

# Concepts for Best Practices in the USQ Process and DSA Annual Updates

EFCOG NFS Safety Basis Workshop

February 2021

Mark Mitchell, Past Chair NFS (SAWG)  
Ron Selvage, USQ Subgroup Chair  
Charles Carathers, Safety Basis Subgroup Chair



LLNL-PRES-819580

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. Lawrence Livermore National Security, LLC

 Lawrence Livermore  
National Laboratory

# Summary of Concepts

---

- Brief Description of the Concepts for Best Practices in the USQ Process and DSA Annual Updates
- Why – Reasons for the Proposed Best Practice
- Benefits of the Proposed Best Practice
- Opportunities for Success
- Description of the Concepts
  - Consideration of changes:
    - USQ Process
    - Proceed directly to DOE for Approval
- Implementation
- Proposed path forward

# Brief Description of Concepts for Best Practices

---

- Revision to 10 CFR Part 830, published on October 19, 2020, discusses changes to how DOE approves DSA Annual Updates
  - Elimination of redundant approval steps helps both contractors and DOE focus and prioritize resources optimally
  - Potential considerations for different types of changes and selection of optimal approach for obtaining approval by DOE, either by:
    - Submitting the change to the USQ process (e.g., preparing a USQD), or
    - Submitting a DSA page change or safety basis amendment for DOE approval
  - Transparency between contractor and DOE approval authority is important

# Why – Reasons for the Proposed Best Practice

---

- Clarification of optimal path forwards for different situations can help support implementation of 10 CFR 830 revision
- 10 CFR 830.3 discusses
  - Unreviewed Safety Question process means the mechanism for keeping a safety basis current by reviewing potential unreviewed safety questions, reporting unreviewed safety questions to DOE, and obtaining approval from DOE prior to taking any action that involves an unreviewed safety question.
- 10 CFR 830.202, Safety Basis, (c) states that the contractor must,
  - 1) Update the safety basis to keep it current and to reflect changes in the facility, the work and the hazards as they are analyzed in the documented safety analysis;
  - 2) Annually provide DOE the current documented safety analysis or a letter stating that there have been no changes in the documented safety analysis since the prior submittal;
  - 3) Incorporate in the safety basis any changes, conditions, or hazard controls directed by DOE
- Appendix A to 10 CFR 830 Subpart B further clarifies what can be in the DSA Annual Update,
  - Generally, DOE's review of the annual submittal may be limited to ensuring that the results of USQs have been adequately incorporated into the documented safety analysis. If additional changes are proposed by the contractor and included in the annual update that have not been previously approved by DOE or have not been evaluated as a part of the USQ process, DOE must review and approve these changes

# Benefits of the Proposed Best Practice

---

- Compliant implementation of revised 10 CFR 830
- Elimination of redundant approval steps helps both contractors and DOE focus and prioritize resources optimally
  - Transparency between contractor and DOE approval authority is important
- Clarification of optimal path forwards for different situations
- Concepts for best practices to pursue and encourage transparency between contractors and DOE Field Offices
- Minimize difficulties, minimize safety basis compliance issues and impact to program and schedule, eliminate redundancies
- Focus and prioritize resources for optimal compliance with revised 10 CFR 830

# Description of the Proposed Best Practice

---

- Consideration of changes:
  - Submit change to USQ Process, e.g.,
    - USQD
  - Proceed directly to DOE for Approval, e.g.,
    - Submit via DSA page change or Safety Basis Amendment or Safety Basis Supplement or any changes to TSRs
- Transparent Communication is Important



# Description of the Proposed Best Practice – Suggestions for Consideration

---

- Submit change to USQ Process, e.g., updates/changes to:
  - Safety basis calculations (provided conclusion remains) referenced in DSA
  - System boundary to systems identified in DSA
  - Codes and standards referenced in DSA
  - Other references in DSA
  - Organizations referenced in DSA, e.g., Contract change
  - Minor text changes to chapter 2 or SMP chapters that do not involve changes to the facility or procedures previously submitted to the USQ process
  - Implementation of new requirements in new or revised DOE Standards and Orders flows down into procedures,
    - Procedure changes are submitted to the USQ process
    - USQ process rolls up those changes into DSA Annual Update submittal
- For changes submitted to the USQ process, a site may find it beneficial to develop template USQDs for each type of change
  - Discuss with local approval authority to ensure a consensus on path forward

# Description of the Proposed Best Practice – Suggestions for Consideration (cont'd)

---

- Proceed directly to DOE for Approval, e.g.,
  - Submit DSA page change or Safety Basis Amendment or Safety Basis Supplement or any changes to TSRs
    - Changes to address DOE Conditions of Approval (COA)
      - Allow DOE the opportunity to confirm that they approve resolution
      - DSA page changes or further in-depth analysis of a topic, revise calculations, and flow revised analysis into the DSA should be submitted to DOE for approval
    - Change to a control strategy in the DSA
    - Calculations relevant to DOE approval of risk envelope, e.g., increase of probability or consequence of Hazard Analysis events, as DOE may wish to review the change before the DSA is changed
      - Both mitigated and unmitigated analysis
    - EITS
      - Safety function
      - Performance requirement
    - HA bin increases, frequency or consequence, mitigated or unmitigated analysis
    - Topics that require TSR page changes
    - Changes to safe harbor or safety basis methodology require DOE approval, e.g.,
      - From DOE-STD-3009-94 to DOE-STD-3009-2014
      - From DOE-STD-3011-2016 to DOE-STD-1228-2019 for HC-3 facilities



# Description of the Proposed Best Practice (cont'd)

---

- **Transparent Communication**
  - Utilizing an agreement document, e.g.,
    - Safety Basis Strategy or Scope and Key Issues Statement (SKIS))
    - Conceptually similar to a Safety Design Strategy (SDS) for a PDSA outlined in DOE-STD-1189
    - Prioritization of resources
  - Agreement document
    - Changes for safety basis amendment or DSA Annual Update are outlined and path forward signed by both the contractor and DOE
    - Any changes to that path forward require DOE approval
    - This approach helps deconvolute changes that would otherwise be lumped together into a large change to a DSA into specific pieces that both contractor and DOE approval authority can focus on
    - Facilitates path forward in revision to 10 CFR 830 that DSA Annual Updates must be submitted to DOE, but do not require DOE approval
      - DOE knows upfront what changes will be part of DSA Annual Update or safety basis amendment
      - Equips DOE with information to plan ahead, schedule, prioritize resources

# Description of the Proposed Best Practice (cont'd)

---

- Transparent Communication (cont'd)
  - Topical meetings between contractor and DOE can encourage and appropriately focus dialogue on specific issues
  - Facilitate transparency and good interactions between contractor and DOE, as well as across disciplines and organizations within both contractor and DOE, e.g.,
    - Safety analysts, facility representatives, system engineers, facility management
  - Safety Basis Strategy or SKIS on a topic can help focus discussions
  - Some comments can occasionally be handled more appropriately by walkdowns, educational dialogues, informal meetings for Q&A

# Description of the Proposed Best Practice (cont'd)

---

- Forecasting Workload

- Consider records (e.g., Safety Basis Strategy or SKIS) from previous DSA Annual Updates from each facility and determine how they would group changes in the future:
  - Number of changes that were safety basis amendments
  - Number of changes that rolled up USQDs
  - Number of changes in DSA Annual Updates previously that could be submitted to the USQ process and rolled up in DSA Annual Update as discussed above
  - Number of changes that could now require additional submittals of DSA page changes or safety basis amendments
  - Consider past Review Comments (e.g., Records of Comment Resolution (RCRs)):
    - Clarifications
    - Involved questioning the details of how USQDs or SBAs were rolled up
    - Re-opened settled safety basis topics that did not change during DSA Annual Update
      - Examples of potential areas which may be addressed by DOE in topical assessments

# Implementation

---

- Implementation of these Concepts:
  - Communicate, communicate, communicate
  - Upfront agreement between contractor and DOE
  - Recommended that contractors review existing contractor procedures for preparation of DSA Annual Updates, DSA page changes, and safety basis amendments to reflect 10 CFR 830 revision
    - Contractors clarify these approaches in next revision of local USQ procedure
    - Presentation next week will discuss the other changes to local USQ procedures for implementing the revision of 10 CFR 830
  - DOE may wish to consider review of existing DOE work instructions for approval of DSA Annual Updates, DSA page changes, and safety basis amendments to reflect the revision of 10 CFR 830

# Proposed Path forward

---

- Proposed Best Practice Paper will be issued after
  - DOE USQ Guide issued
  - Structured feedback as sites consider the concepts discussed today



**Lawrence Livermore  
National Laboratory**