

Initiative to Improve Safety and Regulatory Efficiency

April 24, 2013

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Office of Nuclear Reactor Regulation**

How to submit written comments

- Go to <http://www.regulations.gov>
- Enter “**NRC-2013-0064**” in the search box and click “Search”
- Click “Comment Now!”
- Fill out the form and click “Submit”
- Deadline: 11:59pm on May 28, 2013
- NRC will review and consider all comments received at this meeting and via regulations.gov but will not provide written responses or formal evaluations of comments

Initiative to Improve Safety and Regulatory Efficiency

April 24, 2013

**Mike Snodderly
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Office of Nuclear Reactor Regulation**

Proposed Initiative to Improve Safety and Regulatory Efficiency

November 5, 2012

- Insights gained from a plant-specific PRA could be used to prioritize the schedule for implementation of regulatory actions
- Prioritization should:
 - Increase safety by speeding a licensee's completion of the most important new safety measures
 - address the challenges licensees face implementing new regulatory positions, programs, and requirements

Commission Direction

February 6, 2013

- Develop a notation vote paper
- Paper should provide approaches for allowing licensees to propose to the NRC a prioritization of the implementation of regulatory actions as an integrated set and in a way that reflects their risk significance on a plant-specific basis

Commission Direction

February 6, 2013

- Conduct a public workshop to obtain input from industry as well as other external parties to inform the concepts that will be presented at the Commissioners' Assistant briefing
- Provide a Commissioners' Assistants brief on initial consideration of the approach required to respond to this SRM (7/8/2013)

Proposed Initiative to Improve Safety and Regulatory Efficiency

November 5, 2012

- Licensees would be required to apply a high-quality PRA, including external events, to support plant-specific prioritization requests
- Power reactor licensees should be incentivized to develop a full-scope PRA that accounts for site-specific hazards, thereby improving safety
- The incentive envisioned is licensee flexibility to plan and schedule regulatory work

Staff's Interpretation of Commission Direction

- Initiative would be voluntary similar to 10 CFR 50.69
- Licensees who adopt the initiative would be required to maintain a PRA similar to new reactors
- License condition similar to one used by plants implementing the Integrated Safety Assessment Program and Integrated Schedules

Issue 1: Scope of Initiative?

Processes

- Rules
- License conditions
- Orders
- Current and future
Generic Safety Issues
- Amendments
- License Renewal

Examples

- Fukushima Action
Items
- Fire Protection (NFPA
805)
- Security (Cyber
security)
- Power Upgrades
- Others?

Issue 2: Scope of PRA

- What is the appropriate PRA scope for such an initiative?
- Level 1
- Level 2
- All initiating events (including natural hazards) and plant modes as supported by NRC endorsed standards
- Should a licensee have to meet a standard for a natural hazard that can be shown not to be a vulnerability?

Issue 2: PRA Scope

- Maintenance Rule has been implemented without a PRA requirement similar to new reactors
- Integrated Safety Assessment Program prioritized safety issues using existing PRAs in the late 1980s and early 1990s
 - Systematic Evaluation Program
 - TMI Action Plan Items

Issue 3: PRA Quality

- What is the appropriate PRA quality for such an initiative?
- RG 1.174
 - Must be sufficient to support proposal
- Phased Approach to PRA Quality
- RG 1.200, “An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities”
- RG 1.177, “An Approach for Plant-Specific, Risk-Informed Decisionmaking: Technical Specifications “
- Peer Review
- Uncertainty
 - NUREG-1855, “Guidance on the Treatment of Uncertainties Associated with PRAs in Risk-Informed Decisionmaking”
- Defense in Depth

Issue 4: Risk-Informed Metrics

- What are the appropriate risk metrics for such an initiative?
- Severe Accident Mitigation Alternatives
 - Cost/benefit methodology could be used for ranking
- CDF and LERF
 - RG 1.174 and NFPA-805
- Importance Measures
 - 50.69, “Risk-Informed Categorization Rule”
- Maintenance Rule
- Defense in Depth
- Qualitative Insights

Issue 5: Backstops

- What do interested parties see as appropriate backstops under such a process?
 - Time limited
- Could this initiative be implemented without backstops?
- If a licensee can demonstrate a safety benefit much less than expected based on plant specific information should they have to implement that regulatory action?

Issue 6: Revisit Integrated Schedules?

- Policy Statement on Integrated Schedules (57 FR 43886, September 1992)
- Addresses the way licensees may establish realistic integrated schedules and the way the Commission intends to interact with these licensees
- Permits the NRC, industry and public to focus on safety issues while maintaining long-term schedules with more effective use of licensee and NRC resources

Issue 6: Revisit Integrated Schedules?

- Effort was voluntary
- Seven facilities implemented the proposed policy on integrated schedules
- Cannot change dates to be implemented in response to a rule, order or license condition, including Technical Specifications and amendments

Issue 7: Alternatives?

- Are there alternatives that licensees are interested in piloting that meet the intent of the Commission's proposed initiative?
- Phased Approach
 - Start with existing risk insights to prioritize a subset of regulatory actions (e.g., Fukushima) for a limited time period (next two refueling outages)
 - As PRAs meet certain milestones they could be applied to more actions and justify extending the program beyond the initial time period
- Apply only existing risk-insights to a limited set of regulatory actions for a trial period
 - Missing hazards PRA needs to be part of the prioritization

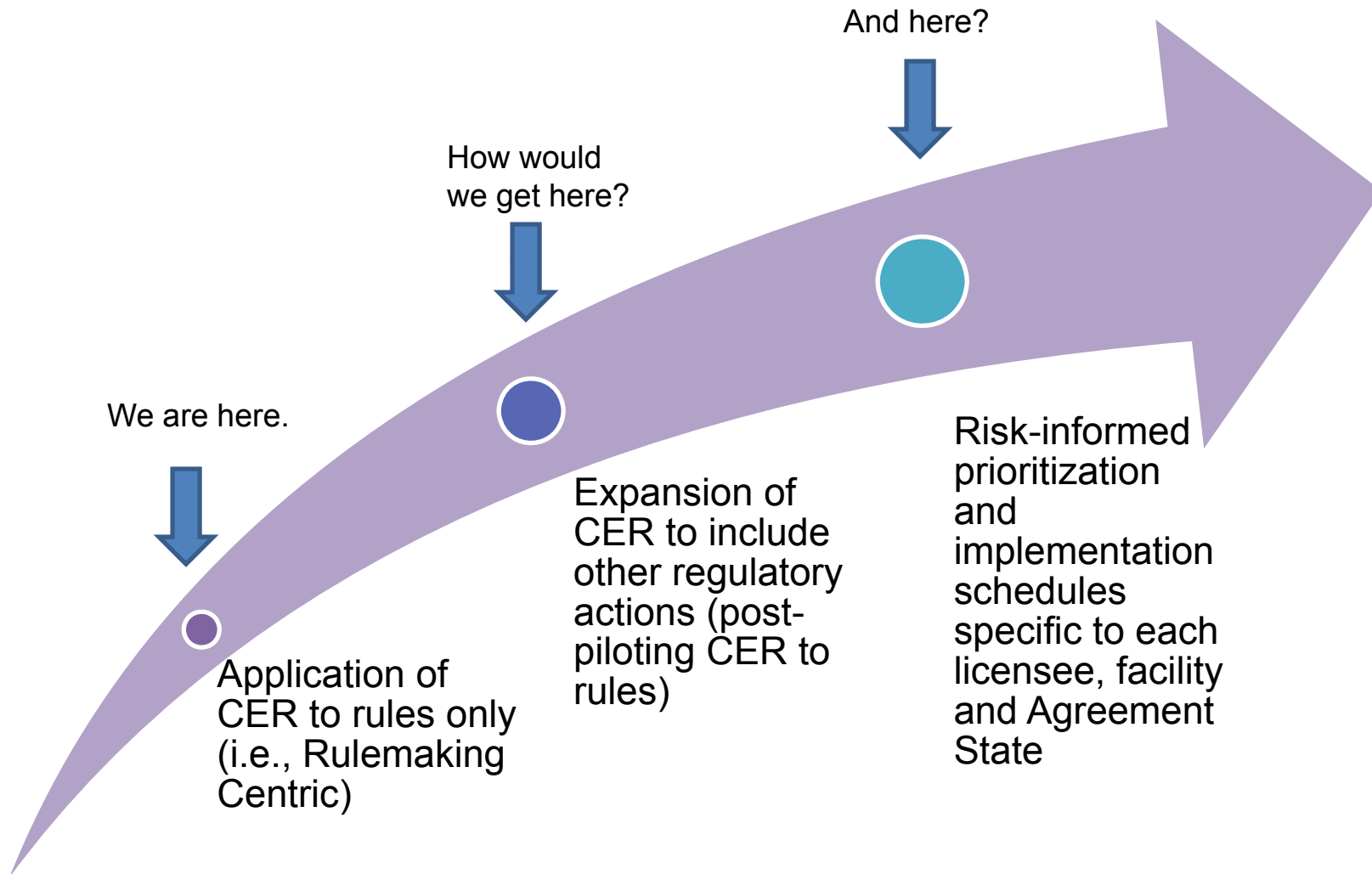
Issue 8: Public Perception

- What is the public's perception if the NRC deferred less safety significant regulatory actions to focus on the most safety significant ones?

Cumulative Effects of Regulation

- “Any expansion of the consideration of the CER should be considered in the broader context of actions directed from COMGEA-12-001/COMWDM-12-0002
- Public Meeting scheduled for May 8, 2013
- SECY 12-0137, “Implementation of the Cumulative Effects of Regulation Process Changes” (ML12223A162)

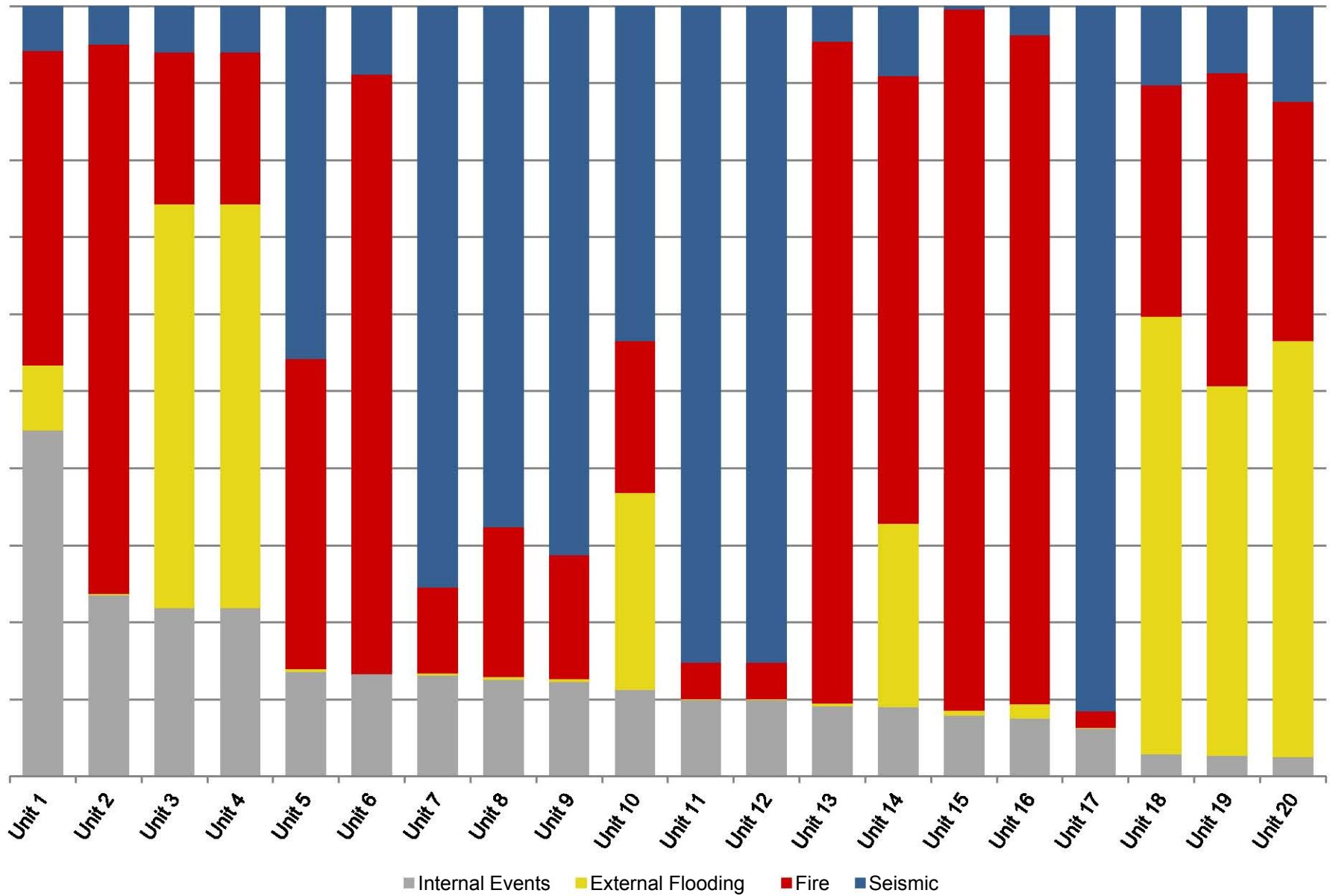
NRC's CER Vision



Other Issues to Consider for Feedback

- Is the incentive to schedule regulatory work sufficient to justify a PRA requirement similar to new reactors?
- What is the level of interest in piloting such an initiative?
- Could it be cost justified?
 - PWROG estimates 4 to 8 million dollars per plant
- How long to implement?
- Would it distract from ongoing PRA activities?
 - Fire (NFPA 805)
 - Seismic

Combined %CDF Per Site/Unit





NRC Proposed Initiative for Improving Nuclear Safety and Regulatory Efficiency

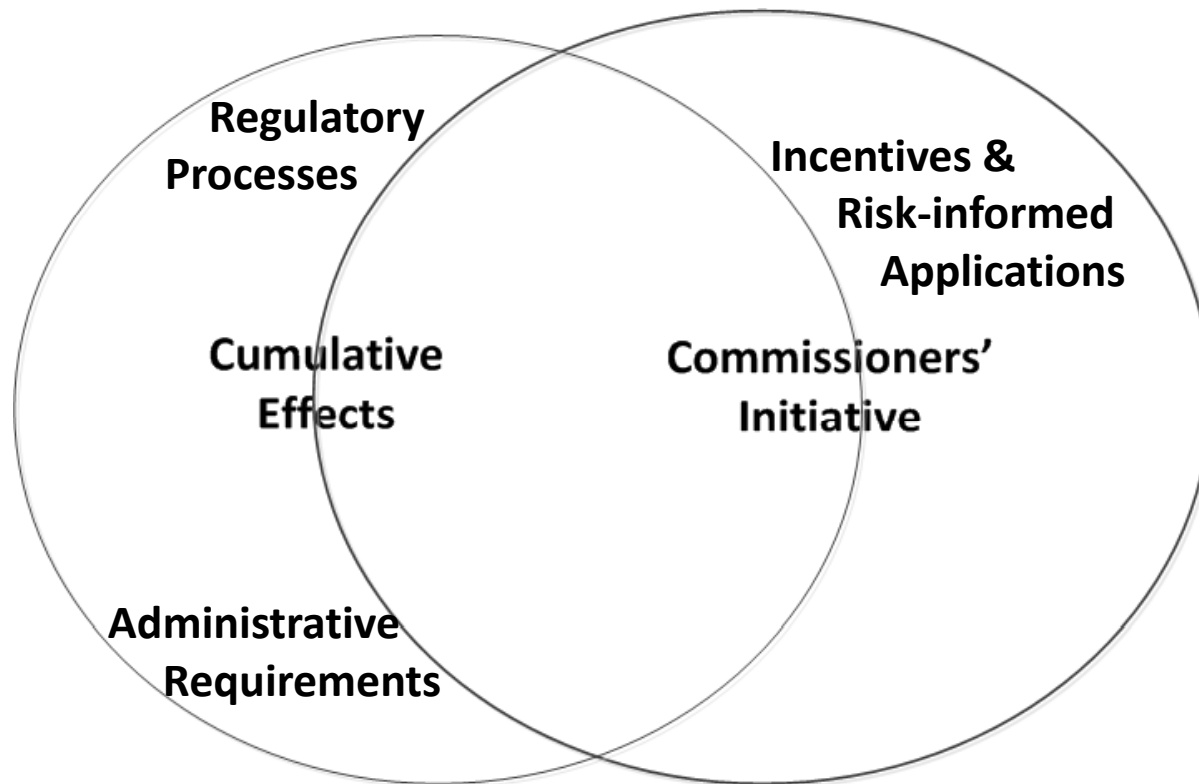
Preliminary Industry Perspectives

April 24, 2013

Overview

- Industry perspective and interest
- Challenges
- Approaches for consideration
- Industry proposal
- Next steps

Improving Safety Focus & Efficiency



Cumulative Impact of Industry and Regulatory Actions

- Substantial regulatory workload expansion (*Power reactors & fuel cycle facilities*)
 - Increase in regulatory workload and inspections despite improvement in industry's compliance and safety record
- Increased need for management and resources to be focused on safety significant actions
 - Prioritization and scheduling of actions that have highest safety significance
 - Plant and worker safety takes precedence over administrative tasks

SRM COMGEA-12-0001/COMWDM-12-0002

- Risk-informed prioritization of regulatory actions on a plant specific basis – not risk-based
 - Include defense-in-depth in prioritization criteria
- Not impact NNTF Recommendation 1
- Question: Is rulemaking required to codify prioritization process – schedule and resource estimate?
- Need for a “backstop?”
 - Not perpetually deferred – alternative action option
- Schedule and resources for addressing cumulative impact of rulemaking not altered or diverted

Industry Interest

- Industry recognition & support for cumulative impact
 - Senior working group formed
- Immediate need for prioritization of new generic issues and work with integrated plant-specific schedules
- Industry considering a fast track proposal
 - Complete pilots & endorse guidance by 2015
 - Interest in supporting case studies on regulatory analysis
 - Conclusion could result in regulatory analysis scope & content improvements

Challenges

- Attaining a common understanding on a prioritization and scheduling process that can be implemented in short order
 - Build on previous successful scheduling activities, including the Integrated Schedules Policy Statement
- Process itself should not add excessively to burden
 - Risk informed approach commensurate with application (sequencing of activities)
 - Incentivize PRA development and use
- Interface of this initiative, Cumulative Effects of Regulation, Commission Task Force, and Recommendation 1
- Addressing competitive and security issues in public domain

Scope of Applicability

- To be most effective, process should address:
 - Fukushima regulatory response
 - Fire protection
 - Current and future generic safety issues
 - Rules/orders/license conditions/generic communications and 10 CFR 50.54(f) letters
 - Implementation documents (regulatory guides, interim staff guidance, etc.)
 - Plant modifications (regulatory and non regulatory)

Approaches for Consideration - Not Exclusive

- **ISAP-like process (SECY-84-133, EPRI NSAC-90 IIS Document)**
 - Prioritization process
 - Integrated Implementation Scheduling process
- **50.65 Maintenance Rule-like approach**
 - Risk-informed and performance-based
 - Make use of Expert Panel
- **50.69 SSC Categorization and Special Treatment-like approach**
 - Risk-informed and performance-based
 - Maintain defense in depth
 - Integrated Decision-Making Panel (IDP)
- **Other**
 - Backfit Rule-like 50.109 using NUREG-1409 guidance
 - GSI prioritization-like using NUREG-0933 guidance
 - SAMA/SAMDA-like per 10 CFR 51.53(c)(3)(ii)(L) using NUREG-1437
 - Regulatory Analysis Guidelines per NUREG/BR-0058

Proposed Approach

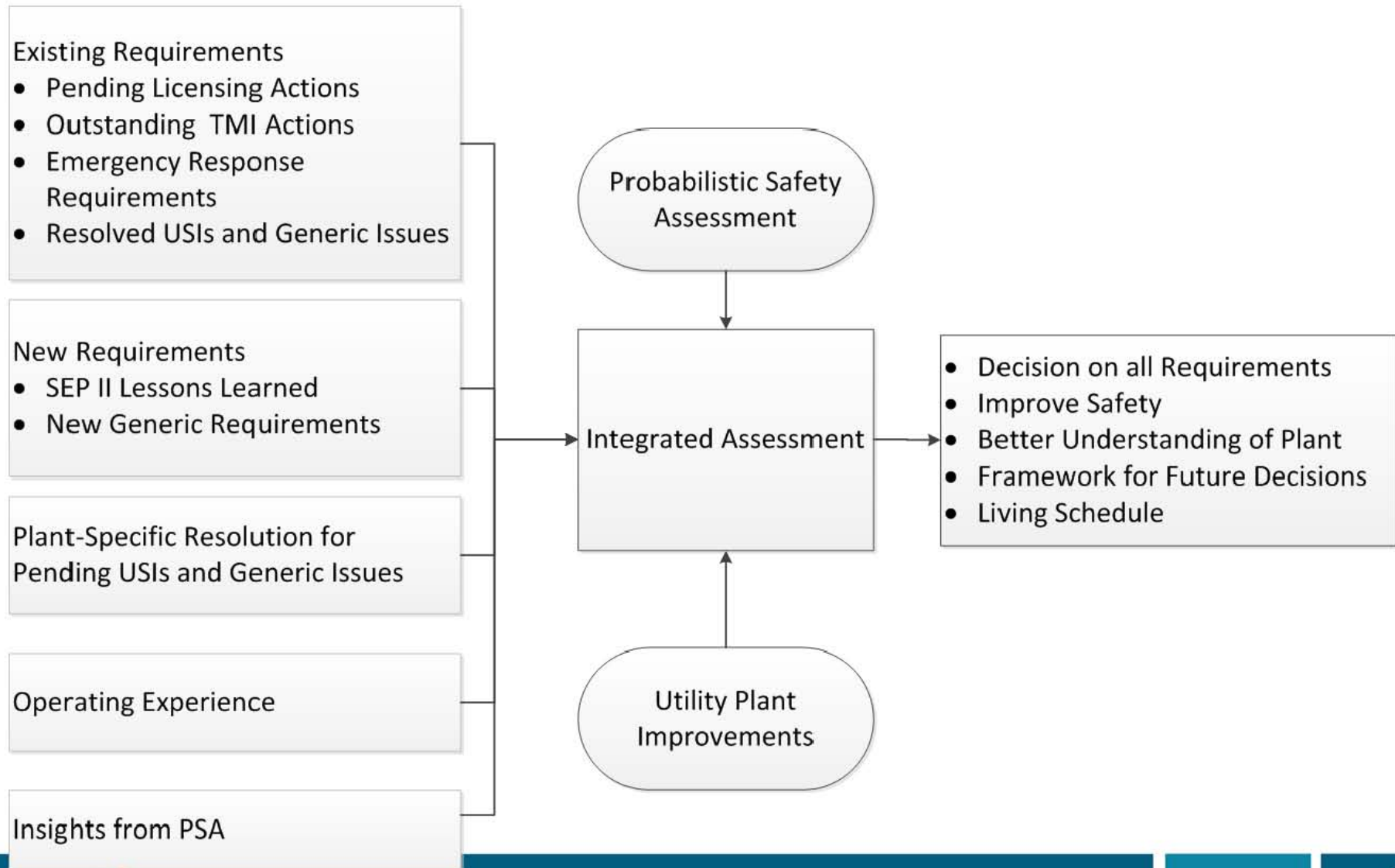
- Model approach on NRC ISAP (Integrated safety assessment program)
 - ISAP successfully implemented by several plants in 1980s
- Consider modification of existing NRC policy statement
- **Phase One**
 - Use existing risk information and insights to prioritize and sequence regulatory actions
 - Develop an integrated site/plant implementation schedule (regulatory and industry actions)
 - Existing information and methods are adequate for this purpose
- **Phase Two**
 - Build on ongoing PRA development
 - Use PRAs meeting endorsed consensus standards to address issue disposition

SECY-84-133

Integrated Safety Assessment Program (ISAP)

“The benefits of conducting ISAP would be sound regulatory management of the licensing requirements for operating reactors on a plant-specific basis, assurance that the greatest measure of safety is accomplished in the near-term, and the most efficient use of both staff and licensee resources”

Integrated Safety Assessment Program



Selected Policy-Related Documents

- SECY-84-133, “Integrated Safety Assessment Program (ISAP),” March 23, 1984
- Generic Letter 85-07, “Implementation of Integrated Schedules for Plant Modifications,” May 2, 1985
- 57 FR 43886, NRC Policy Statement on Integrated Schedules, published September 23, 1992, and associated SECY-92-023 and SRM-92-023
- SECY-11-0032, “Consideration of the Cumulative Effects of Regulation in the Rulemaking Process,” March 2, 2011 , and associated SRM-11-0032, October 11, 2011
- COMGEA-12-0001/COMWDM-12-0002, “Proposed Initiative to Improve Nuclear Safety and Regulatory Efficiency,” February 6, 2013
- SECY-12-0137, “Implementation of the Cumulative Effects of Regulation Process Changes,” October 5, 2012, and associated SRM-12-0137, March 12, 2013

1992 NRC Policy Statement on Integrated Schedules

- Major elements
 - Systematic process to identify activities
 - Process for prioritization and process for scheduling
 - Factors such as safety, plant availability, radiation exposure, procurement requirements, and cost
 - Plan for maintaining and updating schedules
 - Provision for NRC to be informed of process and schedule information at periodic intervals
 - Process for requesting schedular relief
 - Process for evaluating licensee's maintenance of schedules

Improved Risk Understanding & Modeling since ISAP

- **Following activities have led to improved understanding and application of risk insights since ISAP**
 - IPE and IPEEE identified and addressed vulnerabilities
 - ASME/ANS PRA Standards
 - Risk-informed regulation (e.g., RG 1.174)
 - Improved EOPs, developed and implemented SAMGs
 - Maintenance Rule, Station Blackout Rule
 - Reactor Oversight Process such as SDP, MSPI
 - Fire PRAs developed for NFPA 805 and other applications
 - SAMAs as part of license renewal
- **Enhanced capability**
 - B.5.b – 10 CFR 50.54(hh)(2)
 - Post-Fukushima Actions (FLEX)

PRA Technical Adequacy

- PRA use has resulted in improved scope and technical adequacy
- Plants have necessary risk information to perform Phase 1
- Reg. Guide 1.200 Endorsed standards, level one and LERF
 - Internal events, internal flooding at power
 - Essentially implemented
 - Fire at power
 - Majority of fleet has implemented, development underway
 - External events at power
 - Several plants are implementing
 - Sequenced development underway to support post-Fukushima activities commensurate with infrastructure

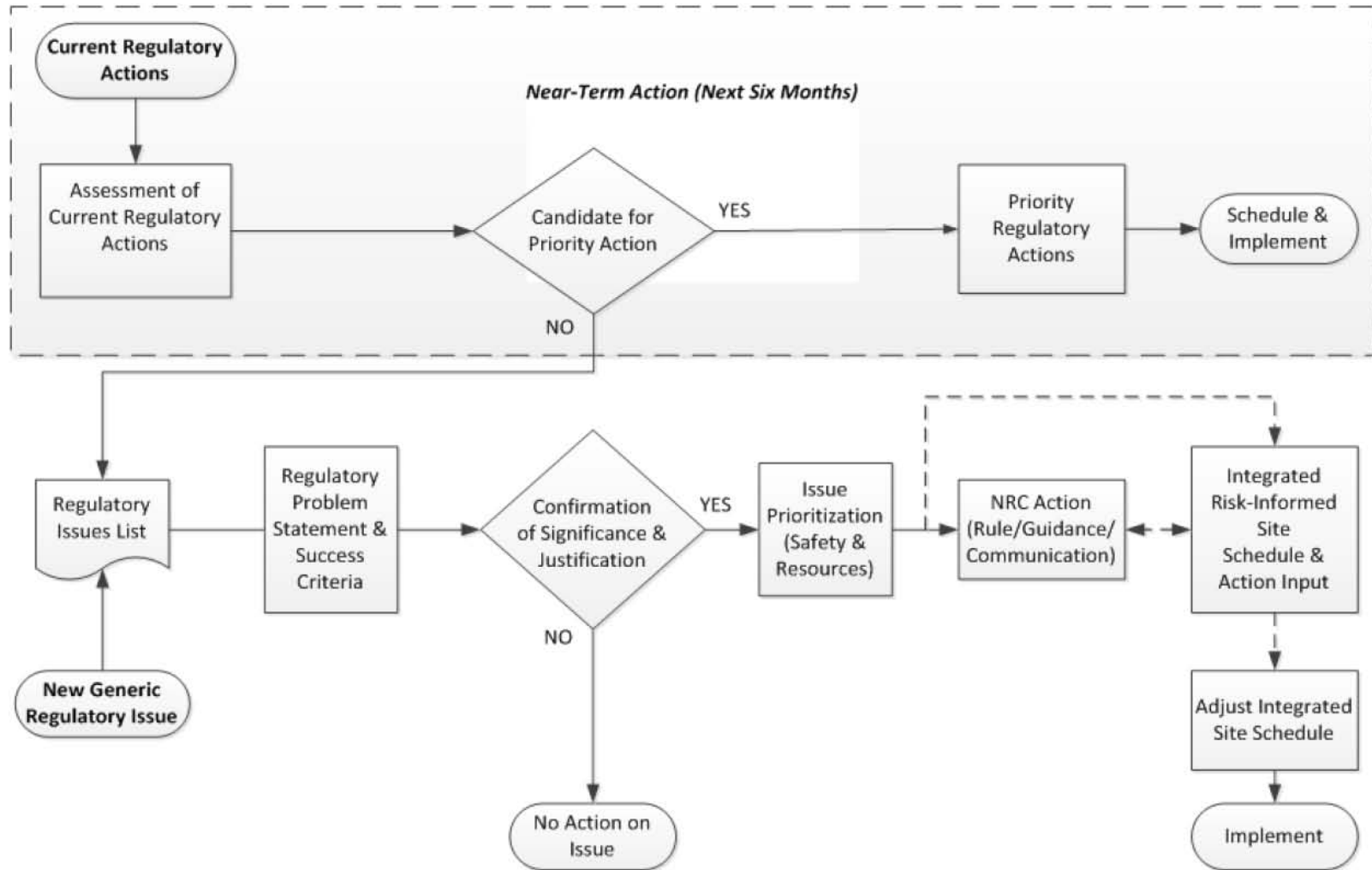
PRA Technical Adequacy (cont)

- License renewal
 - Severe accident mitigation alternatives (SAMA)
 - Simplified level 2/level 3 PRA
 - Provides insights on effective safety improvements
 - Plants undergoing license renewal have performed SAMA

Process Approach

- Risk informed, not risk based
- Use insights from PRA, qualitative considerations (defense in depth, etc.)
- Generic regulatory risk evaluation as input to plant specific process
- Plant expert panel
- NRC endorsed industry guidance

Proposed Regulatory Issue Prioritization to Address Cumulative Impact



Considerations

- **Life cycle of issue**
 - Initial Generic Prioritization to implementation on a Plant Specific Basis
 - Integrated Implementation over time
- **Level of Detail and Robustness**
 - Progressive (Qualitative to Quantitative)
 - Time Frame and Complexity Determines
- **Use/Adapt Existing Approaches**
 - Enhancing, Augmenting, Supplementing
 - Incorporate 20 plus years of improved risk understanding
- **Effective Piloting and Stakeholder Involvement**
 - Lessons learned
 - Refinements
 - Effective Communication

Industry's Proposed Approach

- **Many of the key elements of ISAP and NSAC-90**
 - Public safety
 - Plant personnel safety
 - Personnel productivity enhancements
 - Regulatory impact
 - Plant economic performance
 - Integrated scheduling
- **Key differences from ISAP**
 - Generic Assessment of Regulatory Issues, including definition of problem statement and success criteria
 - Plant-specific assessment adjusts implementation schedules
 - NRC informed of schedule adjustment and basis – may be different than initial regulatory schedule
 - Formal plant review by Expert Panel like 50.65 or 50.69

Example of Generic Priority Evaluation

Cornerstone	Screening Question	Impact			
		Sign.	Mod.	Min.	None
Initiating Events	1.a.i LOCA- reduce small LOCA frequency				
	1.a.ii LOCA- reduce freq. or consequences of ISLOCA				
	1.b.i Transient - reduce freq. of RX trip & loss of mitigation				
	1.b.ii Transient – reduce frequency of internal hazard				
	1.c.i Support system initiator - reduce frequency				
	1.d.i SGTR - reduce probability of degraded tubes				
	1.d.ii SGTR - reduce prob. of exceeding leakage criterion				
	1.e.i External events – reduce frequency of hazards				
Mitigating Systems	2.a Improve reliability or performance of SSC				
	2.b Reduce probability of loss of system or function				
	2.c Improve reliability or performance of non-TS SSC				
	2.d Improve reliable/perf of SSC to mitigate external hazards				
	2.e Improve reliability or performance of RPS				
	2.f Reduce prob. of unintentional positive reactivity event				
	2.g Improve performance of Fire Brigade				
	2.h Improve reliab/performance of fire-fighting equipment				

Example of Generic Priority Evaluation(cont.)

Cornerstone	Screening Question	Impact			
		Sign.	Mod.	Min.	None
Barrier Integrity	3.a.i. RCS – reduce frequency of PTS				
	3.b.i Contain. - Reduce loss of isolation or loss heat removal				
	3.b.ii Improve reliab/performance of hydrogen igniters				
	3.c.i Improve radiological barrier function of buildings				
	3.c.ii Improve control room barrier against toxic gases				
	3.d.i Improve reliab/perf of SFP decay heat removal				
	3.d.ii Reduce prob. fuel drop accident leading to release				
	3.d.iii Reduce prob. of inadvertent SFP low water level				
	3.d.iv Reduce likelihood of reactivity anomaly in SFP				
Defense in Depth	4.a Strengthen balance of accident prevention and mitigation				
	4.b Strengthen independence of barriers against releases				
	4.c Reduce reliance on programmatic activities				
	4.d Improve system design and reduce uncertainties				
	4.e Reduce probability of common-cause failures				
	4.f Reduce human errors or operator burden				

Concluding Remarks – Path Forward

- **Objective**
 - Prioritize regulatory issues and schedule work consistent with safety significance
- **Plan**
 - Concept: “ISAP-like” Process
 - Will Address Generic and Plant-specific considerations
- **Preliminary Schedule for industry approach**
 - Draft white paper – June 30
 - Guidance and Piloting starting second half 2013
 - Complete pilots and NRC endorsement by 2015

PRA CONSIDERATIONS

PUBLIC PERSPECTIVE

Mary Lampert, Pilgrim Watch

PRA – Issues and Problems

- **Uncertainties**
- **Outdated**
- **Limitations**
- **Potentials for Abuse**

PRA DOES NOT ACCOUNT FOR UNCERTAINTIES

“The famed physicist Niels Bohr quipped, ‘prediction is very difficult, especially about the future.’ ... it is unwise to think we can confidently predict what lies ahead.”

**Chairman Allison M. Macfarlane, Prepared
Remarks 2013 NRC RIC, March 12, 2013**

REGULATORY GUIDES

- **NUREG 1855: “In implementing risk-informed decision-making, the U.S. Nuclear Regulatory Commission *expects* that appropriate consideration of *uncertainty* will be given in the analyses used to support the decision and in the interpretation of the finding of those analyses.”**
- **Reg. Guide 1.174: “*Defense-in-Depth*... has been and continues to be an effective way to *account for uncertainties* in equipment and human performance.”**

UNCERTAINTIES

- **Quantification of Hardware/Software Failure**
 - **Single or Common Cause**
- **Human Error**
- **Magnitudes of Source Terms**
- **Radionuclide Release & Transport**
- **Atmospheric Dispersion**
- **Biological Effects of Radiation**
- **Dose Calculations**

PRA CHALLENGE #1

**Recognize that Uncertainties
Require Combining PRAs With
Defense-in-depth Measures**

PRA - COMPUTATIONAL TOOLS

- **Outdated Post-Fukushima**
- **MACCS2 - Limits**
- **MACCS2 - Potentials for Abuse**

COMPUTATIONAL TOOLS OUTDATED POST FUKUSHIMA

1. Probability of a Core Damage Event Outdated

Fukushima raised baseline > 10 times

from (1) event per 31,000 RY to (1) per 2,900 RY

2. Duration of Accidents Outdated

Example: MACCS2's maximum capability is to model 4 days – Fukushima's releases extended over months

COMPUTATIONAL TOOLS LIMITED

3. Do not model Spent Fuel Consequences
Spent fuel pool fire consequences could exceed 10 times amount Cs-137 released by Chernobyl.
4. Do not model Aqueous Discharges
5. Atmospheric Dispersion Model Outdated
Straight-line Gaussian Plume inaccurately limits impacted area - Other Agencies use advanced models

COMPUTATIONAL TOOLS OUTDATED (Cont.)

6. Assumed Radiation Releases Modeled Are too Limited

Only Noble gasses and small amount Cs-137

7. Clean-Up Costs Underestimated

Example: waste volume and disposal

8. Health Costs Underestimated

Example: value life underestimated

9. Economic Costs Underestimated

Example: multiplier effects ignored

MACCS2 - LIMITATIONS

- **“...The cost model of the MACCS2 is not worth anyone’s time ... I have spent many many hours pondering how MACCS2 could be used to calculate costs and concluded it was impossible.”**
- **Code Should Not Be Used For Licensing Purposes: It Was Developed As A “Research Code” & Does Not Meet NQA-1 “Licensing Code” Standards**

**David I. Chanin, author of FORTRAN MACCS,
MACCS2, & SAND96-0957**

MACCS2 –POTENTIALS FOR ABUSE

- 1. Code Allows User To Manipulate Inputs**
- 2. Code Allows User To Choose How Inputs Averaged - Mean, Medium, 95%**
- 3. It is not clear that anyone at the NRC is capable of running the code to verify user reported results.**

Even if capable, does the NRC do so?

PRA CHALLENGE #2

NRC should modify its cost-benefit analysis guidelines to incorporate lessons learned from Fukushima before approving use of such analyses by licensees to assess the costs and benefits of implementing safety measures

CONCLUSION

- **Fukushima's pre-March 11, 2011 planning did not properly consider uncertainty.**
- **Using MACCS2 at Fukushima March 1, 2011 would not have found economic consequences from any potential accident modeled to justify mitigation.**

Improve Nuclear Safety and Regulatory Efficiency

Safety Conscious Nuclear Engineer
presentation for:
NRC Public Weninar
Washington DC
Wednesday, April 24th, 2013

San Onofre Nuclear Generating Station

Safety Conscious Work Environment (SCWE) is the prerequisite of Regulation and Efficiency

- Excellent SCWE is must to Prevents Preventable Accidents
- Stakeholders are:
Licensee, NRC and Safety Conscious Employee (Whistleblowers)
- Nuclear Safety and Safety Margins are stated in Final Safety Analysis Report (FSAR).
- Licensee should meet commitments stated in the FSAR.
- Licensee Should comply with Regulation

How is current SCWE ?

- Very poor, not acceptable, waiting for Preventable Accidents , disaster in USA
- **What are the reasons ?**
- Licensee:
 - Not meeting commitments (safety margins) made in FSAR
 - No respect to safety concerns raised by whistleblowers and violation of 10CFR50.5 and 10CFR50.7
 - Not complying with NRC Regulation, specifically 10CFR50.59
- NRC:
 - Substantiates safety concern but do not enforce the violation such as not meeting commitment in FSAR.
 - Disconnect between technical staff and upper management in complying with Regulation and commitments in FSAR

Continued from previous slide;

- NRC:

Substantiates safety concern but do not take enforcement action for clear violation of NRC Regulation and federal code.

Double talk: deficiency is more than minor and therefore a finding because, if left uncorrected, it would have the potential to lead to a more significant safety concern in that possible mechanical problems with the pump or motor could cause the affected cables to exceed their current limit and cause cable damage without tripping the associated breaker.

Then it states , " the finding was determined to have very low safety significance (Green) during a Phase 1 significance determination because it involved a design deficiency that was confirmed not to result in loss of operability or functionality.

No crosscutting aspect was identified because this issue is not reflective of current performance, since this condition has existed since construction. Sounds like do not fix until it is broken, a dangerous trend.

Continued from previous slide;

No fear from Office of Inspector General

- Whistleblower:

Now whistleblowers do not raise known safety concerns because of known discriminatory actions against employees by Licensee.

How safety concerns are handled?

Excerpt from three Safety Allegations (2006, 2010, & 2012) for same safety concern :

- As expected by both Licensee and NRC a Whistleblower raised **Safety Concern**. However, Licensee did not resolve Safety Concern.
- In 2006 NRC substantiated safety concern and concluded that Licensee did not protect cable and did not meet commitment stated in FSAR.
- Licensee's defense: "that fire wrap was added to the conduit and the cables were de-rated, but no change to the long-time trip setpoints was required since the breaker settings remained as they were in the original plant settings", which demonstrates technical incompetency or willful violation.
- In 2010, NRC revealed that licensee implemented design changes before the units went on line and never bother to perform evaluation required per regulation 10 CFR 50.59.
- NRC did not take enforcement action for violation 10CFR 50.59
- NRC re-substantiated the safety concern and obtain commitment from Licensee that they will replace poor quality material for to restore reasonable safety margin.
- Licensee did not replace the material. They remove the material.
- In 2012, Licensee told that they do not need fire material. Again Licensee did not perform evaluation per 10CFR50.59
- To date neither Licensee nor NRC has confirmed the adequacy of safety margin.

- NRC Substantiates safety concern but do not enforce the violation FSAR.
- Disconnect between technical staff and upper management Regulation

Systematic Failure (Technical)

- **Commitments:** During the licensing process the licensee committed in the Final Safety Analysis Report to protect safety related power cables. However, during construction phase remove the cable protection without informing NRC.
- **Design Changes:** During construction License wrapped conduits and cable trays with poor thermal quality insulating material which reduced drastically the current carrying capacity of power cables.
- **Incompetency or Willful misconduct:** The licensee knew that the design change to existing protection scheme will adversely impact the cable protection. However, they did not change the protection setting to a lower value than the cable capacity . Also, presented futile arguments to safety manager and resisted corrective actions until NRC compelled them to take corrective action in 2012.

Systematic Regulatory Non Compliance

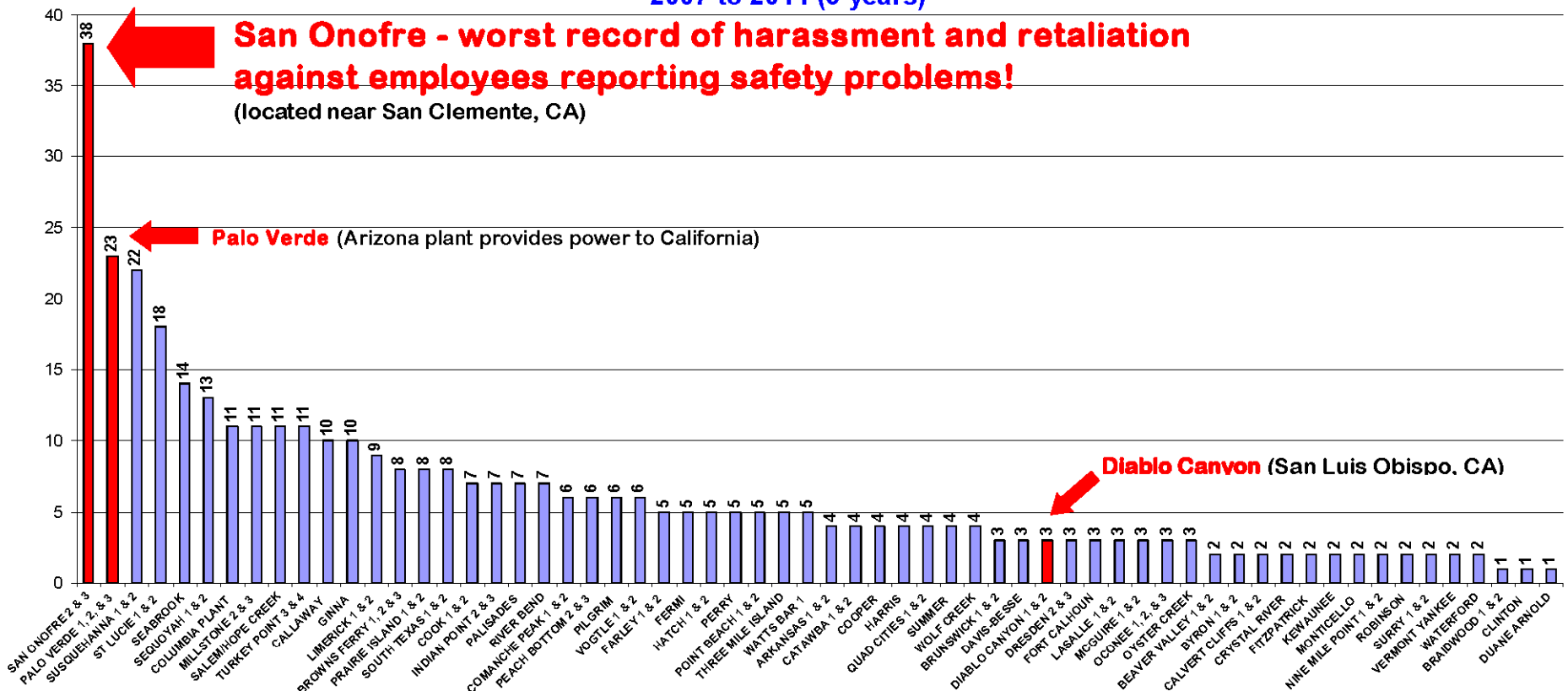
- **10 CFR 50.59 Design Change:** The licensee is required to perform the analysis for design changes affecting safety related system by this regulation.
- The licensee had opportunity to perform analysis but did not that was the root cause of the safety concern.
- The licensee committed comply with IEEE standard 308 but did not.
- In fact licensee did not meet common standard as National Electrical Code

Licensee's commitment to Resolve safety concern failed continued

- The licensee took retaliatory actions against employee and compelled employee to resign.
- The employee continued his cause.
- In 2010 NRC honored employee's request for a face to face meeting. Employee went to NRC's RIV office and finally a branch chief finally compelled NRC to take corrective action.

SCE is a leader... in worker harassment and retaliation:

Complaints of Employee Harassment and Retaliation
at U.S. Nuclear Power Plants*
2007 to 2011 (5 years)



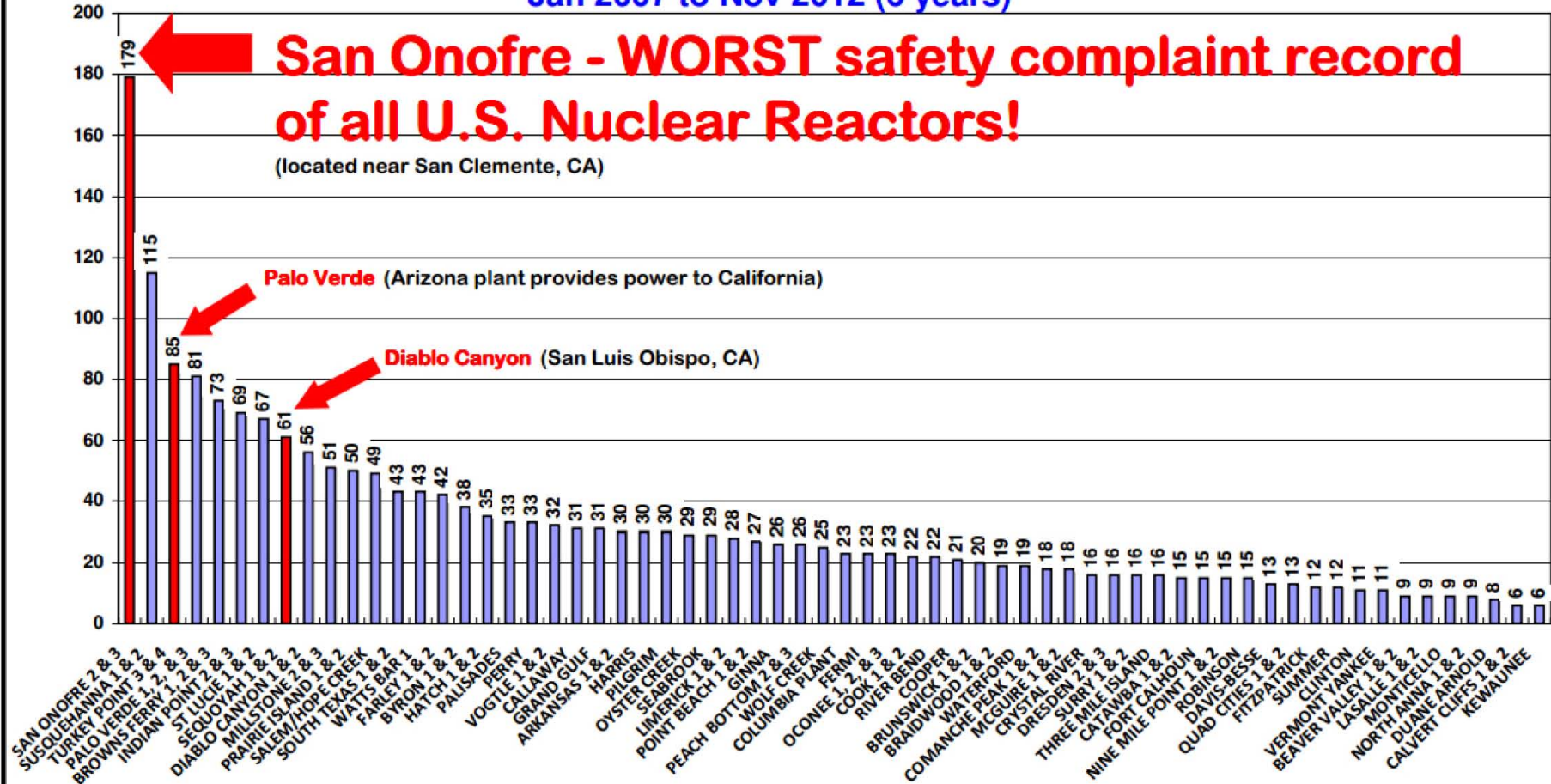
Source: Nuclear Regulatory Commission (NRC) discrimination allegations www.nrc.gov/about-nrc/regulatory/allegations/statistics.html

*The NRC refers to these reports as "Discrimination Allegations" from employees, contractors, or subcontractors of harassment, intimidation, or discrimination for raising NRC-related safety or regulatory concerns. One allegation report may contain multiple allegations; however, the NRC counts it as one allegation in these statistics. "Discrimination Allegations Received" is a subset of all "Allegations Received." There are 64 U.S. nuclear power plants & 104 reactors. Plants with multiple reactors are noted.

Complaints to NRC of Safety Problems at all U.S. Nuclear Power Plants

from On-Site Employees & Contractors*

Jan 2007 to Nov 2012 (6 years)



Source: Nuclear Regulatory Commission (NRC) allegation statistics www.nrc.gov/about-nrc/regulatory/allegations/statistics.html

*The NRC refers to these complaints as "Allegations from On-Site Sources" (current/former power plant employees/contractors and anonymous allegers). These are reports of impropriety or inadequacy of NRC-related safety or regulatory concerns. One allegation report may contain multiple allegations; however, the NRC counts it as one allegation in these statistics (Note: A concern about a safety-conscious work environment (SCWE) problem at a facility is an important allegation. However, a Notice of Violation cannot be issued, because there is no applicable NRC regulation.) There are 64 U.S. nuclear power plants & 104 reactors. Plants with multiple reactors are noted.

Improvement in Regulation and Efficiency

- The regulation 10 CFR50.59 is the best regulation if it is implemented objectively.
- Improvement is badly needed in enforcement of regulation.
- The example of safety concern, reveals that safety concern goes in circle.
- It appears NRC is focusing on the nuclear systems failure i.e. leakage of radiation. However, so called non nuclear safety such as cables are very important in shutting down the plant. Failure of non nuclear system can and will cause nuclear disaster.
- Backlog of safety allegation can and will cause nuclear disaster.
- Foster the positive side of whistleblower to improve SCWE.