

Unreviewed Safety Question Requirements

FUNCTIONAL AREA GOAL: A fully compliant Unreviewed Safety Question (USQ) program is implemented and maintained across the site.

REQUIREMENTS:

- 10 CFR Part 830.203, Unreviewed Safety Question Process
- Nuclear Facility DSA and TSR

Guidance:

- DOE G 424.1-1, Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements

Performance Objective 1: Contractor Program Documentation

1. The USQ determination (USQD) document should define clear relationships between the USQ process and other change control procedures, including design change procedures, configuration control programs, temporary change procedures, and procedures governing the preparation, review, and approval of procedures. Its purpose is to describe how the USQ processes required by Section 830.203 are integrated into the facility's processes.
2. The USQ procedures should require that a defensible explanation be documented for the answers to each of the USQ criteria. The explanation is to capture the technical basis for each of the answers.
3. The contractor shall retain records of USQ actions taken pursuant to 830.203 for at least the full operational lifetime of the facility, until the facility is turned over to the decommissioning and decontamination (D&D) phase.
4. In the event that there is a change in the contractor operating the facility, the outgoing contractor shall turn over all USQ records to the incoming contractor. At the end of this life cycle phase, the contractor should consider retaining the USQ records for the next phase of the facility life cycle.
5. The Documented Safety Analysis of the facility is required to be maintained current by contractor-developed updates on an annual basis. All changes at the facility should be reflected in these updates at an appropriate level of detail, including those that were authorized through the USQ process and 830.203.
6. All contractors responsible for a nuclear facility are required annually to submit to DOE a summary description of all USQDs performed. This report should be submitted on a schedule commensurate with annual update of the Documented Safety Analysis.

Suggested Lines of Inquiry

- Does the USQ process clearly delineate the relationship of the (1) design change procedure, (2) configuration control programs, and (3) procedures governing the preparation, review, and approval of procedures to the USQ program?
- Are USQD considerations fully documented?
- Are USQD documentation and records retention clearly stipulated throughout the lifetime of the facility (regardless of the operating contractor), including the transition, deactivation, and decommissioning phases?
- Does the USQ procedure indicate that, upon change of site contractor, the departing contractor personnel must relinquish USQD records to the incoming contractor?

- Does the USQ procedure state that the contractor will update USQD documents and reports and submit to DOE annually a summary description of all USQDs performed?

Performance Objective 2: Contractor Program Implementation

1. Each facility should develop its own change flow process for both temporary and permanent changes to SSCs and documents. This process and its integration should be described by a governing policy, procedure, flow chart, or other description.
2. Contractors should develop procedures that provide detailed guidance for the performance of the USQ process, including any screening and the USQDs. The procedures should define the purpose of the procedure; set forth the procedure's applicability; provide definitions of appropriate terms, include screening criteria, as appropriate, and the basis for their application; include detailed guidance on what must be considered and evaluated when performing or reviewing a USQD; define the qualifications needed and responsibilities of personnel performing and reviewing USQDs; and include documentation requirements for each USQD.
3. Facilities must complete an evaluation of the safety of the situation and submit it to the DOE prior to removing any operational restrictions implemented to compensate for the analytical discrepancy."
4. Candidate items for screening of USQs should include:
 - Changes that involve a change to a requirement in the TSRs, or the addition of a new TSR requirement.
 - The installation of an item that is an exact replacement (i.e., same manufacturer, same model number, etc.).
 - The installation of an item that is on the facility "Approved Equivalent Partslist, for which a facility engineer has evaluated and concluded that the replacement item meets all the requirements pertinent to the specific application at the facility, including the service conditions.
 - Changes for which common commercial practices would suffice, and a formal nuclear-grade change control process is not warranted (for example, changing fixtures for fluorescent lighting in an office area of the facility).
 - Changes for which management has already decided will be submitted to DOE for safety review and approval.
 - Changes to documents that are purely editorial and make no technical change.
5. USQ screening criteria may be applied through categorical exclusions. However, it should be understood that, whenever screening criteria are applied in this manner, DOE would expect to find an evaluation of why a categorical exclusion (for example, of maintenance procedures) from the Section 830.203 process is acceptable.
6. The facility USQ procedures should provide that the USQ documents (that is, any screening and the USQD) are prepared by one individual and then reviewed technically by a second person. That person should be independent in the sense that he/she has not been involved in the preparation of the USQ documents. That person does not need to be organizationally independent.
7. In the special case of a potentially inadequate safety analyses, no screening is appropriate. For such a serious situation, a USQD must be prepared.
8. For the purpose of USQ procedures and performing USQDs, the three USQ criteria in Section 830.203 (b) should be broken down into their constituent seven questions:
 - Could the proposed change increase the probability of occurrence of an accident previously evaluated in the facility's existing safety analyses?

- Could the proposed change increase the consequences of an accident previously evaluated in the facility's existing safety analyses?
 - Could the proposed change increase the probability of occurrence of a malfunction of safety SSCs required by the facility's existing safety analyses?
 - Could the proposed change increase the consequences of a malfunction of safety SSCs previously evaluated in the facility's existing safety analyses?
 - Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the facility's existing safety analyses?
 - Could the proposed change create the possibility of a malfunction of safety SSCs of a different type than any previously evaluated in the facility's existing safety analyses?
 - Does the proposed change reduce the margin of safety as defined in the basis of any TSR?
9. DOE must be involved in order to: verify that the degree of protection is adequate; ensure that the safety basis is properly revised to include the additional protective measures; and verify that any hardware involved is properly classified (for example, as a safety-class SSC) and hence will receive appropriate surveillance and maintenance.
10. It is important that the family of accidents be related, in addition to being of the same type (e.g., fires), but also utilize the same set of preventative and mitigative measures. While this is appropriate for public safety, adequate protection of workers requires further evaluation. Each change must be evaluated for increases in the consequences to workers.
11. Specific responsibilities of those performing or reviewing USQ determinations should be clearly defined.

Suggested Lines of Inquiry

- Are the USQ process and its integration into the facility change control process described by a governing policy?
- Does the USQ process include a detailed USQ process description?
- Does the USQ process mandate that no operational restrictions can be relaxed prior to review by DOE?
- Does the USQ procedure describe steps to screen out the following items? (1) Changes that involve a change to a requirement in the TSRs, or the addition of a new TSR requirement. (2) Installation of an item that is an exact replacement. (3) Installation of an item that is on the facility "Approved Equivalent Parts list. (4) Changes for which common commercial practices will suffice. (5) Changes for which the management has already decided that these will be submitted to DOE for safety review and approval. (6) Changes to documents that are purely editorial and make no technical change. (Note, however, that items (1) and (5) should be specifically included for review through other documents.)
- Does the USQ procedure require that all categorical exclusions, and exclusions in general, are adequately justified? (Note that such exclusions should preferably undergo independent review.)
- Does the USQ procedure require that all screening and USQ determinations are subject to "independent review?"
- Does the USQ procedure require that all potentially inadequate safety analysis (PISA) issues are not subject to screening?
- Are all seven questions in Ref. 2, Appendix A fully addressed?
- Is DOE sufficiently involved in the USQD process to ensure that the adequacy of protection and safety classifications of equipment is justified by safety basis documents?
- Is an appropriate level of emphasis placed on assessing public and worker safety?
- Are the responsibilities of site personnel involved in the USQD process clearly defined and delineated?

Performance Objective 3: DOE Line Management Oversight

1. Implementing procedures should establish the personnel training and qualifications needed to perform the USQ process. These include required educational background, years and/or types of work experience, knowledge of the facility, understanding of DOE requirements related to the facility safety basis (including the USQ process), and familiarity with the facility-specific safety basis.
2. All personnel responsible for preparing, reviewing, or approving USQ documents should receive training on the application of Section 830.203, including any facility-specific procedures.
3. The contractor should maintain a list of those personnel who are currently qualified to perform the USQ process.
4. The intent of Section 830.203 is to provide contractors with the flexibility needed to conduct day-to-day operations and to require that only those changes with a potential impact on the safety basis, and therefore the safety of the facility, be brought to the attention of DOE for approval, prior to making the change. DOE approval of the USQ process is required by 830.203.
5. The management must be aware that the existence of an USQ does not mean that the facility/operation is unsafe. The purpose of the USQ process is to alert DOE of events, conditions, or actions which affect the DOE approved safety basis of the facility/operation and assure appropriate DOE line management action.

Suggested Lines of Inquiry

- Does the USQ procedure indicate that formal training and qualification program will be established for all site personnel involved in the USQ process?
- Are the necessary educational background, knowledge of facility and DOE requirements, and familiarity with the facility safety basis clearly defined for site personnel involved in the USQ process?
- Does the USQ procedure indicate that the list of people certified for USQD processes will be kept current?
- Is DOE kept current with respect to all phases of USQ resolution, including notification of discoveries, review of USQDs, and review of corrective actions?