staggered submittal and review process outlined in this paper. I commend the staff for their careful evaluation of the resource challenges and developing a proposed approach to achieve better efficiency and higher quality applications and reviews. My approval of the proposed staggered approach is with the understanding that the staff will provide an Enforcement Policy revision to the Commission for review and approval, providing plant-specific enforcement discretion to correspond with the new LAR submittal schedule. If the resource projections in the March 4, 2011 paper are impacted based on the recent events in Japan, the staff should inform the Commission.

  
\_\_\_\_\_  
**SIGNATURE**

3/23/11  
\_\_\_\_\_  
**DATE**

Entered on "STARS" Yes XX No \_\_\_\_\_

mc 11111 A040 PA



**From:** OPA Resource  
**To:** Ash, Darren; Barkley, Richard; Batkin, Joshua; Bell, Hubert; Belmore, Nancy; Bergman, Thomas; Bollwerk, Paul; Bonaccorso, Amy; Borchardt, Bill; Bozin, Sunny; Brenner, Eliot; Brock, Terry; Brown, Boris; Bubar, Patrice; Burnell, Scott; Burns, Stephen; Carpenter, Cynthia; Chandrathil, Prema; Clark, Theresa; Collins, Elmo; Couret, Ivonne; Crawford, Carrie; Cutler, Iris; Dacus, Eugene; Dapas, Marc; Davis, Roger; Dean, Bill; Decker, David; Dricks, Victor; Droggitis, Spiros; Flory, Shirley; Franovich, Mike; Gibbs, Catina; Haney, Catherine; Hannah, Roger; Harbuck, Craig; Harrington, Holly; Hasan, Nasreen; Hayden, Elizabeth; Holahan, Gary; Holahan, Patricia; Holian, Brian; Jacobssen, Patricia; Jaczko, Gregory; Jasinski, Robert; Jenkins, Verlyn; Johnson, Michael; Jones, Andrea; Kock, Andrea; Kotzalas, Margie; Ledford, Joey; Lee, Samson; Leeds, Eric; Lepre, Janet; Lew, David; Lewis, Antoinette; Loyd, Susan; Magwood, William; McCrary, Cheryl; McGrady-Finneran, Patricia; McIntyre, David; Mensah, Tanya; Mitlyng, Viktoria; Monninger, John; Montes, David; Nieh, Ho; Ordaz, Vonna; Ostendorff, William; Owen, Lucy; Powell, Amy; Quesenberry, Jeannette; Reddick, Darani; Regan, Christopher; Reyes, Luis; Riddick, Nicole; RidsSecyMailCenter Resource; Riley (OCA), Timothy; Rohrer, Shirley; Samuel, Olive; Satorius, Mark; Schaaf, Robert; Schmidt, Rebecca; Scott, Catherine; Screnci, Diane; Shaffer, Vered; Shane, Raeann; Sharkey, Jeffry; Sheehan, Neil; Sheron, Brian; Siurano-Perez, Osiris; Steger (Tucci), Christine; Svinicki, Kristine; Tabatabai, Omid; Tannenbaum, Anita; Taylor, Renee; Temp, WDM; Thomas, Ann; Uhle, Jennifer; Uselding, Lara; Vietti-Cook, Annette; Virgilio, Martin; Virgilio, Rosetta; Walker-Smith, Antoinette; Weaver, Doug; Weber, Michael; Weil, Jenny; Werner, Greg; Wiggins, Jim; Williams, Evelyn; Zimmerman, Roy; Zorn, Jason  
**Subject:** RII Press Release: NRC to Discuss 2010 Performance of Farley Nuclear Power Plant  
**Date:** Wednesday, March 23, 2011 4:34:40 PM  
**Attachments:** 11-010.ii.pdf

---

Office of Public Affairs  
US Nuclear Regulatory Commission  
301-415-8200  
opa.resource@nrc.gov

AG/882



# NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

Office of Public Affairs, Region II  
61 Forsyth Street SW, Atlanta GA 30303

Site: [www.nrc.gov](http://www.nrc.gov)

Blog: <http://public-blog.nrc-gateway.gov>

No. II-11-010

March 23, 2011

CONTACT: Roger Hannah (404) 562-4417  
Joey Ledford (404) 562-4416

E-mail: [OPA2@nrc.gov](mailto:OPA2@nrc.gov)

## NRC TO DISCUSS 2010 PERFORMANCE OF FARLEY NUCLEAR POWER PLANT

The U.S. Nuclear Regulatory Commission staff has scheduled a meeting for Thursday, March 31, with representatives of Southern Nuclear Operating Co. to discuss the agency's assessment of safety performance during 2010 at the Farley nuclear power plant. The plant, operated by Southern Nuclear, is 18 miles southeast of Dothan in south Alabama.

The meeting, which will be open to the public, is scheduled to begin with an open house and poster session at 3 p.m. CDT, followed by a brief presentation. The meeting will be held at the Dothan Area Chamber of Commerce, 102 Jamestown Blvd., in Dothan.

Before and after the presentation, NRC staff will be available to answer questions on the safety performance of the Farley plant, as well as the NRC role in ensuring safe plant operation.

Overall, the NRC staff concluded that the Farley plant operated safely in 2010 and will receive normal baseline oversight and inspection efforts. Unit 1 remains in the Regulatory Response Column based on a performance indicator that crossed the threshold from green to white. That was due to failures of one emergency diesel generator. The NRC staff has completed a supplemental inspection on the issues that led to the white performance indicator. Unit 2 is in the Licensee Response column requiring no additional oversight or inspections.

"The NRC evaluates nuclear power plants in a systematic and detailed way each year," said NRC Region II Administrator Victor McCree. "The inspections and oversight at Farley ensure that the plant is operated in a way that protects people near the plant and the environment."

The NRC uses color-coded inspection findings and performance indicators to assess plant performance. The colors start with "green," which has very low safety significance, to "white," "yellow" and "red," based on increasing significance of the issues. Inspection findings and performance indicators are updated on the NRC's web site ([www.nrc.gov](http://www.nrc.gov)) each quarter.

A letter sent from the NRC Region II office to plant officials addresses the performance of the plant during 2010 and will serve as the basis for the meeting discussion. It is available on the NRC web site at: [www.nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/far\\_2010q4.pdf](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/LETTERS/far_2010q4.pdf).

Current performance information for Farley Unit 1 is available on the NRC web site at: [www.nrc.gov/NRR/OVERSIGHT/ASSESS/FAR1/far1\\_chart.html](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/FAR1/far1_chart.html). Current performance information for Unit 2 is at: [www.nrc.gov/NRR/OVERSIGHT/ASSESS/FAR2/far2\\_chart.html](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/FAR2/far2_chart.html).

###

News releases are available through a free *listserv* subscription at the following Web address: <http://www.nrc.gov/public-involve/listserver.html>. The NRC homepage at [www.nrc.gov](http://www.nrc.gov) also offers a SUBSCRIBE link. E-mail notifications are sent to subscribers when news releases are posted to NRC's website.

**From:** [Carpenter, Gene](#)  
**To:** [Case, Michael](#)  
**Cc:** [Gavrilas, Mirela](#); [Richards, Stuart](#); [Hull, Amy](#)  
**Subject:** RE: FW: Discussion of key messages for Chairman's participation in upcoming NEA and ENSREG conferences  
**Date:** Wednesday, March 23, 2011 4:35:17 PM  
**Attachments:** [DRAFT message Jaczko to NEA on LTO 03-21-2011.pptx](#)

---

Mike,

This is considerably longer than I first thought, but gives some key messages, and has been through NRR:DLR. I'm willing to slash this as needed.

Gene

-----Original Appointment-----

**From:** Case, Michael **On Behalf Of** Doane, Margaret  
**Sent:** Monday, March 21, 2011 08:56  
**To:** Gavrilas, Mirela; Carpenter, Gene; Richards, Stuart  
**Subject:** FW: FW: Discussion of key messages for Chairman's participation in upcoming NEA and ENSREG conferences  
**When:** Monday, March 28, 2011 10:30-11:30 (GMT-05:00) Eastern Time (US & Canada).  
**Where:** 06-B04

Hi Mirela. I kept forgetting to get this to you. Can you work with Gene and come up with a set of "key messages" for the Chairman for his participation in the NEA conference on LTO? Probably need it by Wednesday/Thursday so we can get it to Brian for review.

-----Original Appointment-----

**From:** Doane, Margaret  
**Sent:** Friday, March 04, 2011 10:56 AM  
**To:** Doane, Margaret  
**Subject:** FW: Discussion of key messages for Chairman's participation in upcoming NEA and ENSREG conferences  
**When:** Monday, March 28, 2011 10:30 AM-11:30 AM (GMT-05:00) Eastern Time (US & Canada).  
**Where:** 06-B04

Antony, please find out if the NEA conference being referred to is the NEA LTO workshop this June. If so, please work with Mike Case on developing what message we want the Chairman to convey in his speech.

Mike, you need to coordinate with NRR on this, since a good portion of the LTO Workshop deals with the regulatory aspects of LTO.

---

AG/883

From: Kreuter, Jane On Behalf Of Doane, Margaret

Sent: Friday, March 04, 2011 7:03 AM

To: Schwartzman, Jennifer; Leeds, Eric; Johnson, Michael; Holahan, Gary; Sheron, Brian; Astwood, Heather; Dehn, Jeff; Rosales-Cooper, Cindy

Cc: Regan, Christopher; Boger, Bruce; McGinty, Tim; Calvo, Antony

Subject: Discussion of key messages for Chairman's participation in upcoming NEA and ENSREG conferences

When: Monday, March 28, 2011 10:30 AM-11:30 AM.

Where: 06-B04

When: Monday, March 28, 2011 10:30 AM-11:30 AM (GMT-05:00) Eastern Time (US & Canada).

Where: 06-B04

Note: The GMT offset above does not reflect daylight saving time adjustments.

+~+~+~+~+~+~+~+~+~+

The location has changed due to space concerns.

Attachment DRAFT message Jaczko to NEA on LTO 03-21-20.pptx (264317 Bytes) cannot be converted to PDF format.

**From:** [Leeds, Eric](#)  
**To:** [Johnson, Michael](#)  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?  
**Date:** Wednesday, March 23, 2011 4:39:00 PM

---

Got it. I'll catch up with you after your retreat.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Johnson, Michael  
**Sent:** Wednesday, March 23, 2011 4:11 PM  
**To:** Leeds, Eric  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?

I have a retreat. Not free until 5:00pm. I catch up with you afterwards.

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 2:26 PM  
**To:** Diane.JACKSON@oecd.org; Johnson, Michael  
**Cc:** Javier.REIG@oecd.org; Schwarz, Sherry  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?

Yes – I can move meetings to make it happen.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Diane.JACKSON@oecd.org [mailto:Diane.JACKSON@oecd.org]  
**Sent:** Wednesday, March 23, 2011 11:55 AM  
**To:** Johnson, Michael; Leeds, Eric  
**Cc:** Javier.REIG@oecd.org  
**Subject:** could you do 1-2 US time on Monday for CNRA call?

Mike and Eric - J-C is available 30 minutes later. Mike W is okay. Could you take the call 1 -2 pm US time (6-7p UK/ 7-8p Paris)?

Diane

AG/884

**From:** Ali, Syed  
**To:** Case, Michael; Richards, Stuart; Hogan, Rosemary; West, Stephanie  
**Subject:** FW: Travel Reservation March 24 for ALI  
**Date:** Wednesday, March 23, 2011 4:39:30 PM

---

FYI.

Thanks,  
Syed Ali

---

**From:** Manassas Travel [mailto:usaid@manassastravel.com]  
**Sent:** Wednesday, March 23, 2011 4:34 PM  
**To:** Ali, Syed  
**Subject:** Travel Reservation March 24 for ALI

Manassas Travel is pleased to deliver your complete travel itinerary through Sabre® Virtually There®.

[Click here to access your reservation on the web or a mobile device.](#)

Virtually There® allows you to review or print your reservations, as well as:

- Register for trip reminders and cancellation/delay notifications
- View maps & driving directions
- Review city guides & restaurant recommendations
- Get up-to-date weather and much more!

You may also access your reservation on the web or from your mobile device at [www.virtuallythere.com](http://www.virtuallythere.com). Simply enter your last name and the six-character reservation code provided to you by Your Travel Arranger. As a security measure, you will be prompted to enter your e-mail address or a password that Your Travel Arranger may have provided to you. If you have any question about which e-mail address to use, we recommend that you use the one that received this e-mail.

[CLICK HERE to opt out of receiving future e-mails from Virtually There.](#)

If the above link is inactive, please paste this URL into your browser to access your reservations:

[https://www.virtuallythere.com/new/reservationsChron.html?  
host=IW&pnr=NINFA0GLP6X4&name=ALI&language=0&email=2](https://www.virtuallythere.com/new/reservationsChron.html?host=IW&pnr=NINFA0GLP6X4&name=ALI&language=0&email=2)

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AG1885



**From:** Hiland, Patrick  
**To:** Burnell, Scott  
**Subject:** TALKING POINTS FOR GI-199  
**Date:** Wednesday, March 23, 2011 4:40:06 PM

---

Scott the below is offered as talking points for GI-199. Any questions, please contact Meena Khanna.

\*\*\*\*\*

**GENERIC ISSUE 199, "IMPLICATIONS OF UPDATED PROBABILISTIC SEISMIC HAZARD ESTIMATES IN CENTRAL AND EASTERN UNITED STATES ON EXISTING PLANTS"**

Objective of GI-199

The objective of the GI-199 Safety/Risk Assessment was to perform a conservative, screening-level assessment to evaluate if further investigations of seismic safety for operating reactors in the central and eastern U.S. (CEUS) was warranted consistent with NRC directives.

- Results of the GI-199 safety risk assessment are not final estimates of plant-specific seismic risk.
- The seismic hazard data and plant-level fragility assumptions were conservative estimates useful as a screening tool.
- The NRC does not rank plants by seismic risk.

Key Messages:

- Safety/Risk Assessment for GI-199 was completed in August 2010. It is publically available in ADAMS at ML100270582.
- Plants have adequate safety margin for seismic issues and are within their licensing basis.
- Overall seismic risk estimates remain small and adequate protection is maintained.
- Updates to seismic data and models indicate increased seismic hazard estimates for some operating nuclear power plant sites in the Central and Eastern United States.
- NRC has separate criteria for immediate action and for evaluating whether plant improvements may be imposed through a back-fit.
- The Safety/Risk Assessment used readily available information and found that for about one-quarter of the currently operating plants, the change in seismic hazard is enough to warrant further review.
- Action may include obtaining additional, updated information and developing methods to determine if plant improvements to reduce seismic risk are warranted.

Status of Operating Plants and Need for Actions due to Japanese Event:

- Existing plants were designed with considerable margin to be able to withstand ground motions from the largest earthquake expected in the area around the plant.

AG/886

- During the mid-to late-1990s, the NRC staff reassessed the margin beyond the design basis as part of the Individual Plant Examination of External Events [IPEEE] program.
- The NRC's GI-199 safety/risk assessment concluded that the probability of exceeding the design basis ground motion may have increased by a small amount at some plants. Those results also indicate that the increased risks are lower than NRC's guidelines for taking immediate action.
- US plants are designed for appropriate earthquake levels and are safe.

#### Timeline for Preparation and Issuance of Generic Letter:

The NRC is conducting a regulatory assessment, which includes reviewing the seismic capacity for plants located in central and eastern United States based on the latest data and analysis techniques.

- NRC is working on developing a Generic Letter (GL) to request information from all affected plants (96 plants east of the Rockies).
- The GL is scheduled to be issued for public comment in the late spring 2011.
- Processes for review of the GL include a review by the NRC's Committee to Review Generic Requirements, and a review by the Advisory Committee on Reactor Safeguards (ACRS) both before and after the public comment period.
- GL should be issued by end of 2011, near the time the new consensus seismic hazard models become available.
- Consensus hazard models are being developed by NRC, DOE, and EPRI. In addition the USGS will review the model.
- Information requested from licensees will likely require 3 to 6 months to prepare. NRC's review will be on-going as information is collected.
- Based on NRC's review, a determination will be made regarding beneficial back-fits.

**From:** [Richards, Stuart](#)  
**To:** [Srinivasan, Makuteswara](#)  
**Cc:** [Case, Michael](#)  
**Subject:** RE: My trip to England  
**Date:** Wednesday, March 23, 2011 4:40:27 PM  
**Importance:** High

---

Srini

Is there a User Need or an action item from NGNP which this meeting will inform.

It will help if we can point to a task from NRO, which attendance at the meeting will help us complete.

Thanks  
Stu

---

**From:** Srinivasan, Makuteswara  
**Sent:** Wednesday, March 23, 2011 1:06 PM  
**To:** Richards, Stuart; Case, Michael  
**Subject:** My trip to England  
**Importance:** High

Hello, Stu and Mike,

I would appreciate your favorable consideration of the proposed trip next month to England to attend a meeting organized by the U.K. Nuclear Installations Inspectorate on graphite fracture.

**Venue:** The meeting is in Mansfield College, Oxford University, London. England.

**Dates:** April 11 -13, 2011.

**Organizer:** The meeting is organized by Nuclear Installations Inspectorate (HSE) and EdF Energy, the operator of British AGRs.

**Meeting Objective:** The purpose of this meeting is to gather selected experts from around the world (a dozen or so), and establish an understanding of the scope of the problem related to graphite fracture in high temperature gas cooled reactors. the work that is already in place (do we understand what each is doing and why?) and complete a Gap analysis to see where we need to go next.

**My Role:** I have been invited to participate as an expert in graphite and ceramic fracture. I will convey the regulatory and safety implications of fracture in graphite core components in terms of the overall safety risk and exploration of potential compensatory measures as well as inservice inspection procedures and proactive periodic graphite performance assessment by core monitoring. Particularly, I will bring to focus the current ASME Graphite Core Component (GCC) design criteria, and explore the sufficiency of design margin

AG / 887

with the experts. I will also challenge the experts at this meeting aspects related to future consideration in research of potential severe accident hazards, such as earthquake in cracked graphite core components.

**Benefit to NRC:** NRC staff will exchange of technical safety information and potential regulatory issues related to cracked graphite components in HTGR with international nuclear graphite reactor experts. The outcome of this meeting will aid NRC's future research planning. The staff will provide information on specific data needs, such as for example dynamic loading situations, and encourage future research planners to conduct research to provide experimental data and models, which will address technical safety issues related to graphite core performance. The expected outcome will provide technical basis information for formulating staff position, interim staff guidance development, and regulatory guide development.

Please let me know if you need any additional information.

Thanks.

Srini.

**From:** Schwarz, Sherry  
**To:** Leeds, Eric  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?  
**Date:** Wednesday, March 23, 2011 4:40:39 PM

---

I did earlier; I moved Heather to accommodate.

-----Original Message-----

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 4:39 PM  
**To:** Schwarz, Sherry  
**Subject:** FW: could you do 1-2 US time on Monday for CNRA call?

Please make it happen with my calendar thanks!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

**From:** Diane.JACKSON@oecd.org [<mailto:Diane.JACKSON@oecd.org>]  
**Sent:** Wednesday, March 23, 2011 4:35 PM  
**To:** Leeds, Eric  
**Cc:** Javier.REIG@oecd.org; Schwarz, Sherry  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?

wow. that would be great. we have you Mike W and J-C.

that does it

Diane.

---

**From:** Leeds, Eric [[Eric.Leeds@nrc.gov](mailto:Eric.Leeds@nrc.gov)]  
**Sent:** Wednesday, March 23, 2011 7:25 PM  
**To:** JACKSON Diane, NEA/SURN; Johnson, Michael  
**Cc:** REIG Javier, NEA/SURN; Schwarz, Sherry  
**Subject:** RE: could you do 1-2 US time on Monday for CNRA call?

Yes - I can move meetings to make it happen.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

**From:** Diane.JACKSON@oecd.org [<mailto:Diane.JACKSON@oecd.org>]  
**Sent:** Wednesday, March 23, 2011 11:55 AM  
**To:** Johnson, Michael; Leeds, Eric  
**Cc:** Javier.REIG@oecd.org  
**Subject:** could you do 1-2 US time on Monday for CNRA call?

Mike and Eric - J-C is available 30 minutes later. Mike W is okay. Could you take the call 1 -2 pm US time (6-7p UK/ 7-8p Paris)?

Diane

AG/88 8

**From:** Carpenter, Gene  
**To:** Case, Michael  
**Cc:** Richards, Stuart; Gavrilas, Mirela  
**Subject:** PLiM & DOE  
**Date:** Wednesday, March 23, 2011 4:51:27 PM

---

Mike,

I just had a conference call with my DOE counterpart (Rich Reister) and Leonard Bond (PNNL) regarding planning for the PLiM meeting. Rich informed us that DOE:NE's budget is presently frozen due to uncertainties over potential FY2011 budget reductions and the possible need to reprogram in-house monies based on the Fukushima event. Rich confirmed that DOE intends to co-fund the PLiM meeting, but he can't give an estimate as to when he will commit funding. At present, PNNL is working off internal anticipatory funding based on the proposed V6231 SOW; however, this initial funding will only allow for PNNL to reserve the hotel in SLC, and some minimal level of support related to the conference (since half of the expected monies were to come from DOE which would have paid for the full support).

More news as details develop.  
Gene

A 6/889

**From:** [Leeds, Eric](#)  
**To:** [Howard Glaser](#); [R D; Richard Bamberger](#); [Thomas Congdon](#)  
**Cc:** [Batkin, Joshua](#); [Brenner, Eliot](#)  
**Subject:** RE:  
**Date:** Wednesday, March 23, 2011 5:30:16 PM

---

Your understanding that we expect consensus seismic data this year is correct. Also, your understanding that we anticipate requesting licensee information this year is correct. In addition, Beth Hayden's statement that we would not begin individual plant reviews this year is correct. Your understanding that we would complete the IP review in 2012 is also correct.

We anticipate beginning and completing the IP review in 2012. When we get the information regarding this seismic issue from IP, the review of that information will be our top priority.

I recall you stated that you were disappointed in this schedule but we indicated that the change in seismic risk was not sufficiently significant to justify a more expedited schedule.

Again, I hope this helps.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Wednesday, March 23, 2011 11:24 AM  
To: Leeds, Eric; R D; Richard Bamberger; Thomas Congdon  
Cc: Batkin, Joshua; Brenner, Eliot  
Subject: RE:

One specific clarification if you can: In her statement, Elizabeth said that the seismic review would not start until 2012. Is that accurate? Our understanding yesterday that you expected consensus seismic data this year and would begin requesting licensee information this year but did not expect to complete until 2012. Can you provide clarity on that? Thanks.

-----Original Message-----

From: Leeds, Eric [<mailto:Eric.Leeds@nrc.gov>]  
Sent: Wednesday, March 23, 2011 7:35 AM  
To: Howard Glaser; R D; Richard Bamberger; Thomas Congdon  
Cc: Batkin, Joshua; Brenner, Eliot  
Subject: RE:

Got it. I'm sharing with the NRC Director of Public Affairs.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Wednesday, March 23, 2011 1:05 AM  
To: Leeds, Eric; R D; Richard Bamberger; Thomas Congdon  
Cc: Batkin, Joshua  
Subject: RE:

AG/890

Eric -- just to confirm, yesterday at meetings end we had agreement on 3 things: IP would be the top priority in NRC's seismic review; NRC would share data; and NY could have its people accompany NRC on related inspections. We then reported precisely these things back to Governor and in our statement about the meeting. The Lt. Gov also read verbatim our statement to the Chairman in 2nd phone conversation in the afternoon. So we were a little surprised to see your spokesman's comments that "this is not a serious concern". Your chairman certainly expressed that he thought this was a serious concern, enough so that he would agree to make a personal visit to IP.

"This is really not a serious concern," said NRC spokeswoman Elizabeth Hayden, referring to a new safety review of the Indian Point plant by her agency in the wake of Japan's nuclear crisis. That is, it's not so serious that it would be started anytime this year, she said. "I know what [Cuomo] said," Hayden explained yesterday, but the NRC's review "won't start until 2012."

Copying the Lt Gov and our director of communications.

Thanks. hg

---

From: Leeds, Eric [Eric.Leeds@nrc.gov]  
Sent: Tuesday, March 22, 2011 5:15 PM  
To: Howard Glaser  
Cc: Batkin, Joshua  
Subject: RE:

Understand the issue - it's not where any of us what to be. I spoke with the Chairman right after LTGOV Duffy. Here's the answer to your question:

1 in 1,000 (10<sup>-3</sup>) - requires consideration of immediate action.  
So Indian Point is in the range of 10<sup>-4</sup> (1 in 10,000)- which in accordance with our processes means to continue performing prudent regulatory evaluation.

Hope this helps.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----  
From: Howard Glaser [<mailto:Howard.Glaser@exec.ny.gov>]  
Sent: Tuesday, March 22, 2011 12:26 PM  
To: Leeds, Eric  
Cc: Batkin, Joshua  
Subject:

Thanks for today. Expedited review is what we all really need. Duffy spoke to Chair.

One point; your guy said one in 13K. But ur report says 1 in 10K at IP. Which is your standard for immediate review.



**From:** Leeds, Eric  
**To:** Schwarz, Sherry  
**Subject:** FW: Friday's Monthly Management Meeting - NOTE TIME, LOCATION  
**Date:** Wednesday, March 23, 2011 5:57:00 PM  
**Attachments:** March 2011 Monthly EDO MANAGEMENT Meeting agenda.docx

---

Please blue folderize.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Ellmers, Glenn  
**Sent:** Wednesday, March 23, 2011 5:06 PM  
**To:** Ellmers, Glenn; Ash, Darren; Boger, Bruce; Boyce, Thomas (OIS); Brenner, Eliot; Brown, Milton; Burns, Stephen; Carpenter, Cynthia; Casto, Chuck; Cohen, Miriam; Collins, Elmo; Dapas, Marc; Dean, Bill; Doane, Margaret; Droggitis, Spiros; Dyer, Jim; Greene, Kathryn; Grobe, Jack; Hackett, Edwin; Haney, Catherine; Hayden, Elizabeth; Holahan, Gary; Howard, Patrick; Johnson, Michael; Kelley, Corenthis; Leeds, Eric; Mamish, Nader; McCrary, Cheryl; McCree, Victor; Miller, Charles; Moore, Scott; Pederson, Cynthia; Plisco, Loren; Poole, Brooke; Powell, Amy; Reyes, Luis; Satorius, Mark; Schaeffer, James; Schmidt, Rebecca; Sheron, Brian; Stewart, Sharon; Uhle, Jennifer; Virgilio, Martin; Weber, Michael; Wiggins, Jim; Williams, Barbara; Zimmerman, Roy; Campbell, Andy; Holahan, Patricia; Dorman, Dan; Muessle, Mary; Wert, Leonard; Tracy, Glenn; Taylor, Renee; Krupnick, David; Evans, Michele  
**Cc:** Akstulewicz, Brenda; Andersen, James; Bellosi, Susan; Belmore, Nancy; Boyd, Lena; Buckley, Patricia; Casby, Marcia; Cianci, Sandra; Crawford, Carrie; Flory, Shirley; Garland, Stephanie; Higginbotham, Tina; Hudson, Sharon; Landau, Mindy; Matakas, Gina; Miles, Patricia; Pulley, Deborah; Rihm, Roger; Riner, Janet; Ronewicz, Lynn; Ross, Robin; Salus, Amy; Tannenbaum, Anita; Taylor, Renee; Thomas, Loretta; Walker, Dwight; Warner, MaryAnn; Wright, Darlene; Wyatt, Melissa; Cannady, Ashley; Lockhart, Denise; Perez-Ortiz, Aracelis; Riddick, Nicole; King, Shannon; Penny, Melissa; Sprogeris, Patricia; Banks, Eleasah; Nagel, Cheri; Hasan, Nasreen; Call, Michel; Thaggard, Mark; Young, Gary; Holonich, Joseph; Moore, Mary; Daniels, Stanley; Kreuter, Jane; Schumann, Stacy; Rihm, Roger; Schwarz, Sherry  
**Subject:** Friday's Monthly Management Meeting - NOTE TIME, LOCATION

Attached please find the agenda for Friday's meeting, which will be in the OEDO conference room beginning at 9:00 am.

AG/891

## MONTHLY EDO MANAGEMENT MEETING AGENDA

MARCH 25, 2011

9:00 – 10:00 EDT

O17B4

9:00 EDO Comments

9:20 Topics of Special Interest

- New Public Website: Jun Lee (15 min.)
- FOIA Update: Steve Burns (10 min.)
- RIC Overview : Eric Leeds (5 min.)
- Federal Employee Viewpoint Survey: Miriam Cohen (5 min.)

(10:00 Office in the Spotlight: NMSS – Postponed)

10:00 Management Crosscutting Issues

OPA

OCA

OGC

ADM

OCFO

OIS/CSO

SBCR

*Next meeting scheduled for Friday, April 15, 2011.*

**From:** [Barnes, Valerie](#)  
**To:** [Coe, Doug](#)  
**Subject:** RE: Expediting action on foreign trip  
**Date:** Wednesday, March 23, 2011 6:00:02 PM

---

Thanks. I didn't realize that's what her email meant.

---

From: Coe, Doug  
Sent: Wednesday, March 23, 2011 5:14 PM  
To: Barnes, Valerie  
Subject: FW: Expediting action on foreign trip

Val,  
We were advised that your travel was funded per Teresa's email below.  
Please proceed as planned.  
Doug

From: Grancorvitz, Teresa  
Sent: Monday, March 07, 2011 7:03 AM  
To: Coe, Doug; Calvo, Antony  
Cc: Dehn, Jeff; Eisenberg, Wendy; Coyne, Kevin; Barnes, Valerie; Siu, Carolyn  
Subject: RE: Expediting action on foreign trip

I certified the funds for Valerie Barnes in etravel.

Thanks,  
Teresa

From: Coe, Doug  
Sent: Thursday, March 03, 2011 9:17 AM  
To: Grancorvitz, Teresa; Calvo, Antony  
Cc: Dehn, Jeff; Eisenberg, Wendy; Coyne, Kevin; Barnes, Valerie; Siu, Carolyn  
Subject: Expediting action on foreign trip

Teresa/Antony,  
I just sent the 445 upstairs for Val Barnes' foreign trip (RES #178) to Paris (travel start 4/2/11) for a NEA/CSNI/WGHOF biannual meeting.  
Two points of note:

1. I've noted in eTravel and on the routing form that this approval is subject to availability of funds.
  2. Because I didn't see this in my in-box until today, we may have missed the 30 day advance notice requirement. Any expediting of this package would be very appreciated.
- Doug

AG/1892

**From:** Leeds, Eric  
**To:** Meighan, Sean  
**Subject:** RE: FYI - More NY State involvement  
**Date:** Wednesday, March 23, 2011 6:11:00 PM

---

No thanks, Sean. I will need you to take notes from the meeting that we can refer back to - especially if I take away an IOU.

Enjoy the circus and I'll stop emailing you tonight!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

-----Original Message-----

From: Meighan, Sean  
Sent: Wednesday, March 23, 2011 6:02 PM  
To: Leeds, Eric; Hiland, Patrick  
Subject: RE: FYI - More NY State involvement

I will be there. Would you like any material prepared for the meeting?

Very Respectfully  
Sean

---

From: Leeds, Eric  
Sent: Wednesday, March 23, 2011 5:56 PM  
To: Meighan, Sean; Hiland, Patrick  
Subject: FW: FYI - More NY State involvement

Are either of you available to sit in with me on this 11 am with Congresswoman Hayworth?

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

From: Hayden, Elizabeth  
Sent: Wednesday, March 23, 2011 5:18 PM  
To: Leeds, Eric  
Subject: RE: FYI - More NY State involvement

Do you want me to sit in at the 11 a.m. meeting or can one of your staff give me the highlights afterwards?

Beth Hayden  
Senior Advisor  
Office of Public Affairs  
U.S. Nuclear Regulatory Commission  
--- Protecting People and the Environment  
301-415-8202  
elizabeth.hayden@nrc.gov

From: Leeds, Eric  
Sent: Wednesday, March 23, 2011 12:08 PM  
To: Dean, Bill; Lew, David

AG/843

Cc: Roberts, Darrell; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Borchardt, Bill; Brenner, Eliot; Hayden, Elizabeth; Powell, Amy; Schmidt, Rebecca; Wittick, Brian  
Subject: FYI - More NY State involvement

FYI – We’ve heard that NY City – Mayor Bloomberg or his staff – is interested in meeting with the NRC to express a different point of view than we received from the NY State group that we met with yesterday. That meeting is not yet set up. In addition, I have a teleconference with Congress-woman Nan Hayworth – she took over the IP district that had been held by John Hall – tomorrow at 11 am.

I'll keep you informed.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

**From:** Leeds, Eric  
**To:** Brenner, Eliot; Boska, John  
**Cc:** Salgado, Nancy; Galloway, Melanie; Wrona, David; Green, Kimberly; Nelson, Robert  
**Subject:** RE: Material on Indian Point to be provided to New York State  
**Date:** Wednesday, March 23, 2011 6:12:00 PM

---

Please do! Thanks, John! Let's feed them info – be as open as we can.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Brenner, Eliot  
**Sent:** Wednesday, March 23, 2011 3:49 PM  
**To:** Boska, John; Leeds, Eric  
**Cc:** Salgado, Nancy; Galloway, Melanie; Wrona, David; Green, Kimberly; Nelson, Robert  
**Subject:** RE: Material on Indian Point to be provided to New York State

Ok by me (I am now nearly blind and asleep from reading the stuff)

---

**From:** Boska, John  
**Sent:** Wednesday, March 23, 2011 3:32 PM  
**To:** Leeds, Eric; Brenner, Eliot  
**Cc:** Salgado, Nancy; Galloway, Melanie; Wrona, David; Green, Kimberly; Nelson, Robert  
**Subject:** Material on Indian Point to be provided to New York State

(I apologize if you received this twice, there were some glitches).

Eric and Eliot,

I was asked to have you review any material we plan to send to New York State. One of the items we promised to New York State was information on how the leak in the Indian Point 2 spent fuel pool was addressed during license renewal. Attached is an excerpt from the Indian Point license renewal safety evaluation, NUREG-1930 Vol. 2, showing how it was addressed. The NUREG is publicly available in ADAMS (ML093170451, ML093170671). I can't email the complete NUREG with a reference to the pages because it is too large to email. I will provide these pages to Nancy McNamara, the SLO in Region I, along with the ADAMS reference, for forwarding to New York State.

Please concur with sending this material to New York State. Thanks.

John Boska  
Indian Point Project Manager, NRR/DORL  
U.S. Nuclear Regulatory Commission  
301-415-2901  
email: john.boska@nrc.gov

AG/894

**From:** Hiland, Patrick  
**To:** Leeds, Eric  
**Subject:** Re: FYI - More NY State involvement  
**Date:** Wednesday, March 23, 2011 6:24:27 PM

---

Ok

**From:** Leeds, Eric  
**To:** Hiland, Patrick  
**Sent:** Wed Mar 23 18:20:21 2011  
**Subject:** RE: FYI - More NY State involvement

Thanks, Pat. I just need someone else to listen to the discussion with her to pull me back if I go down the wrong path or add whatever nuance is necessary to respond to her questions. It will be a teleconference. We can discuss in the am.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Hiland, Patrick  
**Sent:** Wednesday, March 23, 2011 6:18 PM  
**To:** Leeds, Eric  
**Subject:** Re: FYI - More NY State involvement

Yes I am

---

**From:** Leeds, Eric  
**To:** Meighan, Sean; Hiland, Patrick  
**Sent:** Wed Mar 23 17:56:43 2011  
**Subject:** FW: FYI - More NY State involvement

Are either of you available to sit in with me on this 11 am with Congresswoman Hayworth?

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Hayden, Elizabeth  
**Sent:** Wednesday, March 23, 2011 5:18 PM  
**To:** Leeds, Eric  
**Subject:** RE: FYI - More NY State involvement

Do you want me to sit in at the 11 a.m. meeting or can one of your staff give me the highlights afterwards?

*Beth Hayden*

AG 1895

*Senior Advisor  
Office of Public Affairs  
U.S. Nuclear Regulatory Commission  
--- Protecting People and the Environment  
301-415-8202  
elizabeth.hayden@nrc.gov*

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 12:08 PM  
**To:** Dean, Bill; Lew, David  
**Cc:** Roberts, Darrell; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Borchardt, Bill; Brenner, Eliot; Hayden, Elizabeth; Powell, Amy; Schmidt, Rebecca; Wittick, Brian  
**Subject:** FYI - More NY State involvement

FYI – We’ve heard that NY City – Mayor Bloomberg or his staff – is interested in meeting with the NRC to express a different point of view than we received from the NY State group that we met with yesterday. That meeting is not yet set up. In addition, I have a teleconference with Congresswoman Nan Hayworth – she took over the IP district that had been held by John Hall – tomorrow at 11 am.

I’ll keep you informed.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270



**From:** Hayden, Elizabeth 10211  
**To:** Leeds, Eric  
**Subject:** RE: FYI - More NY State involvement  
**Date:** Wednesday, March 23, 2011 6:25:58 PM

---

Update would probably work better if it is not too much trouble. Thanks for your support.

*Beth*

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 5:56 PM  
**To:** Hayden, Elizabeth  
**Subject:** RE: FYI - More NY State involvement

I'm fine giving you an update. But your company is always welcome!

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

---

**From:** Hayden, Elizabeth  
**Sent:** Wednesday, March 23, 2011 5:18 PM  
**To:** Leeds, Eric  
**Subject:** RE: FYI - More NY State involvement

Do you want me to sit in at the 11 a.m. meeting or can one of your staff give me the highlights afterwards?

*Beth Hayden*  
*Senior Advisor*  
*Office of Public Affairs*  
*U.S. Nuclear Regulatory Commission*  
*--- Protecting People and the Environment*  
*301-415-8202*  
*elizabeth.hayden@nrc.gov*

---

**From:** Leeds, Eric  
**Sent:** Wednesday, March 23, 2011 12:08 PM  
**To:** Dean, Bill; Lew, David  
**Cc:** Roberts, Darrell; Boger, Bruce; Grobe, Jack; Virgilio, Martin; Borchardt, Bill; Brenner, Eliot; Hayden, Elizabeth; Powell, Amy; Schmidt, Rebecca; Wittick, Brian  
**Subject:** FYI - More NY State involvement

FYI – We've heard that NY City – Mayor Bloomberg or his staff – is interested in meeting with the NRC to express a different point of view than we received from the NY State group that we met with yesterday. That meeting is not yet set up. In addition, I have a teleconference with Congresswoman Nan Hayworth – she took over the IP district that had been held by John Hall – tomorrow at 11 am.

AG 1896

I'll keep you informed.

Eric J. Leeds, Director  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
301-415-1270

**From:** Elena Gorbunkova  
**To:** Case, Michael  
**Subject:** The Oil & Gas Pipelines Market 2011-2021  
**Date:** Wednesday, March 23, 2011 6:28:30 PM

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# **The Oil & Gas Pipelines Market 2011-2021**

## **Report Information**

Publication date: 25/02/2011  
Number of Pages: 300

## **Report Details:**

Visiongain's new energy report The Oil & Gas Pipeline Markets 2011-2021 analyses all aspects of the oil & gas pipelines industry, which is crucial for the distribution and transport of oil & gas. The report analyses developments in the industry over the last year, detailing over 85 major pipelines in 30 countries. Visiongain's detailed research calculates that global capital expenditure on oil & gas pipelines will reach \$57.5bn in 2011 and the report projects the future developments within the industry over the forecast period 2011-2021.

Our in-depth research allows us to forecast the current spending and growth rates across the leading 30 markets. The forecasts are underpinned by interviews with industry experts, evaluation of data, analysis of market potential, output and consumption growth demand for oil & gas.

The oil & gas pipeline industry is an essential part of the oil & gas distribution process. However the transportation of hydrocarbons can have inherent problems from political disagreement to the threat of terrorism. The report analyses a wealth of data to show how the market will evolve based upon diverse factors and insight into the market, anticipating how and why the market will develop from 2011 onwards.

The report considers the most significant technological development which will shape the industry over the next decade. Furthermore the report highlights the latest hydrocarbon deposits, energy demand booms and economic developments. The most significant drivers and restraints of the market are considered in order to provide readers with specific insights into the future direction of the industry.

In which countries will capital expenditure on midstream oil and gas pipeline be the greatest? Which countries represent the best investment opportunities? What are the possible niche markets developing in the sector? Will hydrocarbons remain the dominant supply of energy in the long-term? What major pipelines are under construction? How will changes in the price of oil affect the pipelines sector? Which countries will see the largest growth rates? These critical questions and many more are definitively answered in this comprehensive report.

## **Comprehensive analysis of the global oil & gas pipelines market:**

The Oil & Gas Pipelines Market 2011-2021 examines this important sector critically. We supply a comprehensive review of programmes and products via analysis of policy documents, news reports, industry publications, market analysis and consultations with experts. This report provides detailed market forecasts, a SWOT analysis, pipeline developments and analyses of commercial drivers and restraints. You will not find these analyses anywhere else.

AG/897

## **The main benefits from purchasing this report:**

- You will gain an understanding of the global oil & gas pipelines market and how it will evolve across the next decade, including detailed country by country analysis and forecasts.
- You will receive national sales forecasts for the leading 30 oil & gas pipelines markets with insight into market drivers and restraints for each country.
- You will gain insight into major important game-changing oil & gas developments within the industry.
- You will be able to study over 250 tables, charts and graphs, quantifying and analysing the oil & gas pipelines market in detail. These include oil and gas consumption, oil and gas production, market shares and national forecasts.
- You will gain knowledge of who the leading players are within the oil & gas pipelines market.
- You will receive analyses for strengths, weaknesses, opportunities and threats for the oil & gas pipelines market from 2010 onwards.
- You will read an original interview, providing an expert view from a pipeline pigging equipment company - Pipeline Engineering & Supply Company Ltd.

You can order this report today

Anybody with an interest in the oil & gas pipeline industry will gain precise and valuable information from this new study by Visiongain, which analyses one of the most important elements of the hydrocarbon sector. The oil & gas pipeline market offers substantial opportunities and is an increasingly important component of the energy sector in several key markets.

Gain an understanding of how to tap into the huge potential of this exciting market by ordering today The Oil & Gas Pipelines Market 2011-2021.

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### **Companies Listed:**

Abu Dhabi Marine Operating Company (ADMA-OPCO)  
 Aboriginal Pipeline Group (APG)  
 Abu Dhabi Company for Onshore Oil Operations  
 Abu Dhabi Company for Onshore Oil Exploration (ADCO)  
 Abu Dhabi Gas (ADGAS)  
 Abu Dhabi National Drilling Company (ADNDC)  
 Abu Dhabi National Oil Company (ADNOC)  
 Abu Dhabi National Tanker Company (ADNATCO)  
 Abu Dhabi Oil Refinery Company  
 Abu Dhabi Petroleum Ports Operating (RSHAD)  
 Abu Dhabi Polymers Company Ltd (Borouge)  
 ACIL Tasman  
 ADNOC Distribution  
 Agenzia Giomalistica Italia (AGI)  
 AGIP  
 Agip

Albanian Macedonian Bulgarian Oil Corporation (AMBO)  
Allseas  
Amek  
Anver Corporation  
Arab Petroleum Pipeline Company  
Aral Ag  
Arrow Energy Ltd  
Asian Development Bank  
Bahamas Oil Refinery Company (BORCO)  
Bayou Companies LLC  
BBL Company  
Bechtel Corporation  
Bechtel Group  
Beijing Oil  
Belleli Energy  
BG Group  
Bison Pipeline LLC  
BNO  
Bonaire Petroleum Corporation (BOPEC)  
Boskalis Westminster  
BP  
Bredero Shaw  
Bridgade Holdings LLC  
Britoil  
Bulgarian Project Company  
Bulnergaz  
Caspian Pipeline Consortium  
Caspian Pipeline Consortium  
Cassa Depoiste Presetiti Bank  
Caterpillar Inc.  
Cedigaz  
Cespa  
Chesapeake Energy Marketing Inc.  
Chesapeake Energy Corporation  
Chevron Corporation  
Chicago Bridge & Iron Company  
China National Oil & Gas Exploration and Development Company (CNODC)  
China National Petroleum Company (CNPC)  
China Petroleum Engineering & Construction (CPEC)  
Circor International  
City Petroleum Corporation  
Circle Petroleum  
Companhia de Desenvolvimento de Petroleo de Mocambique  
Compantiha Nacional de Dutos  
Conduto Egasa  
Conoco Phillips Canada Ltd  
ConocoPhillips  
ConocoPhillips Canada (North) Limited  
Consolidated Contractors Company  
Converteam Group SAS  
Coral Energy  
Denbury Resources  
Distriges  
DMGP Servicios de Integrad  
Dodsai  
DOF Subsea  
Dow Chemical Company  
Druzhba Pipeline Company  
E.ON  
E.ON VEBS Oel

Eda Oil  
Edison  
Egesa Engenharia S.  
EGL Group  
Egyptian General Petroleum Corporation (EGPC)  
El Paso Corporation  
El Paso Pipeline Partners  
Enbridge Canada  
Enbridge Inc  
Enbridge Pipelines LLC  
Endesa  
Enel  
Energía Argentina Sociedad Anónima Ltd  
Energy Transfer Energy L.P  
Energy Transfer Partners  
Eni S.P.A  
ENSAAD  
Ente Nazionale Idrocarbon (ENI)  
Enterprise Product Partners  
EOT Energy Partners  
Esso  
Esso Highlands Limited  
EUPEC PipeCoatings S.A  
EUROPIPE  
Evaluate Energy  
Exxon Mobil Business Support Centres  
Exxon Mobil Chemical Company  
Exxon Mobil Development Company  
Exxon Mobil Exploration Company  
Exxon Mobil Fuels Marketing Company  
Exxon Mobil Gas and Power Marketing Company  
Exxon Mobil Global Procurement  
Exxon Mobil Global Services Company  
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Exxon Mobil Refining and Supply Company  
Exxon Mobil Upstream Research Company  
ExxonMobil Canada Ltd  
ExxonMobil Canada Properties  
ExxonMobil Corporation  
ExxonMobil Resources Ltd  
First Reserve Corporation  
Flexibras Tubos Flexials Limitada  
Flowserve  
Ford  
GAIL (India) Limited  
Gassco  
Gateway Energy Services  
Gazprom  
Gazprom Neft  
GdF  
GDF Suez  
General Motors  
General Petroleum Corporation (EGPC)  
Gigajoule International (Pty) Ltd  
GL  
Global Infrastructure Partners (GIP)  
Groupe Genoyer Corporation

Gujarat State Petroleum Corporation (GSPC)  
Halliburton  
Hellenic Petroleum  
Helpe-Thraki A.E  
Hera  
Hess  
Hess Oil Virgin Islands Corporation  
Houston Pipeline Company  
Hoversa LLC  
Hunt Oil Company  
Hunt Oil Peru  
Hydrocarbon Secies Nigerian Ltd (HYSON)  
Iberdrola  
IfAO  
Imperial Oil Ltd  
Indian Oil Corporation (IOC)  
Industrial Nanotech Inc  
InnerArmor  
INPEX  
Insituform  
InterOil  
Interpipeline Fund  
Intersea  
Iraq National Oil Company  
Iron Company N.V.  
Isla Refinery  
Isolux Engineering  
Italgas  
Jindal Group  
Kaduna Refinery and Petrochemical Company Ltd (KRPC)  
KasTransOil  
KazMunayGas (KMG)  
Kinder Morgan  
Kinder Morgan Energy Partners  
Korea Gases  
Kuwait Petroleum Corporation  
La Valley Industries  
Larsen & Toubro  
Likpin LLC  
Liquefied Natural Gas (LNG) Ltd  
Lo Brun  
LUKArco  
LUKOil  
Macroconsult  
Marathon Oil  
Marin Mattektechnik  
McConnell Dowell  
Mineral Resources Development Company (MRDC)  
Mitsui  
Myanmar Oil & Gas Enterprise (MOGE)  
Naftogaz  
National Engineering and Technical Company Ltd (NETCO)  
National Gas Shipping Company (NGSCO)  
National Iranian Oil Company (NIOC)  
National Oil Company of Libya  
National Petroleum Investment Management Services (NAPIMS)  
National Pipeline Construction Company (NPCC)  
Nautronic  
Neste Oil Company  
Nigeria Gas Company



Nigeria Petroleum Development Company (NPDC)  
Nigerian LNG Ltd (NLNG)  
Nigerian National Petroleum Corporation (NNPC)  
Nippon Oil  
Nord Stream AG  
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Origin Energy  
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Penspen  
Perusahaan Gas Negara (PGN)  
Petergaz  
Petergaz  
Petrobras  
PetroChina  
Petrofac  
Petroleos de Mocambique (Petrofac)  
Petroleos de Venezuela S.A. (PDVSA)  
Petroleos Mexicanos (PEMEX)  
Petrolina  
Petroleum Authority of Thailand Exploration and Production  
Petronas  
Petronas Group  
Petrovietnam  
Pipeline Machinery International  
PipeSak Inc  
Plain Resources Inc.  
Polimeri Europa  
Polskie Gornictwo Naftowe i Gazownictwo (PGNiG)  
Port Harcourt Refining Company Ltd (PHRC)  
Powerblanket  
Prydniprovsky Main Pipeline Company  
PT Pertamina  
PT Rekayasa Industri of Indonesia  
Qatar General Petroleum Company  
QinetiQ  
Rambull  
Reliance Industries  
Repsol YPF  
Riva  
Rolls-Royce plc  
Rosneft  
Royal Dutch Shell  
Royal Vopak  
Ruhr Oel GmbH  
Ruweis Fertilizer Industry (FERTIL)  
Saipem  
Salzgitter Mannesmann International  
Santos Ltd  
SapuraAcergy  
Sardinia  
Saudi Arabian General Investment Authority  
Saudi Aramco  
Schlumberger

Seaflex  
SeaRiver Maritime  
Shell Canada  
Shell Chemicals  
Shell Oil  
Sinopec  
SK Corporation  
SNAM  
Snam Pete Gas  
Socotherm SPA  
Sonatrach  
Southern Union  
Spectra Energy Transmission  
Statoil  
Straytransaga 2  
Sub-One Technology  
Subsea 7  
Sumito  
Sumitomo Corporation  
Suncor Energy  
Surat Gladstone Pipeline Pty Ltd  
SURF Subsea Inc.  
T. D. Williamson  
TC Pipelines LP  
Technip  
Technip France  
Technip Geoproduction Malaysia  
Technip Italy S.P.A  
Technip Oceania  
Technip UK Ltd  
Technip US Inc.  
Technit  
Technoexportstroy  
Tengizchevroil  
The Aboriginal Pipeline Group  
Thraki  
Tokyo Electric Power Company (TEPCO)  
Total S.A.  
Toyota  
Trans Adriatic Pipeline AG  
TransCanada Corporation  
Transfer Partners  
Transneft  
Transnet Pipelines  
Transpetro  
Trunkline Gas Company  
Ukrtransnafta  
Ukrtransgaz  
UTE Ecop-Andreatta-Jubette-laco  
UTE Mauad Srl-Ziljee  
UTE Supercemento-ILKA  
Uzbekneftgas  
Vico  
Vopak Terminal Bahamas  
Warri Refinery and Petrochemical Ltd (WRPC)  
Wilbros  
Williams Gas Pipeline  
WOESA Consortium (Pty) Ltd  
Woodside  
Worley Parsons

Zakum Development Company (ZADCO)  
Worley Parsons  
Woodside

**Government Agencies and Other Organisations Mentioned in This Report**

Algerian Gas and Electricity Regulatory Commission  
Asian Development Bank  
Association of South East Asian Nations (ASEAN)  
Beijing Oil & Gas Pipeline Control Centre  
Central Intelligence Agency (CIA)  
Earth Rights International  
EIA (Energy Information Administration)  
European Union (EU)  
International Association for Natural Gas Vehicles  
International Centre for Settlement of Investment Disputes (ICSID)  
International Energy Agency IEA  
International Monetary Fund (IMF)  
Joint Review Panel (Canada)  
London Stock Exchange (LSE)  
Manchester University  
Ministry of Economy and Finance (UAE)  
Ministry of Petroleum (Iran)  
Multilateral Investment Guarantee Agency (MIGA)  
National Energy Board  
Organisation for Economic Cooperation and Development (OECD)  
Organisation of the Petroleum Exporting Countries (OPEC)  
Paris Stock Exchange  
Saudi Arabian General Investment Authority (SAGIA)  
Statistics Canada  
Supreme Petroleum Council (UAE)  
US Army Corps of Engineers  
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US Potential Gas Committee  
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**From:** Certification Training International  
**To:** Case, Michael  
**Subject:** INCOSE CSEP American Schedule Released  
**Date:** Wednesday, March 23, 2011 8:18:29 PM

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The International Council on Systems Engineering (INCOSE) has established a multi-level Professional Certification Program to provide a formal method for recognising the knowledge and experience of systems engineers, regardless of where they may be in their career.

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- Understand how you will be assessed for the CSEP certification.
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**From:** Grobe, Jack  
**To:** Brown, Rohn  
**Cc:** Ruland, William; Leeds, Eric; Boger, Bruce  
**Subject:** Re: FY2011 Awards Guidance  
**Date:** Wednesday, March 23, 2011 8:53:05 PM

---

Good  
Jack Grobe, Deputy Director, NRR

---

**From:** Brown, Rohn  
**To:** Grobe, Jack  
**Sent:** Wed Mar 23 18:24:06 2011  
**Subject:** RE: FY2011 Awards Guidance

No requirement – but allows for good judgment.. I believe that it's only there to spell out that agencies have the option of providing an award after the employee has left their employ.

---

**From:** Grobe, Jack  
**Sent:** Wednesday, March 23, 2011 6:02 PM  
**To:** Brown, Rohn  
**Subject:** Re: FY2011 Awards Guidance

Its not required is it?? Just permitted?? So the Leadership Team can exercise good judgement??  
Jack Grobe, Deputy Director, NRR

---

**From:** Brown, Rohn  
**To:** Grobe, Jack  
**Cc:** Boger, Bruce; Leeds, Eric; Ruland, William  
**Sent:** Wed Mar 23 17:59:42 2011  
**Subject:** RE: FY2011 Awards Guidance

Clearly, you made US ponder it to! :o]

I certainly don't disagree with you. My guess is the legislation was the result of some rare circumstance that was brought to the attention of a member of Congress. Taking care of a bereaved constituent is unlikely to hurt you in the polling booth.

---

**From:** Grobe, Jack  
**Sent:** Wednesday, March 23, 2011 5:56 PM  
**To:** Brown, Rohn  
**Cc:** Boger, Bruce; Leeds, Eric; Ruland, William  
**Subject:** Re: FY2011 Awards Guidance

Rohn


Interesting that this is legal.

My question was more why we would want to spend our meager awards resources on someone who has retired or died recognizing that awards are not compensation but recognition and motivation. No need to answer the question - just for pondering.  
Jack Grobe, Deputy Director, NRR

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**From:** Brown, Rohn   
**To:** Grobe, Jack  
**Cc:** Boger, Bruce; Silk, Anne; Sapp, Lynne; Leeds, Eric; Ruland, William  
**Sent:** Wed Mar 23 17:49:55 2011  
**Subject:** RE: FY2011 Awards Guidance

Jack,

Sorry it took a while to get these responses to you, but we wanted to make sure we had the correct information with which to respond.

This is the text from the Special Act section of the guidance:

- "All employees or groups of employees, former employees, or the estates of deceased employees are eligible to receive this award provided the special act or service took place while the person was a Government employee."

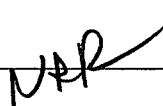
We double-checked with OHR, and per Alison, this language is based on regulation. The text above is from the Special Recognition Awards section of MD. Upon further discussion with OHR to confirm whether or not the same thing applied to Performance Awards, Alison Tallarico advised us that it does, so the following language was recently added to the Performance Awards section of the updated guidance:

- Performance awards may be granted to former employees or the legal heirs or estates of deceased employees for performance while employed by the NRC prior to their separation from the NRC or their death.

As to the 4<sup>th</sup> Bullet, we made the following change:

- "Performance awards amounts for non-bargaining unit employees, with the exception of Branch Chiefs and Team Leaders; will be the same award amounts as those for bargaining unit employees, e.g., non-bargaining and bargaining unit employees with the same grade and same numeric rating will receive the same award amount."

---

**From:** Grobe, Jack   
**Sent:** Monday, February 28, 2011 5:56 AM  
**To:** Brown, Rohn; Leeds, Eric  
**Cc:** Boger, Bruce; Silk, Anne; Sapp, Lynne  
**Subject:** Re: FY2011 Awards Guidance

Rohn,

Looks great.

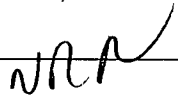
Just two thoughts:

Fourth bullet under general could be more specific - e.g., same grade and performance level

Why would we give an award to a former employee or the estate of a deceased employee?? Awards are meant to motivate.

Thanks for all the hard work on this.  
Jack Grobe, Deputy Director, NRR

---

**From:** Brown, Rohn ,   
**To:** Leeds, Eric  
**Cc:** Grobe, Jack; Boger, Bruce; Silk, Anne; Sapp, Lynne  
**Sent:** Tue Feb 22 21:23:04 2011  
**Subject:** FY2011 Awards Guidance

Attached is the DRAFT NRR Award Guidance for FY2011. The Performance Awards section (Pg 1 – 3) contains the latest version encompassing LT input from Tuesday, February 15<sup>th</sup>. The changes made at that time are provided in RED. The LT was asked to review the Performance Awards section and provide comments to Lynne Sapp and Anne Silk by Tuesday, March 1<sup>st</sup>. The Special Recognition Awards section (Pg 4 – 7) was reviewed and approved\* at that time.

Your division's \$\$ allotment and Time Off Award Ceiling...

DIVISION	FTE	Division Allotment	Time-Off Award Ceiling
DONRR	6	\$1,067	1

If you have any questions, please direct them to Anne Silk at 301-415-1061.

\* Anne and Lynne checked with HR, and struck the bullet stating: "Staff who receive the Employee Recognition Award are also eligible for a Special Act, Group, or Time-off Award for the same achievement."

## Murphy, Andrew

---

**From:** Blahoianu, Andrei [Andrei.Blahoianu@cnsccsn.gc.ca]  
**Sent:** Wednesday, March 23, 2011 10:53 PM  
**To:** Murphy, Andrew  
**Subject:** urgent request

**Importance:** High

Dear Andy,

These days there is a public hearing on environmental assessment for the new plants that will be built by OPG at Darlington site. One intervener asked details about the seismic qualification of the operating plants in USA on the other side of the Great Lakes. I guess Perry, Ginna and Nine Point maybe more.

Please, send me urgently some information about these plants: type, power per unit, commissioning year, original design PGA for SSE, if there were re-assessed, what methodology has been used to re-asses and what is the new PGA for which they were re-assessed.

I need it tomorrow by the end of the day. Sorry being so demanding, I hope that you have this information at hand.

Thanks a lot and a beer on me in Paris,

Andrei

\*\*\*\*\*

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