
Application of Expert USQDs to Expedite the USQ Process

9/14/2011

Facilities: Y-12 National Security Complex (B&W Y-12) and Lawrence Livermore National Laboratory (LLNL)

Best Practice Title: *Application of Expert USQDs to Expedite the USQ Process*, based on Y-12 Expert USQD Process and *EFCOG SAWG Recommendations White Paper to Improve the Unreviewed Safety Question (USQ) Process*

Point of Contact: Phil Montgomery, Y-12 USQ SME, (865) 574-2322, montgomerypb@y12.doe.gov, or Mark Mitchell, LLNL USQ SME, EFCOG SAWG USQ Subgroup Chair, (925) 422-8600, mitchell36@llnl.gov

Brief Description of Best Practice:

The Unreviewed Safety Question (USQ) process can be improved, becoming more efficient and effective. This best practice implements one of the recommended actions to improve efficiency of the USQ process, consistent with the USQ white paper. The Expert USQD Process is based on the seven questions that derive from 10 CFR 830.203. It has been determined by DOE to be Rule Compliant and capable of producing results equivalent to the DOE USQ Guide (Memorandum from Thomas P. D'Agostino to Theodore D. Sherry, *Expert Based Unreviewed Safety Question Determination Procedure*, June 2, 2010).

The Expert USQD is essentially a tailored USQD for certain simple proposed changes that do not meet today's limited screening criteria. It is unnecessary to spend resources to perform a detailed standard USQD for these type changes. Proposed changes considered for this process are limited to those straightforward in nature and clearly have no adverse impact on credited elements in Safety Basis documents. The Expert USQD Process limits preparation of these USQDs to a limited set of highly trained and experienced "experts" who have actual nuclear related experience in the facility.

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A Y-12 National Security Complex USQ Procedure containing the Expert USQD option was reviewed and approved by the NNSA Administrator's office (NA-1) on June 2, 2010. Within the approval included the following expectations: "Based on the positive outcomes at Y-12 and the expert nature of this approach, other sites may explore this approach under the following conditions:

- (1) the site has a USQ process that is consistent with the guidance in DOE Guide 424.1-1A and has been implemented for at least four years;
- (2) results of assessments of the USQ program have indicated acceptable performance for at least two years; and,
- (3) a successful pilot is completed at the site prior to full implementation.

In addition, National Nuclear Security Administration sites (including Y-12) are expected to conduct an effectiveness review of the expert-based USQ process within twelve months of implementation to ensure the integrity and quality of the USQ process and the resulting documentation is being preserved."

Expert USQD have been integrated into the USQ Process and implemented at the Y-12 National Security Complex and the Lawrence Livermore National Laboratory (LLNL).

Why the best practice was used:

The USQ process as described in DOE G 424.1-1B and implemented at most of the DOE sites is overly burdensome. As described in the EFCOG SAWG USQ white paper, the interpretations of the Guide are interpreted differently by the local DOE Site Offices and as enforced from audits at most sites, has resulted in a process that requires significant amount of resources and documentation regardless of the complexity of the change.

In approving the Expert USQD Process, DOE recognizes that some changes do not warrant the investment of valuable time and resources required to perform a full USQD. In order to perform work in compliance with the rule, efficiently, and focus attention appropriately on changes requiring USQDs, the streamlined USQ process has four levels of review:

1. The first level consists of any Categorical Exclusions (Section 3.2).
2. The second level consists of a USQ Screening (Section 3.3) of proposed changes that were not categorically excluded in step 1 to determine if a USQD is required.
3. The third level consists of the Expert USQD (Section 3.4). This level applies to proposed changes that were not categorically excluded or

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screened out in the first two levels of the USQ process and determined to potentially be applicable to an Expert USQD. If the proposed change does not fit the Expert USQD profile, it is evaluated at the next level – Standard USQD.

4. The fourth level consists of the Standard USQD (Section 3.5). This level applies to PISAs and proposed changes that did not complete the USQ Process in the first three levels. PISAs require a Standard USQD.

Note that these levels of review are not required to be sequential. If one knows a proposed change cannot be screened and is not applicable to an Expert USQD, then the USQ Process may be start with a Standard USQD.

What are the benefits of the best practice:

At Y-12 the anticipated benefits are approximately \$1.2M in cost savings and schedule efficiency gains of 40-50% once fully implemented. During the Y-12 Pilot runs of the Expert USQ Process, approximately 60 percent of procedure changes were found applicable to Expert USQDs while only 40% of physical changes could apply the process. (See Appendix 1)

Across the DOE Complex, as documented in the Safety Analysis Working Group's *White Paper to Improve the Unreviewed Safety Question (USQ) Process Across the DOE Complex*, efficiency improvements from implementing Expert USQDs complex-wide would range from 2 – 50% due to varying complexities in operations and differing screening methods (see Appendix 2). The USQ Subgroup believes that the proposed recommendations will effectively streamline the process while maintaining the necessary rigor to ensure the proposed activities that required DOE approval, obtain that approval.

What problems/issues were associated with the best practice:

At Y-12, process implementation was decidedly successful. The use of highly qualified experts helped maintain a high degree of conservatism and procedure compliance required of this process. However, the first few months of data after Y-12 site-wide implementation indicate less than optimum efficiency. It appears that not all experts have the time in their current assignments to dedicate to Expert USQDs. When approved experts are not available, the other option to complete a standard USQD is applied, thus reducing efficiency gains. To address this efficiency issue, the site has better communicated the benefits of Expert USQDs to managers in an effort to free more time for expert preparers or replace unavailable experts with other more available qualified experts. As a result, the

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set of authorized experts was re-shuffled. The bottom line is that it is important at the beginning of the expert selection process to choose experts who would be available for the expected work and communicate to management the savings from application of Expert USQDs.

Optimal implementation of this best practice can be further improved by increasing the comfort level of personnel in this new process and expediting the learning curve. Y-12 and LLNL applied lessons learned during development of training material to cover a wide range of topics that experts may encounter. Example training material from one site (LLNL) can be found in Appendix 5.

Related to optimal implementation of this best practice, a new tool was presented at the EFCOG SAWG workshop (appendix 3). The Office of Science developed this tool to evaluate sites and facilities that would potentially be eligible for implementation of the expert USQD process. Some NNSA sites have also found this tool useful in determining and documenting that the site and specific facilities were ready to implement this best practice.

How the success of the Best Practice was measured:

Success was gauged by two measures at Y-12. First, by looking at Expert USQD compliance to requirements (assessments) when implemented, and second, by the degree of implementation at the site.

Periodic assessments of Expert USQDs were performed by both B&W Y-12 and the NNSA Y-12 Site Office (YSO). To date five Expert USQD assessments were completed (three by B&W Y-12 and two by NNSA) with no significant issues. One of the YSO assessments addressed the requirement in the NA-1 approval letter to “conduct an effectiveness review of the expert-based USQ process within twelve months of implementation to ensure the integrity and quality of the USQ Process and resulting documentation is being preserved.”

At Y-12, the percentage of Expert USQDs completed is tracked both at the facility level and overall site-wide. The estimated utilization for Y-12, as determined from previous pilot run information is anticipated to be between 40 and 50% Expert USQDs. Utilization percentage was tracked at six months and 12 months after implementation. As indicated in Appendix 1, the percentage of Expert USQDs to overall USQDs (Expert + Standard) ran about 17% for the first six months indicating room for additional efficiency gains. Follow-on actions to improve efficiency were taken, as described above, and efficiency was measured again after the second six month period. Utilization measured this time indicated significant improvement, showing approximately 28% utilization.

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Description of process experience using the Best Practice:

A short form, expert-based USQD, tailored to evaluate simpler proposed changes, may significantly increase the efficiency of the USQ Process. The purpose of an Expert USQD is to quickly and correctly determine, with minimal documentation, if a proposed change is not a USQ. Depending on the site specific process, the Expert USQD may also determine that the change requires further evaluation in a Standard USQD or that the change is a USQ.

The Expert USQD Worksheet may be applied to certain simpler and more straightforward proposed changes where it is readily apparent to safety basis professionals that the change cannot create a USQ. The Expert USQD incorporates a review checklist, modeled after the USQD questions. However, checklist questions may be adjusted at the discretion of the local DOE Site Office. The outcomes of the Expert USQD are either the proposed change does not represent a USQ, or the change requires additional review via a Standard USQD. For those proposed changes found not to represent a USQ, the preparer may document any considerations deemed relevant as to why it is readily apparent a USQ would not exist. Such documentation should be brief and focused, and not be commensurate with the level of detail for a Standard USQD because of the more straightforward nature of the change. Expert USQDs still require review and approval by Management (e.g., the Facility Manager or the Operations Manager).

If either the expert preparer or reviewer has any doubt about the applicability of the Expert USQD or a definitive answer, then the Expert USQD should be abandoned and the evaluation documented in a Standard USQD. The contractor's USQ procedure should also specify stricter qualification requirements for "experts." Specifically, the intent is not to plug any preparer available into a rotating "expert" slot. Experts should have lengthier career experience than the average USQD preparer, thorough knowledge of the facility and its operations as demonstrated by documented, sustained experience at the facility, and a history of preparing USQDs for that facility. The contractor's USQ procedure should include a mechanism for a formally defined list of experts approved by the contractor's institutional safety basis organization. Stringent qualification requirements for "experts" are key to implementation. Only the most experienced and trained personnel in the facility, its processes, and Safety Basis should qualify to sign as expert preparer.

Figure 1 is an example of how an Expert USQD could be included in the USQ Process. Example Expert USQD Worksheets can be found in appendix 4.

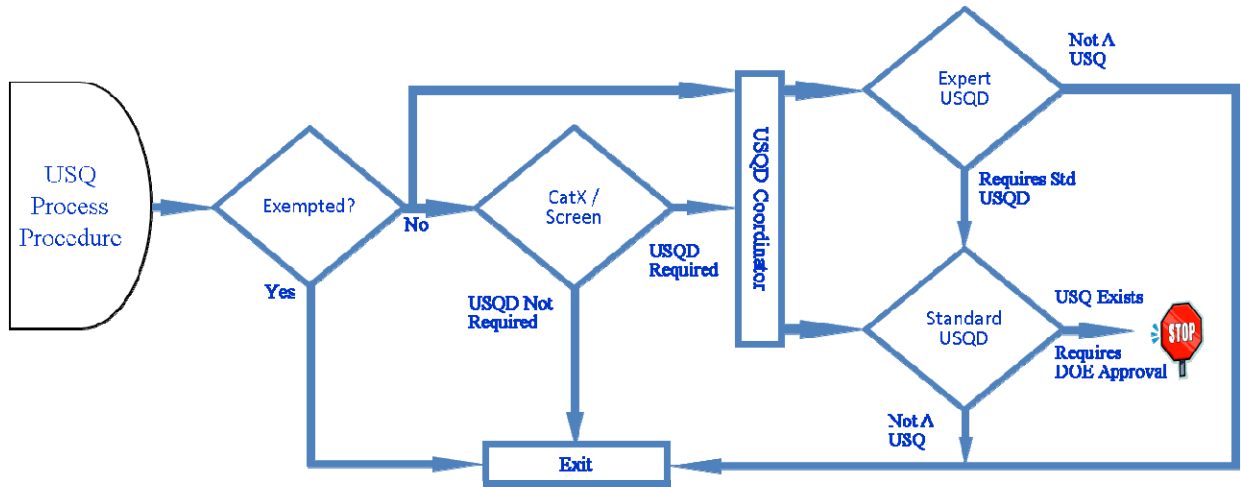


Figure 1. Expert USQD in relation to overall USQ Process.

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DISCLAIMER

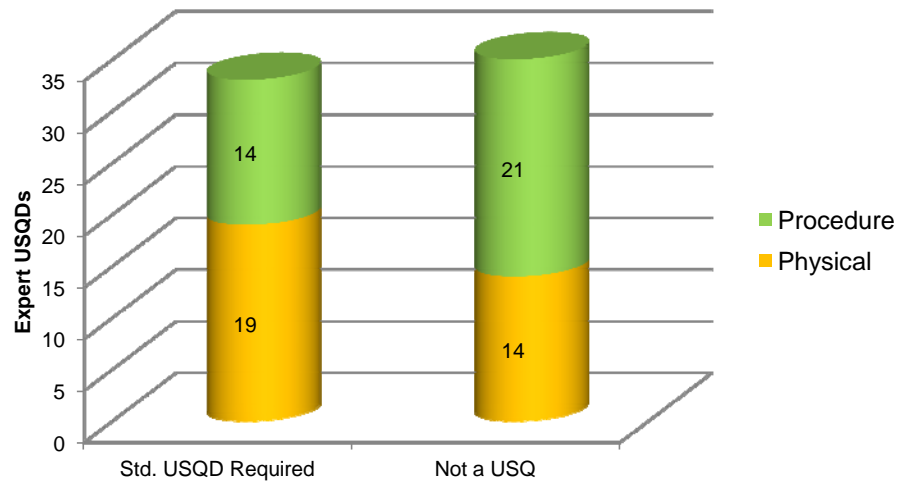
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Appendix 1: Y-12 Pilot Data and Implementation Status

Y-12 Expert USQD Pilots

Combined Data

	Procedure	Physical	All Changes
Total Proposed Changes	35	33	68
Std USQD Required	14	19	33
Not A USQ	21	14	35
Std. USQDs Eliminated	60%	42%	51%



Y-12 Implementation of Expert USQDs

5

Comparison to Expectations

Six Month Snapshot – What have we learned?

- First look shows significant numbers of EUSQDs
- Reviews determined:
 - Technical compliance expectations met
 - Quality expectations acceptable, could be improved
- Generally implementation went smooth
 - Procedure/forms/worksheets approved and posted for use by effective date
 - New training modules developed and approved early enough to allow training prior to implementation

Comparison to Expectations

- Six Month Snapshot – What have we learned? (cont)
 - Some implementation issues
 - As expected, initial % of EUSQDs (5 months) is lower compared to pilots
 - Limited # of experts this early in implementation
 - Expert qualifications still ramping up to target
 - High requirements
 - Determining “right sized” mix of experts available for EUSQDs is expected to take ~6-12 months (projects consuming some experts time)
 - EUSQDs are still “new,” change takes time
 - Learning curve for personnel involved in change control – additional method for completing USQ Process

Y-12 Implementation of Expert USQDs

Comparison to Expectations

- 12 Month Snapshot –
 - Many implementation issues corrected
 - Second 6 month's % of EUSQDs higher now - 28%
 - Revised set of experts
 - Improved determination of “right sized” mix of experts available for EUSQDs
 - EUSQDs starting to become commonplace
 - Some lingering learning curve issues for personnel involved in change control – additional method for completing USQ Process

Period	Expert USQDs	Std. USQDs	Total USQDs	% EUSQDs
8/2010 -12/2010	94	447	541	17.4%
1/2011 - 6/2011	153	386	539	28.4%

Y-12 Implementation of Expert USQDs

Appendix 2: USQ Survey in the USQ white paper cited previously:

Table 2. Raw Data on Estimated Effects of Process Improvements (in %)*

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7	Site 8	Site 9	Site 10	Site 11	Site 12	Site 13	Site 14	Site 15	Site 16	Site 17
Clarification of Terminology/Definitions**				20	20	0	2	0	5	2	1				5		0
AA – Facility Change: Routine maintenance packages				40	25	0	5	20	5	5	1				25		2
AA - Procedure: Safety management procedures			25	15	20	0	2	20	25	5	10				25		2
AA - Procedure: Administrative procedures				20		2	0	10	25	15	1				0		1
AA - Tests or Experiments Not Described in Existing DSAs				0		0	0	0	0	1	0				2		1
Screening			25	60		10	25	35	10		66				50		0
Expert USQDs**			25	30	10	20	40	50	15		17				50		2
Clarification of Sufficient Level of Documentation in Applicability Assessments				0	60	0	0	0	10						0		2
...Level of Documentation in Screening				60	60	0	0	35	20		6				25		3
...Level of Detail in Standard USQD				20	20	0	0	10	15	2	0				25		0

*Note: These statistics reflect that some sites have already implemented the improvements discussed in this white paper. Furthermore, some of the savings are on the backend (e.g., minimizing time sent with addressing audits) rather than the front end of actually applying the USQ process.

**Note: For some waste sites, USQDs do not generally require more than a few hour to prepare. As a result, expert USQDs are not expected to be a significant improvement at some waste facilities.

Appendix 3: Criteria for Office of Science (SC) Expert USQ Process Implementation

Criterion	Acceptable
1) Number of overturned USQ screenings and determinations that would have resulted in positive determinations identified by external organizations (outside the contractor) for past three years	≤1/300 USQ Screens ≤1/300 USQ Determinations
2) Significance of non-compliance issues identified by external organizations (outside the contractor) with either the contractor's USQ procedure or implementation of their USQ procedure at that facility	Green rating by HSS on USQ program in past three years OR acceptable performance demonstrated by independent assessment performed by DOE for USQ compliance on contractor program in past three years
3) Number of years operating under a 10CFR830 Subpart compliant safety basis (since implementation) at that facility	≥ 5 years
4) Adequacy of facility safety basis based upon evaluation by DOE Site Office	Most major issues have been worked in a reasonable time period regarding Hazards Analysis, Accident Analysis and controls, PISAs and JCOs
5) Number of years of experience per contractor safety basis analyst working on that specific facility DSA/TSR/USQ	≥ 3 years experience for the top 20% of safety analyst staff OR for a facility with lower activity level, at least one analyst (expert USQ individual) with ≥ 3 years experience
6) Number of years of experience per contractor safety basis analyst preparing USQ screenings or determinations for that facility	≥ 2 years experience for the top 20% of safety analyst staff OR for a facility with lower activity level, at least one analyst (expert USQ individual) with ≥ 2 years experience NOTE: This criterion may overlap criterion 5 and if experience appropriate count for both criteria
7) Internal oversight program of contractor's USQ process and implementation	Program exists and some form of compliance reviews are conducted at least every 3 years; corrective actions are developed and resolved in a timely manner
8) Performance of contractor's configuration management (CM) program at that facility	CM Program exists and no significant issues; USQ process is integrated into program
9) Site office personnel (or support) technical qualifications relative to nuclear safety	[≥ 1 individual currently qualified to DOE-STD-1183 OR ≥1 individual currently qualified to DOE-STD-1175] AND [≥1 individual currently qualified to DOE-STD-1063 for this facility]
10) Site office oversight of contractor's USQ procedure and implementation	Contractor's Annual USQ report is reviewed by site office; some screenings and determinations are reviewed by site office personnel on at least an annual basis relative to work being performed; some form of USQ assessment is defined in site office procedures; some sort of evaluation was performed on contractor's USQ procedure to document DOE review and adequacy.

Appendix 4: Example Expert USQD Worksheets

Example Y-12 Expert USQD Worksheet

EXPERT UNREVIEWED SAFETY QUESTION DETERMINATION (USQD) WORKSHEET		EXPERT USQD NUMBER		
TITLE				
FACILITY/SYSTEM			PMR/DMR/CHANGE REQUEST NUMBER	
Description (Provide information about the proposed change to include: Scope of the change, detailed description, reason for the proposed change.) (Delete this text before typing.)				
DETERMINATION CRITERIA*				
Relative to the DSA: Is it readily apparent, based on expert knowledge, training and experience, that the proposed change (including interim changes if applicable) does not:				
1. Increase the probability or consequences of an accident described in the DSA? 2. Directly or indirectly increase the probability of failure or consequences of a malfunction of equipment important to safety described in the DSA. 3. Create the possibility of an accident of a different type than previously evaluated in the DSA? 4. Create the possibility of a malfunction of equipment important to safety of a different type than previously considered in the DSA? 5. Decrease a Margin of Safety				
Yes <input type="checkbox"/> No <input type="checkbox"/>				
If affirmative, provide a brief rationale why the change is not a USQ, otherwise prepare a standard USQD or request YSO approval.				
Based on this determination, the proposed change does not represent a USQ.				
PREPARED BY (Expert USQD Preparer)	PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE
REVIEWED and APPROVED BY (Operations Manager)	PRINTED NAME	SIGNATURE	BADGE NUMBER	DATE

Appendix 4: Example Expert USQD Worksheets

Example LLNL Expert USQD Worksheet

Expert USQD WORKSHEET		
Facility: _____ USQ Number: _____ Rev. _____		
Title: _____		
Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	1. Could the proposed change increase the probability of occurrence of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	2. Could the proposed change increase the consequences (to workers or the public) of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	3. Could the proposed change increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	4. Could the proposed change increase the consequence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	5. Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	6. Could the proposed change create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	7. Could the proposed change reduce a margin of safety?
Expert USQD Conclusion		
Based on the answers above the change—		
<input type="checkbox"/> Does not constitute an Unreviewed Safety Question.		
<input type="checkbox"/> Does constitute an Unreviewed Safety Question.		
Prepared: _____		
Print name	Signature	Title Date
Reviewed: _____		
Print name	Signature	Title Date
Approved: _____		
Print name	Signature	Title Date

Description
A. Describe the aspects of the change being evaluated.
B. Basis for Conclusion.
C. List references used for the USQ determination.

**Appendix 5: Example Training Material, excerpts from HS8042-EXP, Expert
USQD Process, LLNL-AM-496731**



LAWRENCE
LIVERMORE
NATIONAL
LABORATORY

HS8042-EXP, Expert USQD Process

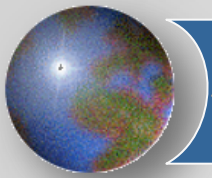
M. A. Mitchell, P. B. Montgomery, T. A. Altenbach,
K. L. Foote

August 31, 2011

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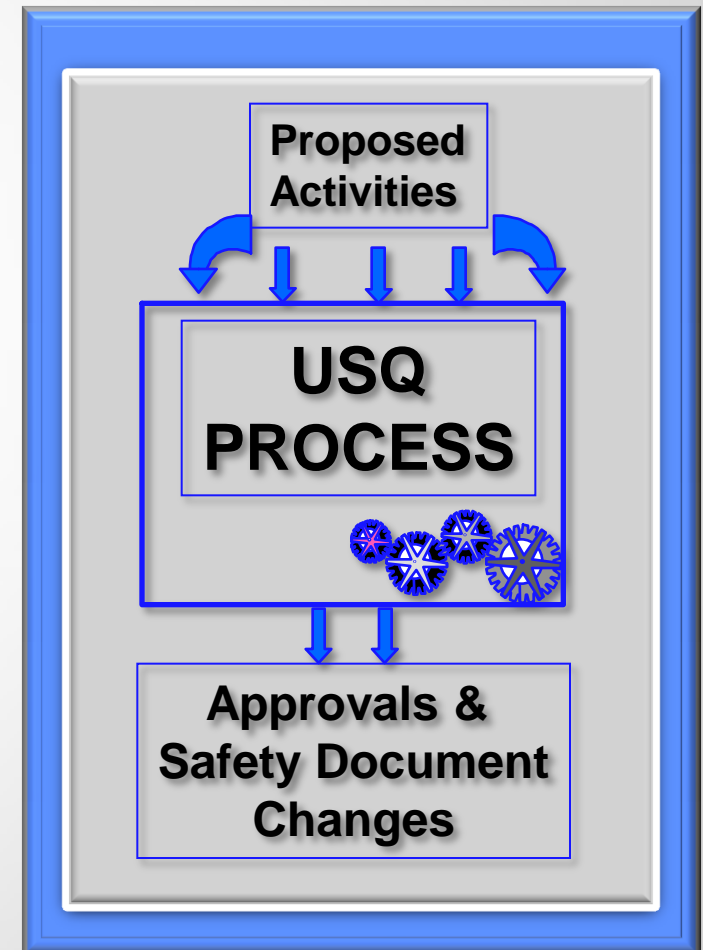


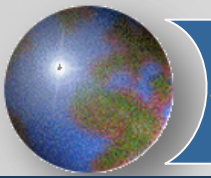
Unreviewed Safety Question (USQ)

Expert USQD Training

ES&H Manual Document 51.3,
Revision 9

Mark Mitchell, Safety Basis Division





Instructor



Mark Mitchell

- LLNL USQ SME
- Safety Basis Division



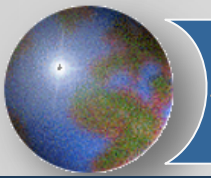
Mitchell36
@llnl.gov



Extension
2-8600



HS8042-EXP



Course Overview

By the end of this course you will be able to apply the Expert USQD Process according to ES&H Manual Document 51.3, Rev. 9.

Module 1 Overview

Describe the Expert USQD process and pilot

Module 2 Applicability

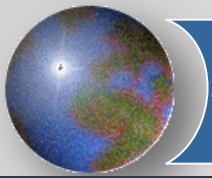
Determine if Expert USQD is appropriate

Module 3 Preparation

Prepare an Expert USQD

Module 4 Lessons Learned

Discuss Lessons Learned for standard USQDs



Legend

ELO

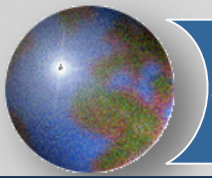
Enabling Learning Objective



Lessons learned from other sites

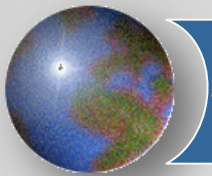
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LLNL USQ Lessons Learned Number



Module 1: Overview

By the end of the Overview module, you will be able to describe the Expert USQD process and pilot.



Module 1: Overview

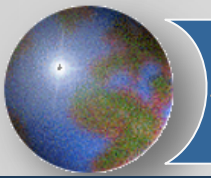
1.1 Describe the main purpose and key benefits of Expert USQD and compare to standard USQD

1.2 Discuss lessons learned from Y-12

1.3 Discuss Expert USQD pilot at LLNL.

1: Overview

**Describe
the Expert
USQD
process and
pilot**



Purpose and Benefit of the Expert USQD

PURPOSE

Quickly determine, with minimal documentation, that the change in question is not a USQ (i.e., positive USQD).

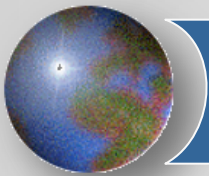
Intent is for Expert USQDs to be used as an efficiency measure when

(1) a negative USQD is readily apparent to experienced USQD personnel, and

(2) that conclusion can be easily and succinctly explained to someone familiar with the facility.

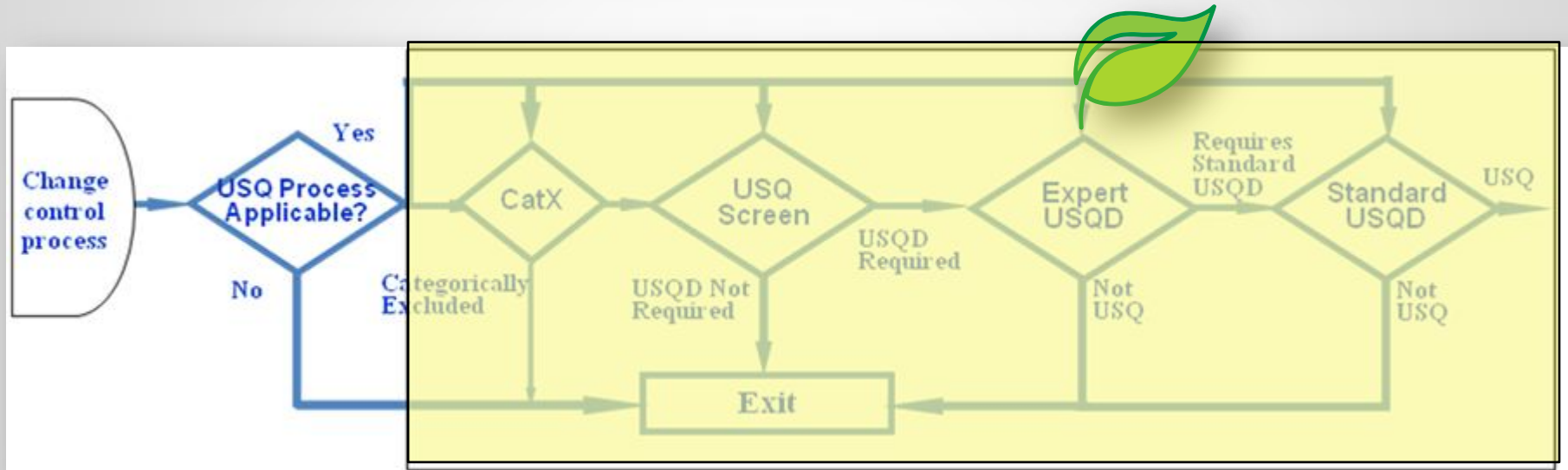
BENEFIT

Significantly
increase
efficiency of
USQ Process

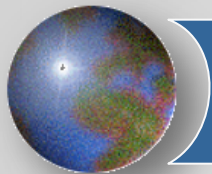


Expert USQD in the USQ Process

An Expert USQD is a simpler USQD



Components of the LLNL USQ Process (highlighted) in relation to Change Control Process



Expert USQD – How to Proceed



Then

the Expert USQD shall be abandoned and the evaluation documented in a standard USQD

If Positive USQD, then go to 14 point Safety Basis Amendment

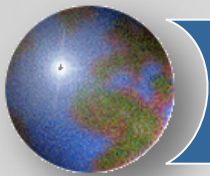


If

the Expert USQD preparer cannot readily determine a USQ would not be created, or

Expert USQD reviewer has doubt about a definitive answer,



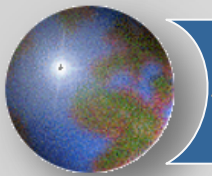


Lessons Learned on Expert USQD from Y-12

Over at Y-12 they have **reduced the number of standard USQDs and cost of the USQ process while remaining 10 CFR 830.203 Compliant!**



I'd noticed they've are more efficiently applying the USQ process by effectively utilizing Expert USQDs, and requiring a standard USQD for those proposed changes for which they cannot apply the Expert USQD.



Expert USQD Pilot

Expert USQD Pilot

Six month pilot of Expert USQD process

- All LLNL nuclear facilities participating in pilot

Personnel

Train Expert USQD Preparers and Reviewers on Expert USQD Process

- FMs designate Expert USQD Preparers and Reviewers
- SBD Leader concurs

Reviews

USQ Review Team review 100% of Expert USQDs on monthly basis

- LSO may participate in reviews

Growth

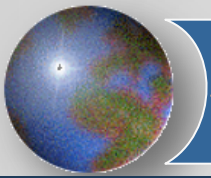
Recognize a learning curve will occur given this is precedent setting for R&D facilities

- Conduct timely lessons learned
- Revise Expert USQDs that are found problematic

Results

LLNL provides formal briefing documenting results of pilot at conclusion of the six month period

Includes requirements from Condition of Approval/ Contractual Direction in COR-TS-6/24/2010-263281



Review of Module 1

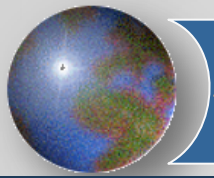
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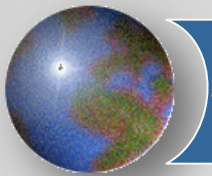
1: Overview

Describe the Expert USQD process and pilot



Module 2: Applicability

By the end of the module on *Applicability*, you will be able to determine if an Expert USQD is appropriate



Module 2: Applicability

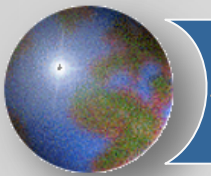
2.1 Identify scenarios where Expert USQDs are appropriate

2.2 Identify scenarios where Expert USQDs are NOT appropriate

2.3 Identify the possible outcomes of the Expert USQD

**2:
Applicability**

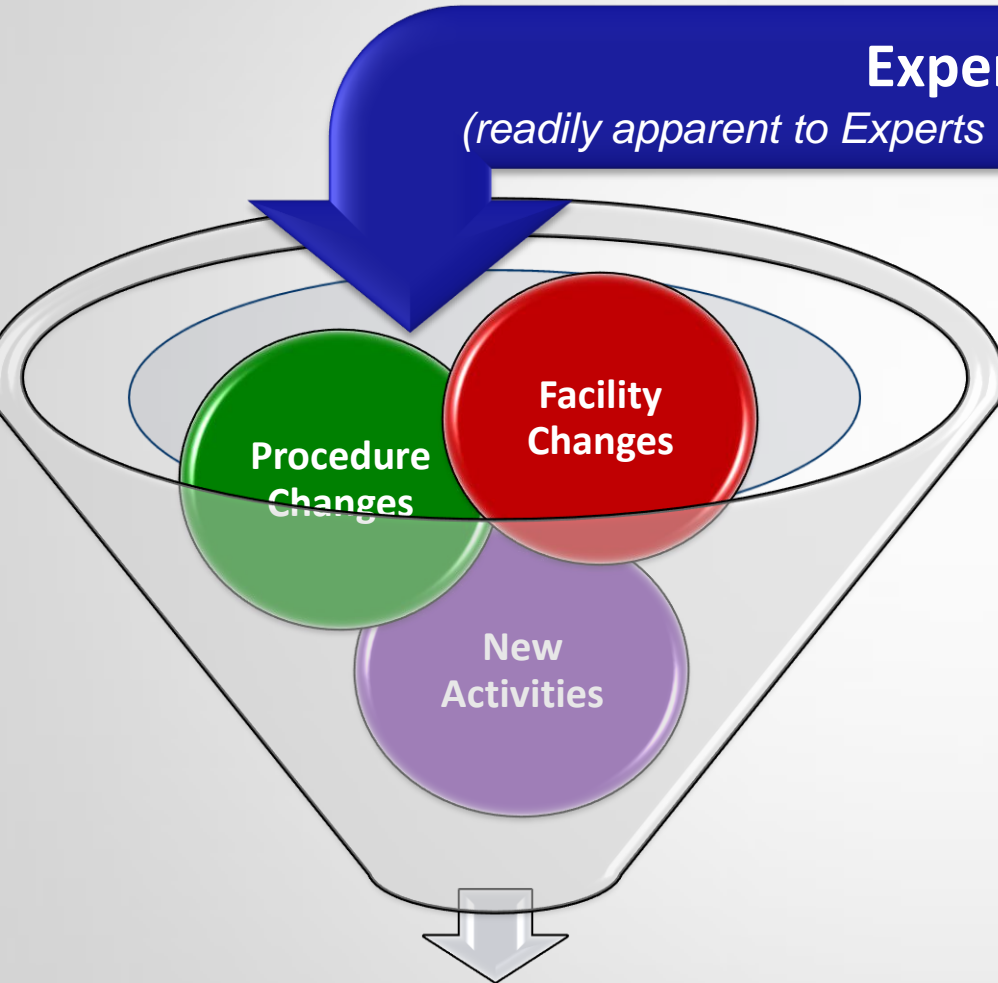
Determine if
Expert
USQD is
appropriate



When Can I Use an Expert USQD?

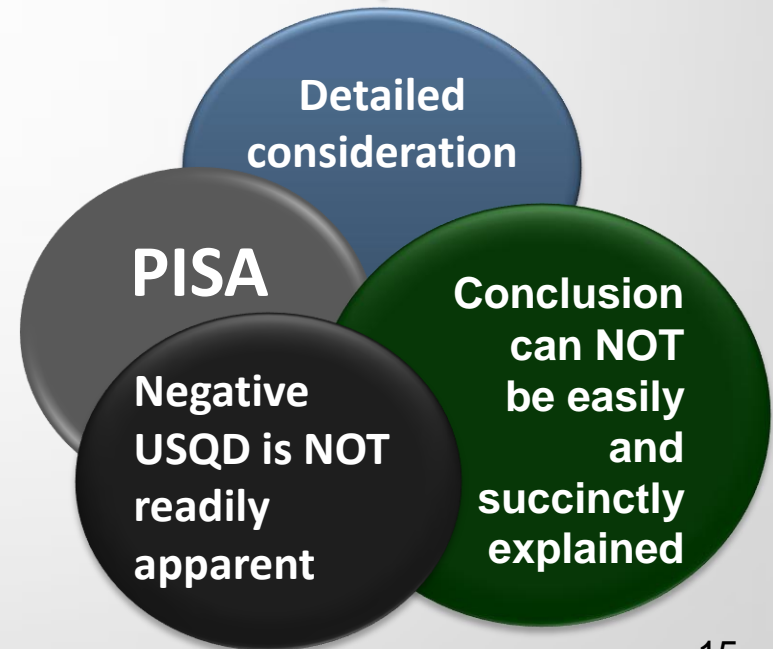
Expert USQD Applicable

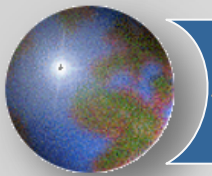
(readily apparent to Experts that the change cannot create a USQ)



Expert USQD

Not Applicable





Changes Where We Can Use An Expert USQD

Physical Changes

The Expert-based USQD is clearly applicable to changes that do not involve EITS, but may also be applicable to changes involving EITS and Safety SSCs.



Procedure Changes

Most procedural changes can be appropriately assessed by an Expert USQD. If the USQD preparation consists of simply reading the document to verify it does not contradict the Safety Basis, an Expert USQD should be used.

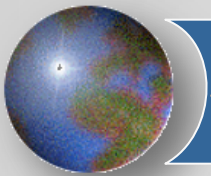


New Activities

New activities can be addressed by an Expert USQD to the extent that they are clearly within the Safety Basis.



ES&H Manual Document 51.3

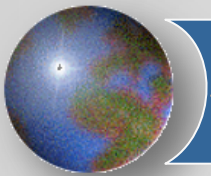


Expert USQD – Physical Changes

Expert USQD is clearly applicable to changes that do not involve EITS, but may also be applicable to changes involving EITS and Safety SSCs.

- ***Minor changes [Example 1]***
 - *penetrations to be sealed after completion,*
 - *mounting of non-EITS SSCs that cannot affect EITS,*
 - *assorted utility work [Example 2].*
- ***Larger changes with a conceptually straight forward basis for a negative USQD (e.g., replacement of a boiler that does not impact EITS) [Example 3].***
- ***Changes involving EITS that do not affect the contribution to safety identified for EITS in Chapter 5 of a DSA. For example,***
 - *Changing the mountings of a stack monitor from one PC-2 qualified mounting to another does not affect its defined contribution to safety – Expert USQD.*
 - *[Example 4]*
- ***Limited changes to Safety SSCs that have minor impact on the system description, and do not impact the functional requirements and performance criteria identified in Chapter 4 of a DSA [Example 5].***



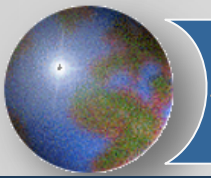


Expert USQD – Physical Changes

So what is “assorted utility work?”

- Utility work with a conceptually straight forward basis for a negative USQD, e.g.,
 - Replacement of a non-EITS pipe that does not impact EITS.
 - Repairing pipe that is not over EITS electrical system.
- Utility work involving EITS that does not affect the contribution to safety identified for EITS in Chapter 5 of a DSA, e.g.,
 - Changing the mountings of a camera (non-EITS) from one PC-2 qualified mounting to another when camera located over EITS.
 - Changing the mountings of a fire suppression system pipe (EITS) from one PC-2 qualified mounting to another does not affect its defined contribution to safety.
 - Not ok: Replacing the pipe (EITS) with a new pipe of a different diameter could change its contribution to safety - standard USQD.
- Utility work that has minor impact on the Safety SSC’s system description, and does not impact the functional requirements and performance criteria identified in Chapter 4 of a DSA.
 - Cold work (maintenance) on Safety Significant backup electrical system.
 - Not ok: Hot work or temporarily bypassing Safety Significant backup electrical system

NNSA/LSO RCR Comment #12. Please clarify what is meant by “assorted utility work” for example of a “minor” change where expert USQD could be applied.



Expert USQD – Procedural Changes

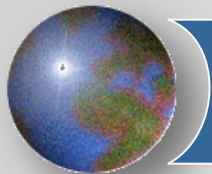
“Most procedural changes can be appropriately assessed by an Expert USQD. If the USQD preparation consists of simply reading the document to verify it does not contradict the Safety Basis, an Expert USQD should be used.

For example,

- ***Changes to programmatic governing documents that do not alter the fundamental content of a safety management program [Example 6].***
- ***Changes to operational procedures that do not alter specific operational parameters or controls cited in the DSA [Examples 7 & 8].***
- ***New document and procedure baseline USQDs that conform with items above [Example 6].”***

ES&H Manual Document 51.3





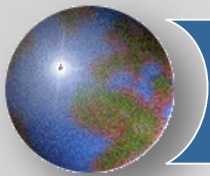
Expert USQD – New Activities

New activities can be addressed by an Expert USQD to the extent that they are clearly within the Safety Basis [Example 8].

ES&H Manual Document 51.3

Caution: Be careful when preparing Expert USQDs on New Activities. We will need to start out cautiously and build up our experience and LSO's confidence in this area.





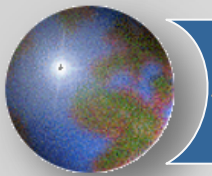
Expert USQD NOT Appropriate

Scenarios where Expert USQD are NOT appropriate:

- PISAs
- Proposed changes that require detailed consideration
 - Including Interim State Hazards that require detailed consideration (next slide)
- Conclusion can NOT be easily and succinctly explained
- Negative USQD is NOT readily apparent



Overall, the response to the question should be readily apparent from documents provided with the proposed change and not require additional evaluation. Proposed changes requiring such additional evaluation should not utilize an Expert USQD... If the Expert USQD preparer cannot readily determine a USQ would not be created, or an Expert USQD reviewer has doubt about a definitive answer, then the Expert USQD shall be abandoned...



Interim State Hazards As They Pertain To An Expert USQD



Expert
USQD

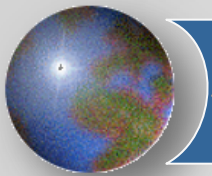
These interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A. They do not present any potentially new issues and will not be evaluated further in this USQD.



standard
USQD

For evaluation of unique, high-energy initiators...

With the exception of _____, these interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A. They do not present any potentially new issues and will not be evaluated further in this USQD. _____ will be addressed in the main body of the USQD.



Possible Outcomes of an Expert USQD



Does not represent
a USQ

Expert USQD



Requires additional
review

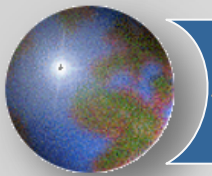
standard USQD



Represents a USQ

*14 point safety
basis amendment*

Outcomes of an Expert USQD



Review of Module 2

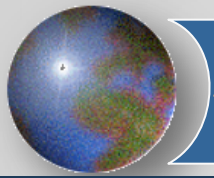
2.1 Identify scenarios where Expert USQDs are appropriate

2.2 Identify scenarios where Expert USQDs are NOT appropriate

2.3 Identify the possible outcomes of the Expert USQD

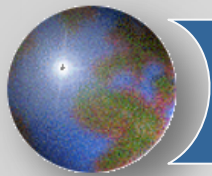
**2:
Applicability**

Determine if
Expert
USQD is
appropriate

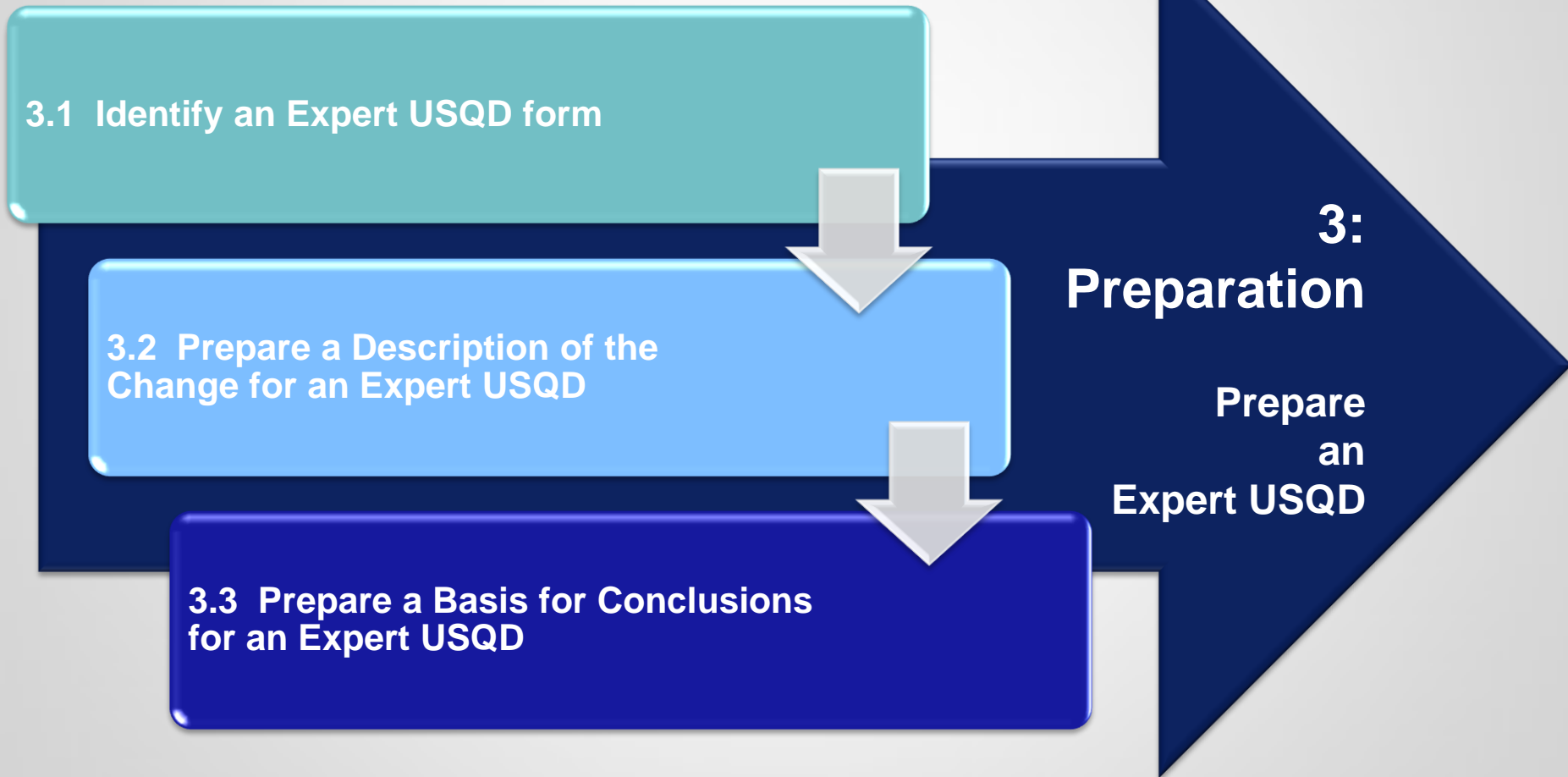


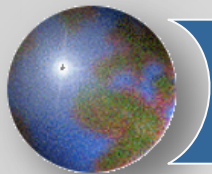
Module 3: Preparation

By the end of the module on *Preparation*, you will be able to prepare an Expert USQD.



Module 3: Preparation





Module 3: Preparation

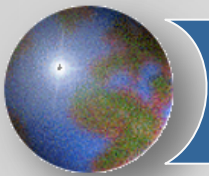
3.4 Describe the methodology for applying the Expert criteria (7 USQD questions)

3.5 Discuss example Expert USQDs

3.6 Discuss Expert USQD lessons learned from Y-12

3:
Preparation

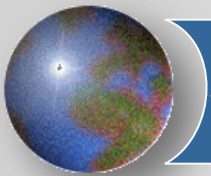
Prepare
an
Expert USQD



Expert USQD form

Expert USQD WORKSHEET		
Facility: _____ USQ Number: _____ Rev. _____		
Title: _____		
Yes	No	
<input type="checkbox"/>	<input type="checkbox"/>	1. Could the proposed change increase the probability of occurrence of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	2. Could the proposed change increase the consequences (to workers or the public) of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	3. Could the proposed change increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	4. Could the proposed change increase the consequence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	5. Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	6. Could the proposed change create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input type="checkbox"/>	7. Could the proposed change reduce a margin of safety?
Expert USQD Conclusion		
Based on the answers above the change—		
<input type="checkbox"/> Does not constitute an Unreviewed Safety Question.		
<input type="checkbox"/> Does constitute an Unreviewed Safety Question.		
Prepared: _____		
Print name	Signature	Title Date
Reviewed: _____		
Print name	Signature	Title Date
Approved: _____		
Print name	Signature	Title Date

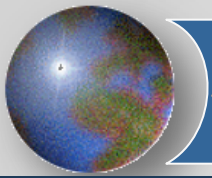
Description
A. Describe the aspects of the change being evaluated.
B. Basis for Conclusion.
C. List references used for the USQ determination.



Overview of How to Prepare an Expert USQD

“The Expert USQD preparer shall provide a

- ***Description of the proposed change in the Expert USQD Description Section.***
 - ***Scope of the change and***
 - ***Adequate detail for someone familiar with the facility to understand the change.***
- ***Summary of results documents any considerations deemed relevant as to why it is readily apparent a USQ would not exist.***
 - ***Brief and focused, but not to the level of detail for a standard USQD.***
 - ***Overall, the response to the question should be readily apparent from documents provided with the proposed change and not require additional evaluation.***
 - ***Proposed changes requiring such additional evaluation should not utilize an Expert USQD; a standard USQD shall be prepared.”***

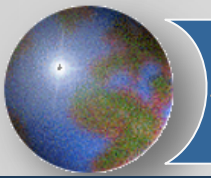


A. Expert USQD Description of the Change

On the Expert USQD form, fill the Description in "A. Describe the aspects of the change being evaluated."

“Provide a description of the proposed change in the Expert USQD Description Section. That description includes the scope of the change and adequate detail for someone familiar with the facility to understand the change.”

ES&H Manual Document 51.3



Scope of the Change

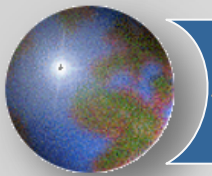


Priority One – Clearly state “the change”
Clarify what is inside and outside the scope of the change

Example: Glovebox Installation (installation only, not glovebox “use”)

Note: An Expert USQD for operation of a glovebox should explicitly state that the installation was covered separately (cite USQD). Referenced USQDs can be Expert USQDs. This clarifies the scope of the change being evaluated.

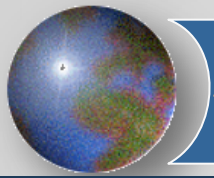
Caution - check to ensure that the previous USQD fully evaluated the aspect of the change you are stating it covered.



B. Expert USQD Basis of Conclusions

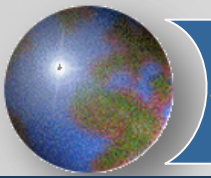
B. Basis for Conclusion

- Provide a brief rationale (basis for conclusion) why the change does not represent a USQ
 - Rationale should be brief (1 to 2 paragraphs) and include the key information making it readily apparent that the change is well within the Safety Basis (a USQ would not exist)
 - Rationale is not to the level of a standard USQD (e.g., not to level discussed in AB-015)
 - Include discussion interim-state hazards if applicable (see blurb)



Caution: Basis of Conclusions

If you feel that more than one concurrence is necessary, then that may be a sign that detailed evaluation is needed; the change may be too complex for an Expert USQP.



C. Expert USQD References

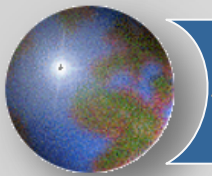
C. List of References used for USQD

On the Expert USQD form, fill in the References just as you would in a standard USQD, e.g.,

- AB-B007-11-001, *Seismic Evaluation of Mounting Bracket*, August 30, 2011
- B007 DSA Rev. 2
- B007 TSR Rev. 2

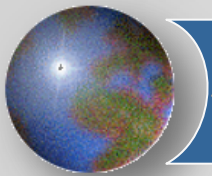
Attach applicable source documents. Attachments are attached just as you would in a standard USQD, e.g.,

- OSP 3.5, Rev. 5 (track change version)
- Drawing SKULL-CRACKER-05
- Concurrence



Methodology For Applying 7 Expert USQD Questions

- Check the box to answer each Expert USQD question *Yes* or *No*.
 - Relative to the safety basis, is it readily apparent, based on expert knowledge and experience, that the proposed change does not trigger the given criterion (each of the 7 USQD questions)?
 - Response to each USQD question should be readily apparent from documents provided with the proposed change and not require additional evaluation.
 - It is not appropriate to have a written explanation for the questions.
 - If you feel the question merits discussion, put that discussion in the Basis for Conclusion.



Overall Expert USQD Conclusion

USQ or Not USQ?

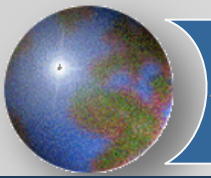
- For the overall conclusion, check the box to answer whether or not the change constitutes a USQ based on the results of your answers to each Expert USQD questions.
 - Just like a standard USQD, all 7 Expert USQD questions must be *No* for the change to not constitute a USQ.
- Expert USQD Preparer signs and date the Expert USQD.
- Expert USQD Reviewer signs and dates the Expert USQD.
- USQ Approver approves the Expert USQD indicating they agree with the outcome and rationale.



**Not a
USQ**

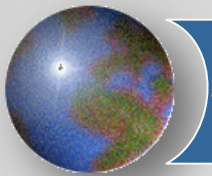


USQ



Acceptable Expert USQD Examples

- **Example Handouts for Physical Changes:**
 1. Tooling changes associated with the Programmatic Ultrasonic Testers
 2. Remove wiring, re-locate receptacle box, re-route cables through existing conduits in Room 50
 3. Removal of Externally Located Programmatic Equipment in Room 06
 4. Replacement of Forty Two Alien Alarm Monitors in Increment 51 Search Area
 5. Install Three Vacuum Hose Reels in Rooms 120 and 127
- **Example Handouts for Procedures:**
 6. Baseline USQD: ES&H Manual Document 2.2 (Rev. 20,000,001)
 7. Revision 5 to procedure BRAIN POP to add additional test subjects
 8. Revision 42 to Alien Bisector Experimental Procedure to add bisection of ewoks



Expert USQD Cautions

*Caution
watch for SSCs that may be
EITS in some buildings, or
some applications, but not
others*



iCAM

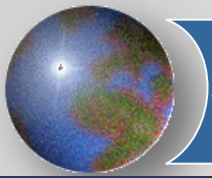
An Expert USQD on a procedure covering iCAMs may involve EITS in some instances but not others. Some room iCAMs are EITS, but stack monitor iCAMs are non-EITS as are room iCAMs in other facilities.



iSolo

An Expert USQD on a procedure covering iSolos will never involve EITS.





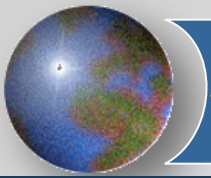
Unacceptable Expert USQD Example #1

Procedure Change:

- Revision 2 to programmatic procedure Z Oven Operations which increases the DSA parameter (loading limits) associated with the Z Ovens (EITS) and how the furnaces are operated (increases the operating temperature).

Reason for standard USQD:

- It's not readily apparent that a USQ does not exist.
- Unclear what this implies to operation and malfunction of the EITS.
- ES&H Manual Document 51.3 highlights the need for further evaluation in a standard USQD for a change that “alters specific operational parameters or controls cited in the DSA.”
- Raises questions about performance of EITS that requires a detailed discussion to evaluate. Malfunction of EITS needs further evaluation in a standard USQD.



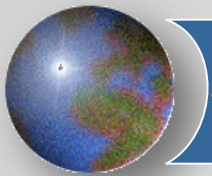
Unacceptable Expert USQD Example #2

Complex Procedure Change which includes a New Activity:

- Revision 7 to programmatic procedure YDR-Y007-106, Manual Dryer Bed Cooling which prescribes the steps to safely cool the material.
 - This revision allows the manual cooling of a DRY007 dryer instead of automated equipment.
 - This potentially changes the rate of cooling of the hot material (a DSA parameter).

Reason for standard USQD:

- It's not readily apparent that a USQ does not exist.
- Unclear how this effects the DSA control (cooling of hot material).
- Unclear how this effects the initiation and progression of an accident.
- There is not "a conceptually straight forward basis for a negative USQ determination."
- ES&H Manual Document 51.3 also highlights the need for further evaluation in a standard USQD for a change that "alters specific operational parameters or controls cited in the DSA."



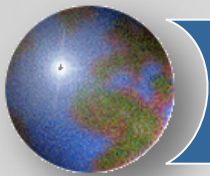
Unacceptable Expert USQD Example #3

Physical Change:

- Removal of programmatic equipment in glovebox WS 08 in room 06.
- Internal to the glovebox, programmatic reactor vessels and associated equipment will be disassembled and removed (via the 8" gloveport or the bag-in/bag-out port).
- Affected glovebox penetrations (i.e., the chilled water lines (both supply and return lines) and programmatic argon supply lines) will be isolated and capped off. Work includes performing Lockout/Tagouts of the electrical system, chilled water system, and programmatic argon supply system. The Argon system, Nitrogen system, and compressed air system will be replumbed to support this change.
- The glovebox penetrations will be isolated and capped off in accordance with the FSP as specified in the B007 TSRs.

Reason for standard USQD:

- It's not readily apparent that a USQ does not exist (too complex).
- There is not "a conceptually straight forward basis for a negative USQ determination."
- More than one concurrence may be necessary to validate the basis for conclusions.
- The change may "affect the contribution to safety identified for EITS in Chapter 5 of a DSA," and may have more than a "minor impact on the system description, and [may] impact the functional requirements and performance criteria identified in Chapter 4 of a DSA."



Lessons Learned on Expert USQD from Y-12

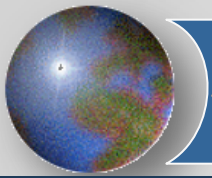
Y-12 stressed
...Write a good
rationale.

**Include multiple
points.**

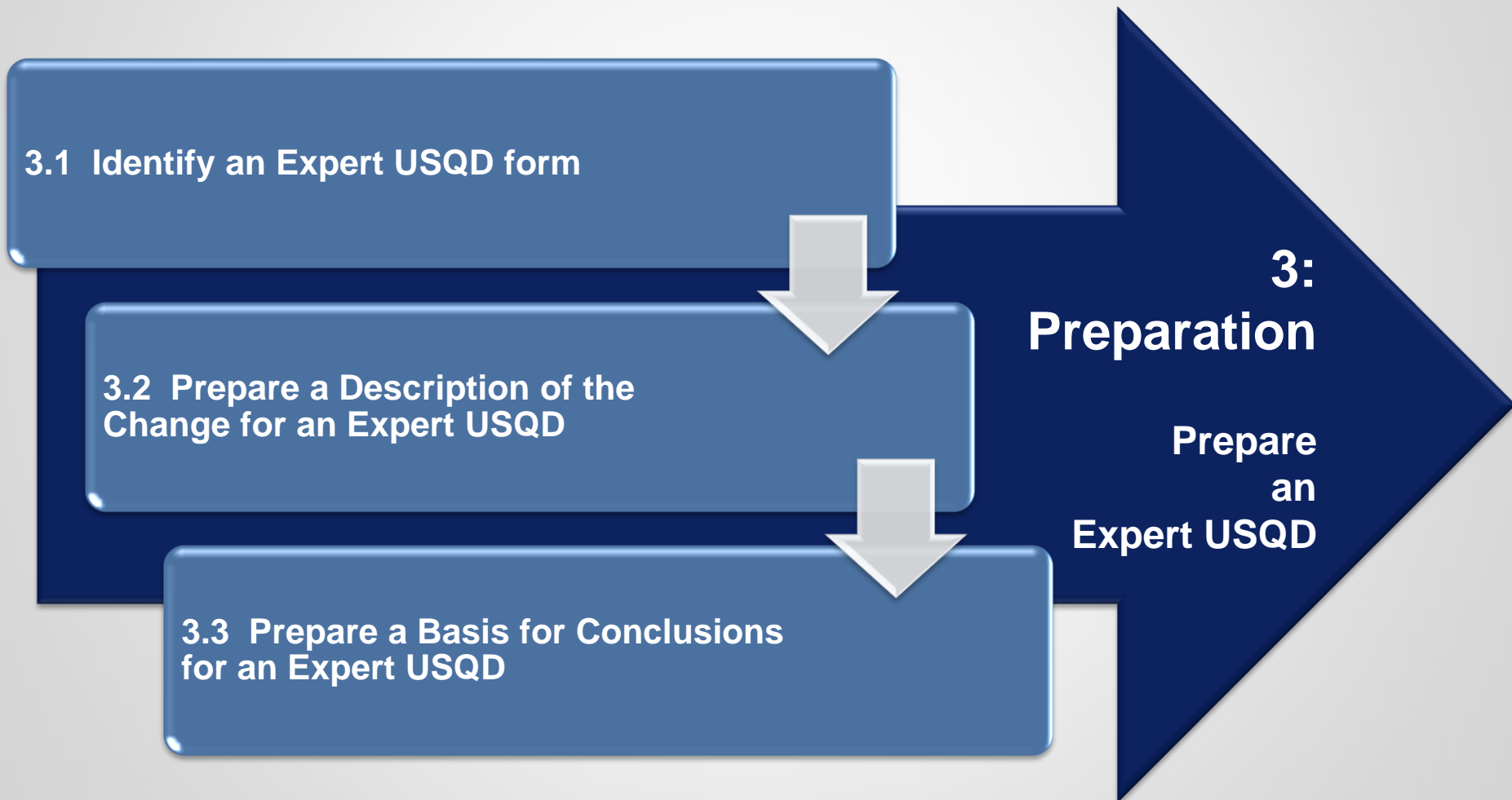
**Don't just have
one sentence
stating it's
within the
Safety Basis.**

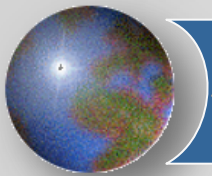


*Remember that if the
rationale needs to be
more than a few
paragraphs, then
prepare a standard
USQD. If all of
Sections A, B, and C
don't fit on 1 page,
then strongly consider
a standard USQD.*



Review of Module 3





Review of Module 3

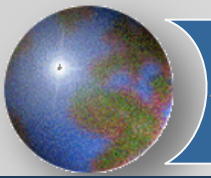
3.4 Describe the methodology for applying the Expert criteria (7 USQD questions)

3.5 Discuss example Expert USQDs

3.6 Discuss Expert USQD lessons learned from Y-12

3:
Preparation

Prepare
an
Expert USQD



Course Overview

Now you should be able to apply the Expert USQD Process according to ES&H Manual Document 51.3, Rev. 9.

Module 1 Overview

Describe the Expert USQD process

Module 2 Applicability

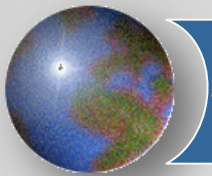
Determine if Expert USQD is appropriate

Module 3 Preparation

Prepare an Expert USQD

Module 4 Lessons Learned

Discuss Lessons Learned for standard USQDs



Review: Course Objectives

You should now be able to apply the Expert USQD Process according to ES&H Manual Document 51.3, Rev. 9.

Module 1: Overview

- Describe the Expert USQD process and pilot

Module 2: Applicability

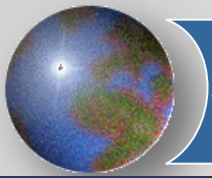
- Determine if Expert USQD is appropriate

Module 3: Preparation

- Prepare an Expert USQD

Module 4: Lessons Learned

- Discuss Lessons Learned for standard USQDs



Questions?



Description

A. Describe the aspects of the change being evaluated.

This Expert USQD is a baseline USQD that evaluates ES&H Manual Document 2.2, *LLNL Institution-Wide Work Control Process*, Rev. 20,000,001 (see attachment). This document provides guidance to LLNL programs and service support organizations to successfully implement LLNL work planning and control requirements and identifies roles and responsibilities for planning, controlling, and performing work. It is identified in the B007 DSA, Ch. 12.

B. Basis for Conclusion. (Note to students: This is an example of a baseline Expert USQD for a safety management program).

ES&H Manual Document 2.2 is administrative in nature; there are no SSCs or interim-state hazards associated with it. It is consistent with the B007 DSA. It does not modify EITS. It does not create or modify accident type, initiation, or progression characteristics previously considered in the DSA. It does not alter the fundamental content of B007 safety management programs. This change does not alter parameters and controls cited in the DSA.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. B007 DSA, March 1, 2011
2. B007 TSR, March 1, 2011
3. B007 SER, May 15, 2011

Attachment:

ES&H Manual Document 2.2, *LLNL Institution-Wide Work Control Process*, Rev. 20,000,001.

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the revision of programmatic experimental procedure, *BRAIN POP*, Rev. 5 (see attachment). This document provides guidance to successfully conduct BRAIN POP experiments, while following appropriate LLNL work planning and lobotomy control requirements. It identifies roles and responsibilities for planning, controlling, and performing work. The principle change is expanding the number of test subjects per experiment from 1 test subject to 5 test subjects per experiment. This activity is described in the B007 DSA, Ch. 2.1 *Skull Opening and Invasive Brain Experimentation* and Ch. 3.

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for a revised procedure that does not alter specific operational parameters or controls cited in the DSA).

Skull opening and invasive brain experiments are currently conducted in B007. Brain Popping is not a new activity. It is consistent with the B007 DSA. BRAIN POP Rev. 5 uses 5 test subjects concurrently per experiment. DSA Ch. 2.1 and Ch. 3 allow up to 20 concurrent test subjects per experiment. It does not modify EITS. This change does not alter parameters and controls cited in the DSA. The proposed change does not create or modify accident type, initiation, or progression characteristics previously considered in the DSA. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. B007 DSA, March 1, 2011
2. B007 TSR, March 1, 2011
3. B007 SER, May 15, 2011

Attachment:

BRAIN POP, Rev. 5.

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the revision to the *Alien Bisector Experimental Procedure*, Rev. 42. Revision 42 of the Alien Bisector Experimental Procedure includes addition of ewoks (a small sub-species of wookies) as test subjects for bisection, updates the bisector equipment list with tooling changes (e.g., smaller experimental subject test platform and smaller restraining straps), updates the procedure to current B007 format requirements, and clarifies and improves text to support proficiency of alien bisection. Alien bisection (wookies) is an activity identified in the B007 DSA, Ch. 2. Installation of the updated alien bisector equipment and tooling was previously evaluated in USQD B007-10-101-D.

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for a revised procedure that does not alter specific operational parameters or controls cited in the DSA).

Alien bisection of wookies is currently conducted in B007. Bisection of ewoks is not a new activity. Ewoks are height disadvantaged sub-species of wookies; they contain less radiological material than a typical wookie. The revision to the procedure is consistent with the B007 DSA. Revising the procedure does not modify EITS. This change does not alter parameters and controls cited in the DSA. The proposed change does not create or modify accident type, initiation, or progression characteristics previously considered in the DSA. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. USQD B007-10-101-D, *Updating Alien Bisector Equipment, Tooling, and Restraints*
2. B007 DSA, March 1, 2011
3. B007 TSR, March 1, 2011
4. B007 SER, May 15, 2011

Attachment:

Alien Bisector Experimental Procedure, Revision 42 (red line version)

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the proposed tooling changes associated with the Programmatic Ultrasonic Testers (see attachment). The proposed change is to non-EITS programmatic equipment. The proposed tooling changes are associated with the programmatic Ultrasonic Testers, which are described in the Y007 DSA. Specifically, this activity is described in DSA Section 2.1.1.

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for a minor change).

This is a minor change that will not affect EITS. Neither the subject tooling nor test equipment interface with, nor could affect, EITS. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

The associated interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. Y007 DSA, March 1, 2011
2. Y007 TSR, March 1, 2011
3. Y007 SER, March 15, 2011

Attachment:

Description of the change

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the removal of normal electrical power wiring, re-location of a receptacle box, and re-routing of normal electrical power wiring (non-EITS) through existing conduits in building B007, Room 50 (see attachment 1). The receptacle box will be moved ~1 ft higher on the north concrete wall (non-EITS). The receptacle box will otherwise be returned to its original state. No hazardous or radiological material is involved.

Work will be conducted in accordance with the B007 work control process, including performing Lockout/Tagouts of the normal electrical power. The conduits will be sealed in accordance with NFPA 13. This wiring supplies electricity to the CAMs (EITS). Normal electrical power (non-EITS) is described in DSA Section 2.1.1 and the room walls (non-EITS) are described in DSA Section 2.1.2. The CAMs are described in DSA Section 2.1.3 and Ch. 4. The affected CAMs will be in a non-operational MODE in accordance with TSR LCO 3.17. The CAMs will be returned to OPERABLE status (SR 4.17).

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for a minor change with associated utility work).

Upon completion of this utility work, normal electrical power will be returned to the condition approved in the DSA. Therefore, the change does not impact normal electrical power. Moving the receptacle box ~ 1 foot does not impact the north concrete wall. The proposed change does not impact the safety function, functional requirements and performance criteria of the CAMs. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

The associated interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. B007 DSA, March 1, 2011
2. B007 TSR, March 1, 2011
3. B007 SER, May 15, 2011

Attachment:

Description of the change

Expert USQD WORKSHEET

Facility: B007 **USQ Number:** B007-11-003-D **Rev.** 0

Title: Removal of Externally Located Programmatic Equipment in Room 06

Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Could the proposed change increase the probability of occurrence of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Could the proposed change increase the consequences (to workers or the public) of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Could the proposed change increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Could the proposed change increase the consequence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Could the proposed change create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Could the proposed change reduce a margin of safety?

Expert USQD Conclusion

Based on the answers above the change—

Does not constitute an Unreviewed Safety Question.

Does constitute an Unreviewed Safety Question.

Prepared: I am Expert *I am Expert* *Expert USQD Preparer* *4/1/11*
Print name Signature Title Date

Reviewed: California Yoda *Cal Yoda* *Expert USQD Reviewer* *4/1/11*
Print name Signature Title Date

Approved: Da Bear Boss *Da Bear Boss* *FM* *4/1/11*
Print name Signature Title Date

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the removal of two dozen legacy programmatic equipment (ancillary programmatic electronic equipment (non-EITS), giant electrical cabinet (non-EITS), and the chilled water chiller (non-EITS)) in room 06 that is mounted to the floor (EITS) (see attachment). The equipment is described in DSA Section 2.1.3; the floor is described in DSA Section 2.0.1 and Ch. 5.

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for a larger change with a conceptually straight forward basis for a negative USQD).

This is a conceptually straight forward change. The proposed change does not affect the contribution to safety identified for the floor (EITS), see concurrence. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

The associated interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. B007 DSA, March 1, 2011
2. B007 TSR, March 1, 2011
3. B007 SER, March 15, 2011

Concurrence:

The proposed change does not affect the contribution to safety of the floor.

Dr. Iam Floor *July 4, 2011*

Dr. Iam Floor, Structural Engineer

Attachment:

Description of the change

Expert USQD WORKSHEET

Facility: B007 **USQ Number:** B007-11-004-D **Rev.** 0

Title: Replacement of Forty Two Alien Alarm Monitors in Increment 51 Search Area

Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Could the proposed change increase the probability of occurrence of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Could the proposed change increase the consequences (to workers or the public) of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Could the proposed change increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Could the proposed change increase the consequence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Could the proposed change create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Could the proposed change reduce a margin of safety?

Expert USQD Conclusion

Based on the answers above the change—

Does not constitute an Unreviewed Safety Question.

Does constitute an Unreviewed Safety Question.

Prepared: <u>I am Expert</u>	<i>I am Expert</i>	<i>Expert USQD Preparer</i>	<u>4/1/11</u>
Print name	Signature	Title	Date
Reviewed: <u>California Yoda</u>	<i>Cal Yoda</i>	<i>Expert USQD Reviewer</i>	<u>4/1/11</u>
Print name	Signature	Title	Date
Approved: <u>Da Bear Boss</u>	<i>Da Bear Boss</i>	<i>FM</i>	<u>4/1/11</u>
Print name	Signature	Title	Date

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the replacement of 42 Alien Alarm Monitors (non-EITS) in the Increment 51 Search Area (see attachment), which receive normal electrical power. The new monitors will be installed in the same locations as the existing monitors, using new brackets. Conduit from an existing Increment 51 Search Area outlet will also be extended to one of the new monitors; existing conduit will be used for the other monitors. New, light weight flat panel displays will be installed on the Alien Restraining Walls of Search Area 51 (EITS). The new monitors and flat panel displays will be seismically secured (ref. 1). Existing fiber-optic cable will be extended to flat panel displays. The Alien Alarm Monitors are described in DSA Section 2.1.3; the Alien Restraining Wall is described in DSA Section 2.1.4 and Ch. 5. No hazardous or radiological material is involved.

Work will be conducted in accordance with the B007 work control process, including performing Lockout/Tagouts of the electrical system and performing utility scans on the wall prior to any drilling. The penetrations will be sealed in accordance with NFPA 13.

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for changes involving EITS that do not affect the contribution to safety identified for EITS in Chapter 5 of a DSA.)

The proposed change does not affect the contribution to safety of the alien restraining walls (EITS), see concurrence. Upon completion of the work, the Alien Alarm Monitors (non-EITS), normal electrical power (non-EITS), and Alien Restraining Wall (EITS) will be returned to the condition approved in the DSA. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

The associated interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. AB-B007-11-001, *Seismic Evaluation of Flat Panel Installation*, March 15, 2011
2. B007 DSA, March 1, 2011
3. B007 TSR, March 1, 2011
4. B007 SER, May 15, 2011

Concurrence:

The proposed change does not affect the contribution to safety of the alien restraining walls.

Mrs. Ikeep Aliens *July 4, 2011*

Mrs. Ikeep Aliens, Alien Restraining Wall Engineer

Attachment:

Description of the change

Expert USQD WORKSHEET

Facility: Y007 **USQ Number:** Y007-11-005-D **Rev.** 0

Title: Install Three Vacuum Hose Reels in Rooms 120 and 127

Yes	No	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1. Could the proposed change increase the probability of occurrence of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2. Could the proposed change increase the consequences (to workers or the public) of an accident previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3. Could the proposed change increase the probability of occurrence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4. Could the proposed change increase the consequence of a malfunction of equipment important to safety previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	5. Could the proposed change create the possibility of an accident of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6. Could the proposed change create the possibility of a malfunction of equipment important to safety of a different type than any previously evaluated in the facility's safety basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7. Could the proposed change reduce a margin of safety?

Expert USQD Conclusion

Based on the answers above the change—

Does not constitute an Unreviewed Safety Question.

Does constitute an Unreviewed Safety Question.

Prepared: Davy Crockett *Davy Crockett* *Expert USQD Preparer* 4/1/11
 Print name Signature Title Date

Reviewed: Tennessee Yoda *Tennessee Yoda* *Expert USQD Reviewer* 4/1/11
 Print name Signature Title Date

Approved: Da Volunteer Boss *Da Volunteer Boss* *FM* 4/1/11
 Print name Signature Title Date

Description

A. Describe the aspects of the change being evaluated.

This Expert USQD evaluates the installation of three vacuum hose reels (non-EITS) in building Y007, room 120 and 127 (see attachment). Two reels will be mounted in room 127, one on the west wall and on the north wall at the existing vacuum line drop. A third reel will be mounted to column K-3 in room 120 at the existing vacuum line drop. These mounting points are part of the Building Structure (Safety Significant), which is described in DSA Section 2.1.5 and Ch. 4. The connection to the existing vacuum system (non-EITS) will be conducted in accordance with the *Procedure for Connecting Vacuum Systems in Y007*, which was previously evaluated in USQD Y007-10-004-D (ref. 1). No hazardous or radiological material is involved.

B. Basis for Conclusion. (Note to students: This is an example of an Expert USQD for a limited change to a Safety SSC that has minor impact on the system description.)

The proposed change does not impact the safety function, functional requirements, and performance criteria for the Building Structure (SS), see concurrence. The building response to natural phenomena is not affected by the proposed change. The reels themselves do not pose a risk to EITS or other credited controls. The material-at-risk and source terms assumed in the DSA remain unchanged. The change does not impact controls specified in TSR Table 5-2.

The associated interim-state hazards are of a type addressed in the DSA and typically controlled by standard safety management programs, as discussed in DOE G 424.1-1A.

Therefore, the proposed change does not present a change to the Safety Basis; it does not constitute a USQ.

C. List references used for the USQ determination.

1. Y007-10-004-D, April 1, 2010, *Procedure for Connecting Vacuum Systems in Y007*
2. Y007 DSA, March 1, 2011
3. Y007 TSR, March 1, 2011
4. Y007 SER, May 15, 2011

Concurrence:

The proposed change does not impact the safety function, functional requirements, and performance criteria for the Building Structure.

Mr. Strong Wall July 4, 2011

Mr. Strong Wall, Building Structure Engineer

Attachment:

Description of the change