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Expert Unreviewed Safety Question Determinations (USQD)

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Expert Unreviewed Safety Question Determinations (USQD)

EFCOG Semi-Annual Meeting

December 2012

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LLNL & Y-12 Expert USQD Pilots = *Success!*



- USQ Subgroup promoted application of Expert Unreviewed Safety Question Determination (USQD) process
 - Quicker, more cost-effective way of performing USQDs
 - Expert USQD process was determined to be a compliant method of expediting the USQ process, while reducing resource requirements
 - Best Practice Paper describing the process and providing training materials for its application
 - Presented as part of a process improvement panel at the 2012 Waste Management Symposium
- Process improvement helped DOE nuclear facilities respond to a series of high-priority initiatives
 - For example: Implementation of safety review corrective actions, Environment, Safety and Health (ES&H) procedural improvements and corrective actions, and contractual deliverables
 - Contractor management noted significant improvements in the USQ process turnaround time
 - Cost Savings: Y-12 Site estimated \$1 million savings in a year's time by application of this process
 - Compliance: LLNL successfully completed its pilot of Expert USQD process at all nuclear facilities with 100% compliance
- Path Forward: Several other sites have subsequently submitted Expert USQD processes to their local DOE for approval

LLNL & Y-12 Expert USQD Pilots = *Success!*



- LLNL Expert USQD Pilot Successful
 - All review criteria MET
 - Expert USQDs constituted 32% of all USQDs
 - Pilot included a sample of 204 USQDs
 - 65 Expert USQDs
 - 139 standard USQDs
 - Further pilots at LLNL unnecessary
 - Effectiveness Review reviewed 100% of Expert USQDs for 1st year of implementation
 - Effectiveness Review included a sample of 475 USQDs
 - 109 Expert USQDs (150 by finalization of report)
 - 366 standard USQDs
- Y-12 Expert USQD Pilots Successful
- Path forward
 - LLNL: Fully implemented
 - Y-12: Fully implemented
 - Other sites considering Expert USQD Process

Agenda



- Background: USQ Process
- Purpose of Expert USQD
- Expert USQD: EFCOG, NNSA, Y-12, and LLNL
 - LLNL Expert USQD Pilot
 - LLNL Expert USQD Pilot Review Criteria
 - Expert USQDs by Type of Change
 - Utilization of Expert USQDs in comparison to standard USQD
 - Utilization of Expert USQDs in comparison to standard USQDs for each nuclear facility/activity
 - Expert USQD: Measuring Success at LLNL
 - Conclusion: LLNL Expert USQD Pilot = Success!
 - Y-12 Expert USQD Process
 - Pilots - stats
 - Current Status
 - “Expert USQD”: Process Improvement at Y-12
 - “Expert USQD”: Measuring Success at Y-12
- “Expert USQD”: Performance & Path Forward
- USQ Process: Overall Path Forward



- USQDs require significant resources to prepare, review, and approve
 - Y-12 averages over 1100 USQDs per year (10 nuclear facilities)
 - LLNL typically 450 USQDs per year (6 nuclear facilities)
- *Recognized need to streamline USQ process across DOE Complex, great opportunity to become more efficient*
 - Series of off sites started in 2006, by Phil Montgomery (USQ SME), David Sheffey (Compliance Manager) and Kevin Carroll (Safety Analysis Department Head), aimed at improving efficiency of USQ process
 - Resulted in a new approach to reducing the # of Std. USQDs - Development of Expert USQD concept
 - 10 CFR 830.203 requires a DOE-approved USQ Process
 - Expert USQD Process not specifically discussed in DOE USQ Guide
 - Required DOE review and approval
 - Y-12, working with LLNL and EFCOG, developed Expert USQD Process, facilitate discussions across DOE Complex , and obtained buy-in from CDNS, CNS, HSS, etc.
 - D'Agostino (NA-1) approval was requested and obtained
 - Y-12 conducted Expert USQD Pilot, sharing lessons learned with LLNL
 - LSO approved LLNL Expert USQD Process
 - LLNL piloted Expert USQD Process

Purpose of Expert USQD



- Quickly determine, with minimal documentation, that a change is not a USQ (i.e., positive USQD)
- The intent is for Expert USQDs to be used as an efficiency measure when
 1. Negative USQD readily apparent to experienced USQD personnel (Experts)
 2. Conclusion easily and succinctly explained to someone familiar with facility
- Expert USQD Process limits preparation and review of Expert USQDs to a limited set of highly trained and experienced Experts who have experience in their facility



- Presented process and pilot data at EFCOG SAWG conferences
 - Incorporated comments from CDNS, CNS, DOE, DNFSB staff, SAWG, and others
 - Published in NNSA Technical Bulletins
- Approved by NNSA Administrator, D'Agostino
- Published by EFCOG as a Best Practice
 - EFCOG Best Practice 109, *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*
<http://www.efcog.org/bp/p/109.htm>

Note that this best practice paper includes training material and examples to support implementation of the Expert USQD process



- Review Expert USQDs completed during 6 month trial period (Pilot)
- All Expert USQDs prepared during Pilot reviewed for compliance with LLNL USQ Procedure
- Pilot is a requirement of NNSA/LSO and NNSA Administrator Thomas D'Agnostino in NA-1 approval of Expert USQD process
- LLNL Expert USQD process was approved on June 15, 2011, and implemented September 13, 2011
- Review Team: LLNL USQ SME, Safety Basis Division Institutional Reviewer of Superblock, and Safety Basis Deputy Division Leader

LLNL Expert USQD Pilot Review Criteria

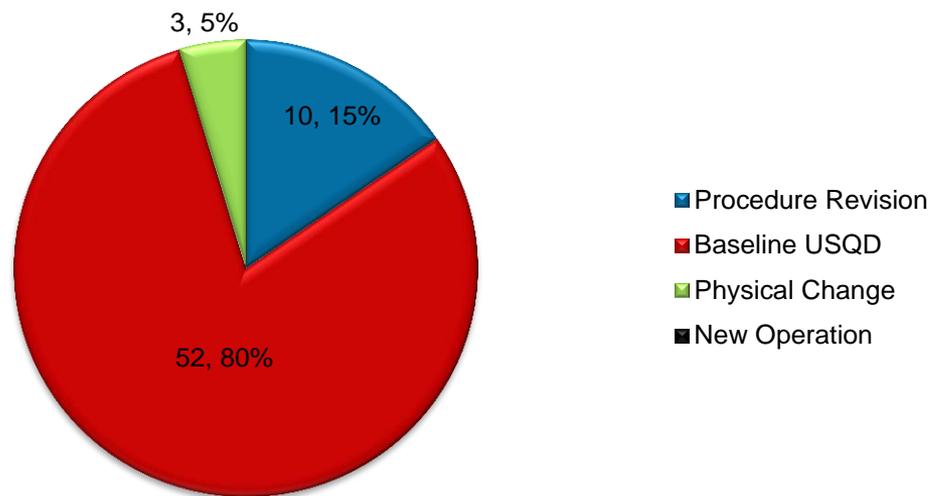


Questions answered during this monitoring activity:

1. Is the Expert USQD process being utilized? If so, is it being utilized properly?
 - a. Have the requirements of ES&H Manual Document 51.3 been met?
 - i. Has the Facility Manager (or designee) approved the Expert USQD Preparers and Reviewers for his or her facility?
 - ii. Has the Safety Basis Division Leader (or designee) concurred with the designation of Expert USQD Preparers and Reviewers?
 - iii. Has the Safety Basis Division Leader (or designee) evaluated the performance of the Expert USQD Preparers and Reviewers?
 - iv. Do the Expert USQD Preparers and Reviewers meet the qualification requirements of Section 5.12?
 - v. If Expert USQDs were conducted, do they meet the requirements of ES&H Manual Document 51.3?
 - vi. Was the official Expert USQD form in ES&H Manual Document 51.3 used properly?
 - vii. Are Expert USQDs being tracked in a manner that facilitates their inclusion on the annual list of USQDs submitted to DOE?



Expert USQDs by Type of Change

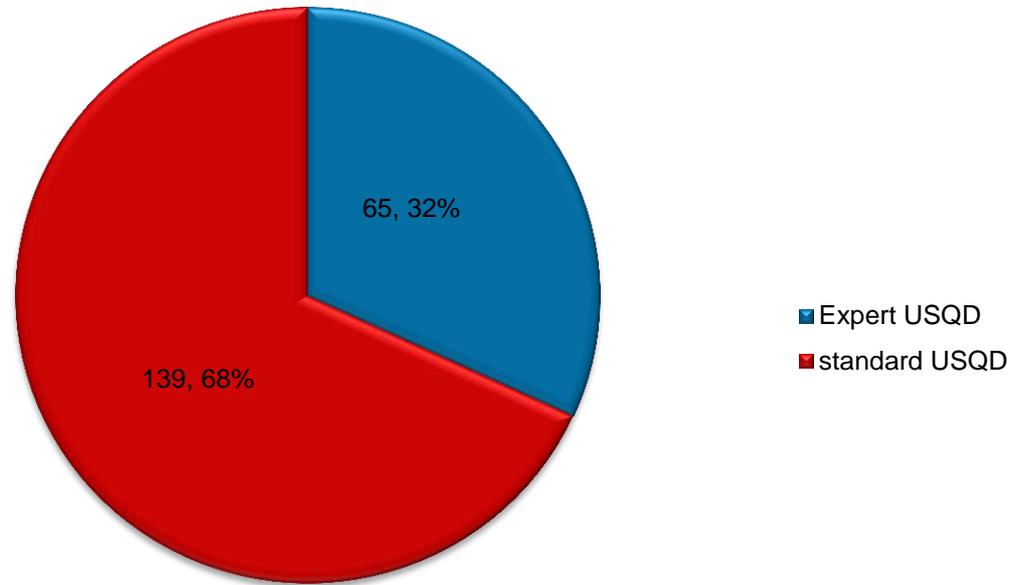


| Type of change | Sub-Type | Number | Percent of Total |
|-----------------------------|-------------------------|-----------|------------------|
| Procedure | | 62 | 95% |
| | Procedure Revision | 10 | 15% |
| | Procedure Baseline USQD | 52 | 80% |
| Physical change | | 3 | 3% |
| New activity/test/operation | | 0 | 0% |
| Total | | 65 | 100% |

LLNL Pilot Utilization of Expert USQDs in Comparison to Standard USQDs

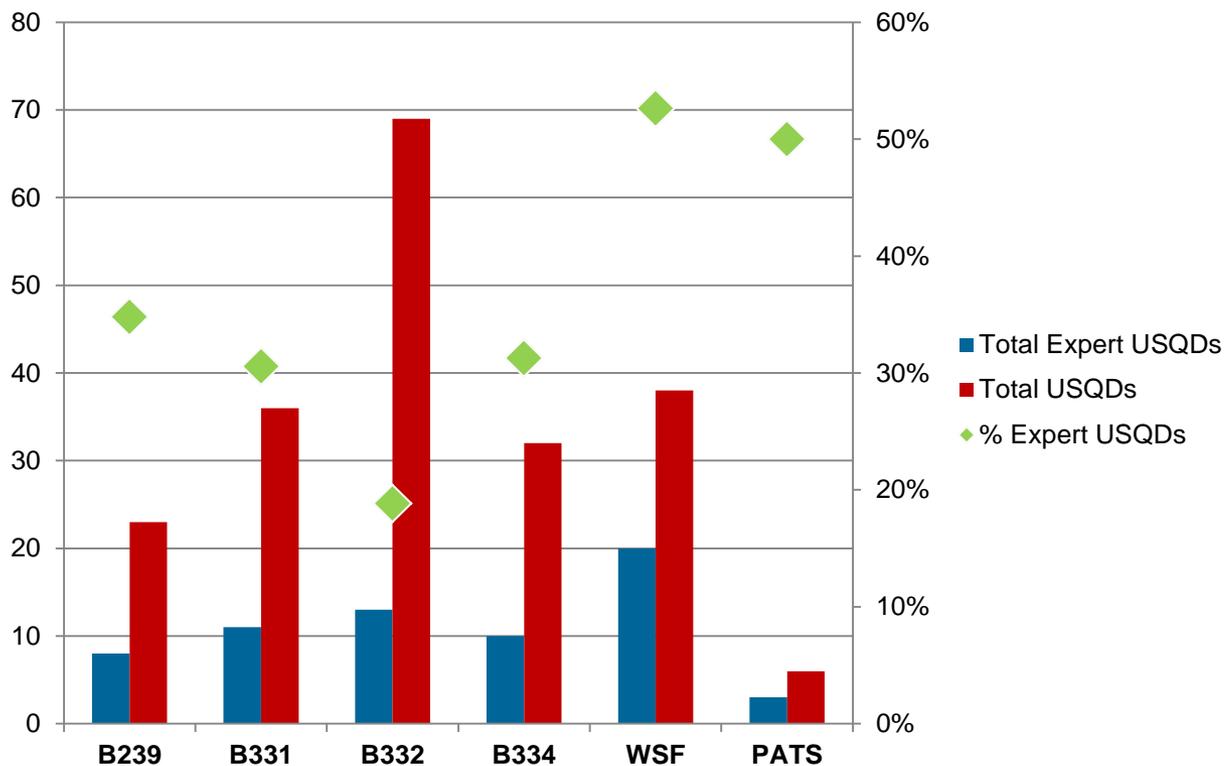


USQDs by Type



| Type of USQD | Number | Percent of Total |
|---------------|------------|------------------|
| Expert USQD | 65 | 32% |
| Standard USQD | 139 | 68% |
| Total | 204 | 100% |

LLNL Pilot Utilization of Expert USQDs



| | B239 | B331 | B332 | B334 | WSF | PATS |
|-----------------------|------------|------------|------------|------------|------------|------------|
| Expert USQD | 8 | 11 | 13 | 10 | 20 | 3 |
| Total USQDs | 23 | 36 | 69 | 32 | 38 | 6 |
| % Expert USQDs | 35% | 31% | 19% | 31% | 53% | 50% |



- Compliance to requirements
 - Expert USQD Process expedited USQ process while remaining Compliant
 - All LLNL nuclear facilities/activities successfully completed Pilot without a Finding
 - No non-compliant Expert USQDs, i.e., no Expert USQD prepared when a standard USQD was appropriate
 - All review criteria were successfully MET
 - Expert USQD Process is a best practice across DOE Complex as documented in EFCOG best practice paper which DOE and contractors are using as basis for implementation
- Efficiency Improvements
 - Improved responsiveness of USQ Process to rushes and turnaround time
- Degree of Implementation
 - Pilot: Sample of 204 USQDs
 - 65 Expert USQDs (32%)
 - 139 standard USQDs (68%)
 - Effectiveness Review reviewed of 100% of Expert USQDs for 1st year of implementation
 - Effectiveness Review included a sample of 475 USQDs
 - LLNL typically prepares 450 USQDs per year

Conclusion: LLNL Expert USQD Pilot = Success!



- Expert USQD Pilot successful
 - All review criteria MET
 - Expert USQDs constituted 32% of all USQDs
 - Pilot evaluation was representative
 - Further pilots at LLNL unnecessary
 - Expert USQD Effectiveness Review Plan reviewed of 100% of Expert USQDs for 1st year of implementation
- Expert USQD fully implemented at LLNL

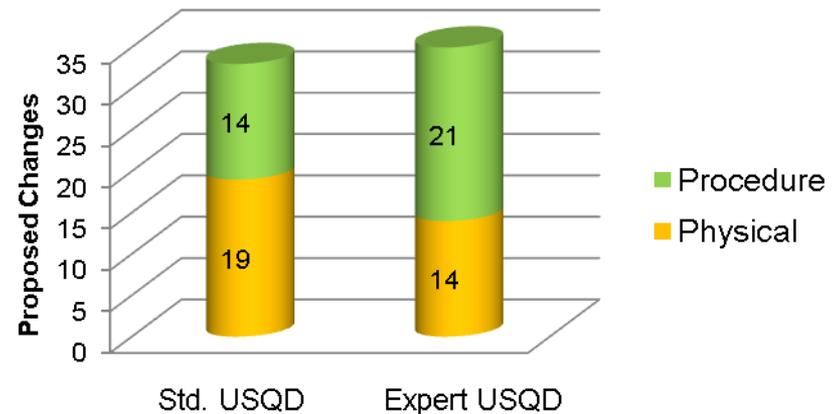
Y-12 Expert USQD Process



- Expert process not specifically discussed in DOE G 424.1-1B, *Implementation guide For Use In Addressing Unreviewed Safety Question requirements*
 - New approach required DOE review and approval
- Y-12 completed parallel pilots in two Y-12 facilities (2009-2010)
- Y-12 fully implemented the Expert USQD process late 2010

Y-12 Pilot Data

| | Procedures | Physical | All Changes |
|------------------------|------------|----------|-------------|
| Total Proposed Changes | 35 | 33 | 68 |
| Standard USQD | 14 | 19 | 33 |
| Expert USQD | 21 | 14 | 35 |
| Std. USQDs Eliminated | 60% | 42% | 51% |



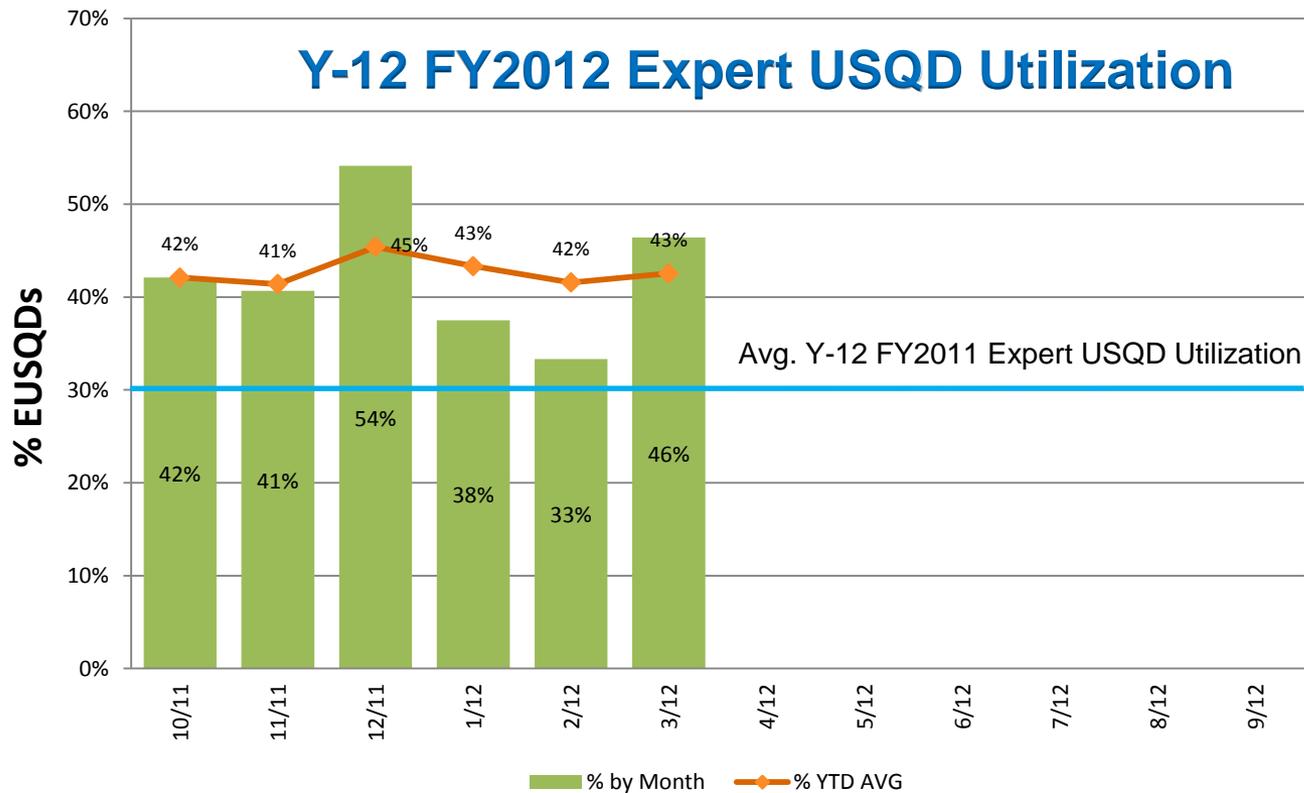
Expert USQDs were written for:

- 60% of all Procedure Changes
- 42% of all Physical changes
- 51% of all changes

Expert USQD: Process Improvement at Y-12



- FY2011 - 1st year of site-wide implementation
 - 30% Expert USQD utilization (353 EUSQDs)
- FY2012
 - 43% Expert USQD Utilization (1st six months, 237 EUSQDs)



Expert USQD: Measuring Success at Y-12



Success was gauged by multiple measures:

- Compliance
 - Are the documents compliant with the Y-12 Expert USQD Process? (Y74-809Pilot & Y74-809)
 - Pilots included 100% review
 - Full implementation reviews: 100% the first year – Second year phased into periodic management assessments and Y-12 Site Office (YSO) reviews
 - Assessment Results
 - No significant issues from assessments by DOE or contractors
 - To date, eight assessments were conducted at Y-12 (six by B&W Y-12 and two by the NNSA)

Expert USQD: Measuring Success at Y-12



Success was gauged by multiple measures (cont.)

- Efficiency Improvements
 - Is the new process more efficient?
 - Simple one-page form for certain types of changes compared to typical eight-page form for standard USQDs
 - Designated “Experts” quickly complete Expert USQDs vs. longer time for standard USQDs
 - Better utilization of limited resources to work on higher priority tasks
- Degree of implementation
 - Anticipated 30 – 50% utilization based on preliminary study prior to pilots
 - Pilots resulted in 51%
 - Year 1, yielded 30%
 - Year 2, to date 43%

Conclusion:

Y-12 Expert USQD Pilot & Implementation = *Success!*



- Expert USQD Pilot and full implementation successful
 - Assessment results indicated a very high degree of compliance
 - Expert USQDs constitute 43% of all USQDs this FY to date
 - Comparison data shows pilot evaluations were representative
 - Y-12 anticipated benefits are approximately \$1.2M/yr.
- Y-12 Path Forward
 - Maintain integrity and continuous improvement of Expert USQDs
 - Incorporate beneficial feedback
 - User suggestions, including DOE complex-wide input
 - Customer needs
 - Assessment OFIs and Issues
 - Assist other site's Expert USQD implementation efforts

USQ Process: Overall Path Forward



- In addition to Y-12 & LLNL, Expert USQ Processes are being considered, developed, or implemented at other sites across the DOE Complex:
 - ORNL
 - LANL
 - 3 Hanford contracts
 - Others
- EFCOG SAWG USQ Subgroup believes that the Expert USQD process will effectively streamline the USQ process while maintaining the necessary rigor to ensure the proposed activities that require DOE approval, obtain that approval



USQ Process: Overall Path Forward

- Other USQ Process improvement initiatives by SAWG's USQ Subgroup
 - Four best practice papers in progress, two completed previously
 - Providing input to DOE document revision process so as to improve interfaces and application of the USQ Process
 - 10 CFR 830.203, Unreviewed Safety Question Process
 - DOE-STD-3009, Criteria and Guidance for Preparation of U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety analyses
 - NNSA Technical Bulletins
 - HSS Paper
 - Others
 - Continue collaborating with DOE's National Training Center in developing a standardized USQ Process Training Course
 - Training has now been conducted at three sites (NTC, NNSS, Savannah River)
 - Contact the authors for more information on forthcoming classes
 - Sharing Expert USQD and other implementation experiences within the EFCOG community to minimize issues



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