

Best Practice #149

Best Practice Title: Best Practices in Categorical Exclusions Used in Implementing the USQ Process

Facility: EFCOG SAWG USQ Subgroup

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Brief Description of Best Practice: Best practices were developed in Categorical Exclusions used to efficiently and effectively implement the DOE Unreviewed Safety Question (USQ) Process.

Why the best practice was used: There are significant improvements in Categorical Exclusions used across the DOE Complex.

What are the benefits of the best practice: The USQ Subgroup believes that the proposed recommendations will help streamline the USQ process, increasing its efficiency, effectiveness, and timeliness. These best practices can be considered during revision of USQ procedures in relation to Categorical Exclusions.

What problems/issues were associated with the best practice: Many opportunities to expedite the USQ process exist in practices that some contractors may not be aware of. This best practice highlights changes for consideration.

How the success of the Best Practice was measured: This best practice paper has helped streamline the USQ process, increasing its efficiency, effectiveness, and timeliness.

Description of process experience using the Best Practice: See attached documentation of Categorical Exclusions best practices.

EFCOG SAWG USQ Subgroup

Best Practices in Categorical Exclusions (CatXs) Used in Implementing the USQ Process

Clarification of Sufficient Number of Signatures on CatXs

The application of a Categorical Exclusion (CatX) indicates that a specific DOE-approved CatX is appropriate for a proposed procedure revision or physical change. The application of the CatX can be documented with an approval signature from a USQ qualified individual. This signature may be on a standalone CatX form, proposed work control document, or a procedure revision. This is conducted by qualified USQ personnel. Appropriate emphasis may be placed on enforcement rather than additional documentation. 10 CFR 830 does not prescribe any formal or required screening element, but rather dictates only a USQ Determination when a change is identified. Given the “go-no-go” intent from the DOE USQ Guide, and clear cut implementation of CatXs in local USQ procedures, the decisions for identifying a change for which a CatX is appropriate should be relegated to a single signature as discussed above. See also Ref. 1.

Best Practice CatXs

The USQ Subgroup has been monitoring CatXs across the DOE Complex for approximately seven years. Table 1 is a list of best practice Categorical Exclusions that have emerged recently. Implementing these best practice CatXs can increase the efficiency, effectiveness, and timeliness of the USQ process. For reference, Table 2 details usage of CatXs across the DOE Complex prior to implementation of these best practices. This best practice paper builds upon a previous review (Ref. 2) confirming that the consensus of the DOE Complex is reflected in the DOE USQ Guide with respect to CatXs as a form of USQ Screening.

Main CatX Topics with detailed CatXs listed under each main topic:

- A. Editorial Changes to Administrative and Technical Procedures
- B. Editorial Changes to Engineering Documents and Drawings
- C. Maintenance
- D. Modifications
- E. Prior USQ Process/DOE Approval

References

1. *EFCOG Safety Analysis Working Group (SAWG) Recommendations White Paper to Improve the Unreviewed Safety Question Process*, EFCOG SAWG USQ Subgroup, 2010.
2. *USQ Procedure Summary Report*, EFCOG SAWG USQ Subgroup, 2006. Limited Distribution.

Table 1. Best Practice CatXs

A. Administrative and Technical Procedures¹

<p>Editorial Changes</p> <p>Editorial changes, as defined below, are excluded from further Unreviewed Safety Question (USQ) processing.</p> <p>Justification:</p> <p>As allowed by U.S. Department of Energy Guide DOE G 424.1-1B, "Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements," changes to procedures that have been shown to have inconsequential impact on nuclear safety (or the Safety Basis [SB]) may be excluded from further USQ processing. A change to a procedure that falls within the following guidelines is considered an editorial change:</p> <ol style="list-style-type: none"> 1. Correct typographical, spelling, or grammar errors, provided meaning or intent do not change. 2. Updates to individual names, organizational names, and contact information to reflect current responsibilities; changes to identified individuals (or organizations) with similar qualifications. 3. Non-content updates, additions, or deletions to references, procedural names, and numbers (title, 	<p>Editorial Changes</p> <p>Editorial changes, as defined below, are exempt from further USQ processing.</p> <p>Justification:</p> <p>As allowed by DOE G424.1-1A, changes to procedures that have been shown to have inconsequential impact on nuclear safety (or the safety basis) may be exempted from further USQ processing. A change to a procedure that falls within the following guidelines is considered an editorial change:</p> <ul style="list-style-type: none"> • Correct typographical, spelling, or grammar errors, provided meaning or intent do not change. • Updates to individual names, organizational names, and contact information to reflect current responsibilities; changes to identified individuals with similar qualifications. • Updates, additions, or deletions to references, procedural names, and numbers (e.g., title, revision number) that do not change content. • Format changes (e.g., 	<p>Editorial Changes</p> <p>The following types of non-technical changes, including editorial, are exempt from further USQ processing:</p> <ul style="list-style-type: none"> ▪ Correction of typographical, spelling, punctuation, or grammatical errors, provided the meaning or intent does not change. ▪ Changes to acronyms, definitions, references, or procedure title/ID number. ▪ Updates to position titles, individual names, organizational names, and contact information to reflect current responsibilities; changes to identified position titles with similar qualifications. ▪ Format changes including repagination, step or section number changes, multiple action steps separated into single action steps, splitting one procedure into multiple procedures, combining procedures, conversion to another procedure format (e.g., procedure format change such as converting an 			<p>Inconsequential Changes to Existing Documents</p> <p>Inconsequential Changes (as defined in the Categorical Exclusion Scope and Boundaries section) are excluded from further review in the USQ process.</p> <p>MINIMUM QUALIFICATION TO APPLY: Qualified USQ Evaluator or designated staff</p> <p>PREREQUISITES: Designated staff who may apply this CX shall be identified and approved by the Nuclear Safety Manager.</p> <p>CATEGORICAL EXCLUSION SCOPE AND BOUNDARIES: Inconsequential changes to existing documents are those that are:</p> <ul style="list-style-type: none"> • Correction of grammatical, typographical, or spelling errors that: <ul style="list-style-type: none"> – Do not affect numbers other than page, table, figure, title numbers, or obvious and
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¹ Note that editorial CatXs are also listed in the DOE National Training Center (NTC) USQ training, SAF-786, Objective 5.9.

<p>revision number, revision date, document number, reference number) only that do not change content.</p> <p>4. Format changes (repagination, step or section number changes, multiple action steps separated into single action per step, and replacing drawings or graphs with more legible versions).</p> <p>5. Adding clarification (adding descriptive language or examples, deleting extraneous text, removing redundant text) as long as the work process is not changed.</p> <p>6. Changes to portions of procedures that only impact non-nuclear facilities where the procedures may be applicable to both nuclear and non-nuclear facilities (e.g., institutional procedures). However, the changes must be limited to only editorial changes with respect to the nuclear facilities (i.e., Categorical Exclusion A applies).</p> <p>Clarification: Changes to non-nuclear facility portion of the procedures that may not impact nuclear facilities can be categorically excluded without restrictions. With respect to <i>[particular facility/activity boundary]</i>, portions of procedures within the <i>[particular facility/activity]</i> boundary constituting a hazard as described in the Documented Safety Analysis are considered within the nuclear facility, while portions that are outside the boundary as described in the activity</p>	<p>repagination, step or section number changes, multiple action steps separated into single action per step, and replacing drawings or graphs with more legible versions).</p> <p>Note: Changing the sequence of bullets within a step is not considered a step sequence change and can be Categorically Excluded. Furthermore, changing the sequence of administrative steps (e.g., sequence for acquiring signatures) is not considered a step sequence change. However, changing the sequence of a process (e.g., actual handling of materials, chemicals) is considered a step sequence change and cannot be Categorically Excluded.</p> <ul style="list-style-type: none"> • Adding clarification (e.g., adding descriptive language or examples, deleting extraneous text, removing redundant text) as long as the work process is not changed. 	<p>Integrated Work Document [IWD] and/or a Work Instruction [WI] into a Detailed Operating Procedure [DOP]) and replacing drawings or graphs with more legible versions).</p> <ul style="list-style-type: none"> ▪ Addition of clarifying text or notes to provide additional information or improve the procedure's readability (e.g., procedure readability such as adding descriptive language or examples, deleting extraneous text, removing redundant text) as long as the work process is not technically changed. ▪ Deactivation or cancellation of a procedure rendered obsolete because of its incorporation into (or replacement with) another procedure that is required to be evaluated through the USQ process. ▪ Deactivation or cancellation of a procedure that has become obsolete because of the completion of the task or mission for which it was created. ▪ Periodic review without revision of the technical content or application. <p>Examples of technical changes that are not covered by this categorical exclusion include changes to the purpose/scope, rearranging or removing process</p>			<p>demonstrable typographical errors. Changes in decimal points, units of measure or nameplate information/data are not inconsequential changes.</p> <ul style="list-style-type: none"> - Do not affect units of measure other than obvious and demonstrable typographical errors. - Do not affect acceptance criteria other than obvious and demonstrable typographical errors. - That did not translate correctly from the original source document due to software issues. <ul style="list-style-type: none"> • Updating position or organization names or titles, • Reword phrases, sentences, and paragraphs, • Change the format of the document (e.g., rearrange unnumbered lists of items, rescale items, move details to new sheets, pagination, table, or figure title number changes, etc.), • Add/update document references (provided changes to the references have already been appropriately
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<p><i>[details]</i> are considered to be within the non-nuclear facility. This CatX applies to changes whose effects are physically confined to areas other than the <i>[particular facility/activity]</i> boundary as described <i>[details]</i>; changes whose effects cross this boundary are considered to be within the nuclear facility.</p>	<ul style="list-style-type: none"> Changes to portions of procedures that only impact non-nuclear facilities. This is applicable only for procedures that apply to both nuclear and non-nuclear facilities, (e.g., institutional procedures, RHWM DAPs). This is applicable only for such changes that cannot impact nuclear facilities and are therefore editorial in nature with respect to the nuclear facilities. Changes in format of data, data recording, data sheets. 	<p>steps, the addition/modification of processes or equipment, the addition of new hazards (or increases to existing hazards), changes to controls, physical relocations of a process, the removal of regulatory requirements, and eliminating required reviews.</p> <p>Justification:</p> <p>As allowed by DOE G 424.1-1B, <i>Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements</i>, changes to procedures that have been shown to have no impact on nuclear safety (or the safety basis) may be exempted from further USQ processing. The types of changes listed above have no potential to adversely impact the safety basis because they do not involve any technical changes to nuclear facility processes or work steps.</p>			<p>USQ-reviewed), or</p> <ul style="list-style-type: none"> Add, change, delete or clarify notes or cautions that do not direct operator actions. <p>AND</p> <p>Provided the Inconsequential Changes do not:</p> <ul style="list-style-type: none"> Make any technical changes, Change the meaning, overall scope, or purpose of the existing documents or drawings, Create a new procedure, document, or drawing, or Change a Technical Safety Requirement or its bases. <p>JUSTIFICATION: Inconsequential Changes under this categorical exclusion do not make technical changes to procedures or change the facility. Therefore, these changes cannot lead to a condition that could be a USQ.</p>
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Proposed Variation of Editorial CatX: Changes to portions of procedures that only impact other nuclear facilities different from the specific nuclear facility that the change is being reviewed against. This is applicable only for procedures that apply to multiple nuclear facilities. This is applicable only for such changes that cannot impact the specific nuclear facility and are therefore editorial in nature with respect to the specific nuclear facility.

B. Engineering Documents and Drawings²

<p>Editorial Changes</p> <p>Engineering document and drawing changes, as defined below, are excluded from further USQ processing.</p> <p>Justification:</p> <p>As allowed by DOE G 424.1-1B, changes to documents and drawings that have been shown to have inconsequential impact on nuclear safety (or the SB) may be excluded from further USQ processing. A change to an engineering document and drawing that falls within the following guidelines is considered an editorial change having inconsequential impact on nuclear safety (or SB):</p> <p>Correct typographical, spelling, or grammatical errors, including symbols (provided meaning or intent is not changed)</p> <p>Updates to individual names, organizational names, and contact information to reflect current responsibilities; changes to identified individuals with similar qualifications</p> <p>Non-content updates or additions to references and/or document traceability references (title, revision number, revision date, document number, reference number) only that do not change content</p> <p>Format changes (repagination, rescale items, move details to new sheet)</p>	<p><i>[Not subject to USQ process as the physical changes themselves are submitted to the USQ process, per DOE-approved USQ procedure and NNSA Technical Bulletin]</i></p>	<p>Editorial Changes</p> <p>Engineering document and drawing changes, as defined below, are exempt from further USQ processing.</p> <ol style="list-style-type: none"> 1. Correct typographical, spelling, or grammar errors, including symbols (provided meaning or intent is not changed). 2. Updates to individual names, organizational names, and contact information to reflect current responsibilities. Changes to identified individuals with similar qualifications. 3. Non-content updates, additions or deletions to references, drawing numbers and titles, and/or document traceability references (e.g., title, revision number) only that do not change content. 4. Format changes (e.g., repagination, rescale items, move details to new sheet). 5. Adding clarification (e.g., adding descriptive language or examples, deleting extraneous text, removing redundant text) as long as the technical meaning of the document or drawing is not changed. <p>Justification:</p> <p>As allowed by DOE G 424.1-1B, <i>Implementation Guide for Use in Addressing Unreviewed Safety Question</i></p>		<p>Inconsequential Changes to Existing Documents</p> <p><i>See Inconsequential Change CatX above.</i></p>
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² Note that editorial CatXs are also listed in the DOE National Training Center (NTC) USQ training, SAF-786, Objective 5.9.

		<p><i>Requirements</i>, changes to documents and drawings that have been shown to have an inconsequential impact on nuclear safety (or the safety basis) may be exempted from further USQ processing. A change to an engineering document and drawing that falls within the following guidelines is considered an editorial change having inconsequential impact on nuclear safety (or safety basis).</p>		
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B. Maintenance³

<p>Maintenance</p> <p>Routine maintenance activities do not require review under Title 10 Code of Federal Regulations (CFR) Part 830, Subpart B, Paragraph 203, “Unreviewed Safety Question Process.” CatX documentation is required only as defined below. DOE G 424.1-1B states, “It is important to distinguish between changes and routine maintenance activities. Routine maintenance activities—except those that are not enveloped by current analyses or that might violate a technical safety requirement (TSR)—do not require review under 10 CFR 830.203.” Thus, maintenance activities, as defined below, are excluded from further USQ processing.</p> <p>Justification:</p> <p>A basic premise of performing maintenance is that the plant will be restored to the exact same condition it was in prior to maintenance. That is, the functional capability will continue to meet or exceed those performance requirements set forth in the SB. DOE G 424.1-1B states:</p> <p style="padding-left: 40px;">It is important to distinguish between changes and routine maintenance activities. Routine maintenance activities—except those that are not enveloped by current analyses or that might violate a technical safety requirement (TSR)—do not require review under 10 CFR 830.203. A TSR limitation on maintenance activities might require limiting the number of systems or components that can be taken out of service at one time or allowable outage times.</p>	<p>Maintenance</p> <p>Although routine maintenance activities do not require review under 830.203⁴, Categorical Exclusion documentation is required as defined below.</p> <p>Justification:</p> <p>DOE G424.1-1A states, “It is important to distinguish between changes and routine maintenance activities. Routine maintenance activities – except for those activities that are not enveloped by current safety analyses or that might violate a technical safety requirement (TSR) – do not require review under 10 CFR 830.203.”</p> <p>DOE G424.1-1A further states, “routine maintenance activities include calibration, refurbishment, replacement with an equivalent component, and housekeeping.”⁵ However, this allowance for routine maintenance can cause confusion over proper application of the USQ process to physical changes. Accordingly, part replacements shall be entered into the USQ process, with an appropriate allowance for categorical exclusions, to ensure all physical changes enter the USQ process. The definition of routine maintenance that can be dismissed without application of a Categorical Exclusion therefore consists only of housekeeping, calibration, lubrication, inspection, or testing. Performance of maintenance that does not change components does not enter the USQ process.</p> <p>Changing of parts that can be considered routine maintenance per the language of DOE G424.1-1A shall enter the USQ</p>	<p>Maintenance</p> <p>Routine maintenance is that type of maintenance activity that does not create an interim or final state or condition that may adversely impact Equipment Important to Safety (EITS) or the safety basis by introduction of materials, equipment, or processes during its performance.</p> <p>Justification:</p> <p>Maintenance suitable for Categorical Exclusion does not provide for wholesale exclusion of general classes of maintenance such as preventive maintenance, periodic maintenance, scheduled maintenance, or corrective maintenance. Such maintenance can result in the unacceptable introduction of materials, equipment, or processes in the vicinity of EITS, with a potential for interaction with EITS during performance of the maintenance activities (e.g., introduction of flammables, high pressure sources, electrical signal components that may interfere with solid state component outputs, 2-over-1 installations, etc.), which has not been analyzed previously.</p> <p>Those procedures that satisfy the criteria for inclusion into this routine maintenance categorical exclusion must be reviewed on a case-by-case basis. DOE G 424.1-1B, Implementation Guide for Use in Addressing Unreviewed Safety Question</p>		<p>Maintenance and Operations Performed During Shutdown Mode</p> <p>This categorical exclusion allows certain maintenance and operational activities, and certain temporary modifications, as defined by the scope of this categorical exclusion, to be excluded from further review in the USQ process.</p> <p>MINIMUM QUALIFICATION TO APPLY: Qualified USQ Evaluator</p> <p>PREREQUISITES: This categorical exclusion may only be applied to activities and temporary modifications performed while the facility is in Shutdown Mode, as defined in Technical Safety Requirements.</p> <p>CATEGORICAL EXCLUSION SCOPE AND BOUNDARIES: The following activities, when performed while the facility is in Shutdown mode only, are in scope of this Categorical Exclusion:</p> <ul style="list-style-type: none"> • Preventive or corrective maintenance activities, including the erection of scaffolding and hot work; welding, cutting, and grinding. • Temporary facility modifications that will be restored prior to mode change. • Testing and troubleshooting. • Facility systems operations, including: <ul style="list-style-type: none"> ○ valve manipulation, ○ pumping of water or non-radiological materials, ○ operation of building A1 and A2 ventilation systems including the chilled water and heating
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³ Note that Maintenance CatXs for exact replica, AEPs, and common commercial practices are also listed in the DOE National Training Center (NTC) USQ training, *SAF-786*, Objective 5.9.

⁴ Note, however, that any activity, maintenance included, is subject to review under 830.203 if it introduces a new or unusual hazard to the facility (e.g., lifting heavy objects with a crane, introduction of unanalyzed explosive gases). In such cases, it is not the maintenance activity itself that is being assessed, but the damage/malfunction potential associated with the new or unusual hazard.

⁵ Housekeeping includes janitorial services (e.g., sweeping, mopping, waxing, collecting trash, changing room illumination light bulbs).

<p>Routine maintenance activities include calibration, refurbishment, replacement with an equivalent component, and housekeeping. However, some maintenance activities may constitute changes, such as plant heat exchanger tube plugging where limits are not specified.</p> <p>The following are considered routine maintenance to which this CatX applies:</p> <ol style="list-style-type: none"> 1. Calibration, refurbishment, and/or installation of an exact replica or an item on the facility Approved Equivalent Parts (AEP) list under the facility AEP process. These are routinely planned and performed maintenance activities that do not result in modification and that return the facility to its original condition. 2. Housekeeping and janitorial services such as sweeping, mopping, waxing, or collecting trash when these activities are reflected in documents subject to the USQ process. <p>NOTE: The following CatX cannot be applied in situations where maintenance activities could cause "changes to the facility" during execution.</p> <ol style="list-style-type: none"> 3. Routine maintenance when common commercial practices would suffice, and a formal nuclear grade change control process is not warranted. Routine maintenance includes those maintenance activities that already are enveloped by the current SB as identified in the hazards analysis of the Documented Safety Analysis (DSA). 	<p>process. These activities are: (1) installation of an exact replacement or an item on the Approved Equivalent Parts List (AEP) in equipment important to safety (EITS) as defined for a given DSA and (2) installation of any broadly applicable commercial replacement part in non-EITS. Replacement activities not meeting this definition are considered modifications.</p> <p>The following categorical exclusions are provided for these activities:</p> <ol style="list-style-type: none"> 1. Installation of an exact replacement or an item on the facility approved equivalent parts list in SSCs identified on the DOE approved list of equipment important to safety for a given DSA. 2. Installation of a broadly applicable commercial replacement part in SSCs not identified on the DOE approved list of equipment important to safety for a given DSA. <p>Note: A broadly applicable commercial replacement part can be either standard consumables generally available at hardware stores or low-level industrial suppliers, or specialized equipment such as bearings, fan belts, valve internals, fuses, roughing filters, wires, relief valves, etc. Non-EITS components are neither relied upon by the DSA to minimize consequences or frequencies nor considered significant supporting features. Furthermore, they are treated as generic initiators with no special pedigree in hazard analyses. As a result, work control and configuration management practices are adequate to ensure reliable</p>	<p><i>Requirements</i>, states that "routine maintenance activities include calibration, refurbishment, replacement with an equivalent component, and housekeeping."</p> <p>This CatEx cannot be applied in situations where maintenance activities could cause "changes to the facility" during execution.</p> <ul style="list-style-type: none"> ▪ Routine maintenance includes those maintenance activities that already are enveloped by the current safety basis as identified in the hazards analysis of the Documented Safety Analysis (DSA). Routine maintenance as described above is excluded from further USQ processing with the provision of this categorical exclusion. <p>Engineered Equivalents</p> <p>This CatEx applies to any replacement of an SSC with an exact replacement SSC or replacement of an SSC with an SSC that has been documented as an Engineered Equivalent in accordance with the current LANL EED procedure. The interim state of the replacement process, including any equipment outages, must be reviewed by a USQ QEV to ensure it remains within the safety basis.</p> <p>Justification: Those parts determined to be equivalent parts in accordance with Laboratory EED Process do not require further evaluation under 10 CFR 830.203, Unreviewed Safety Question Process. The engineered equivalency process is used to determine and ensure that a replacement part is at least equal to the original item. An equivalent part exhibits the same form, fit, function, and failure modes as the item</p>		<p>systems, A1 filter change out, and flow balancing activities,</p> <ul style="list-style-type: none"> ○ sampling activities of water or non-radiological materials (excluding process condensate), ○ crane operations, including removal of coverblocks, ○ activation of facility steam, water, air, or antifoam systems, and ○ operation or monitoring of process instrumentation, including surveillance and troubleshooting. <p>Any work or operation that permanently modifies the facility is not in the scope of this Categorical Exclusion and requires a USQ evaluation. This Categorical Exclusion does not cover any interfacing activity with <i>[other facilities]</i>, including sending any material to or receiving any material from <i>[other facilities]</i>, or the control or operation of any equipment from the <i>[other facilities]</i>. Additionally, this Categorical Exclusion does not cover activities associated with the process condensate or vessel vent systems in the <i>[facility]</i>. Specifically, the following activities are not in scope of this Categorical Exclusion, and must be reviewed separately by the USQ process:</p> <ul style="list-style-type: none"> • Any permanent modification made to the facility, • Any activity that pumps or drains water or any other material to the <i>[other facilities]</i>, including any activity that releases material to a floor drain in the facility that drains to <i>[other facilities]</i>, • The transfer of any material from <i>[facilities]</i> to <i>[other facilities]</i>, • Any activity that adds water or any other material to the A-1 vessel, recirculation loop or
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	<p>components are installed. Finally, the restriction below to existing sub-component replacement as opposed to wholesale SSC replacement or reconfiguration should avoid adding unidentified hazards or potential interactions that may affect EITS,</p> <p>The restrictions on application of Categorical Exclusion C.2 are:</p> <p>a. The system under consideration cannot be EITS as defined by the list approved by DOE for a given DSA</p> <p>b. The replacements involved shall consist only of sub-components of a defined SSC. Wholesale replacement of fans, boilers, etc. is not consistent with the definition in DOE G424.1-1A for refurbishment or component replacement and shall be treated as a modification under Section D of this Appendix.</p> <p>c. Utility rerouting external to the SSC is not covered by this Categorical Exclusion as it may affect other SSCs. [Note: The individual part replacement(s) and utility rerouting may be submitted separately to the USQ process.]</p> <p>d. The output parameters of the SSC for which subcomponents</p>	<p>it replaces, but it is not an exact replacement and does not adversely affect the safety basis.</p>		<p>process condensate tank C-1,</p> <ul style="list-style-type: none"> • Any activity that affects the physical or chemical properties of process condensate or vessel vent gases, • Any activity that causes process condensate to be pumped or causes the vessel vent system to be operated or shut off, • Any activity that breaches or alters in any way the process condensate system, including process condensate piping, tank C-1, or the vent line between -C-1 and tank C-103, or breaches or alters the vessel vent system including; the shell side of the E-C-1, E-C-2 or E-C-3 condensers, vessel vent piping, filters F-C-5-1 and F-C-5-2, deentrainer/demister unit DU-C-1, heater H-C-1, exhaust fan EX-C1, vessel vent stack or stack sampling monitoring system or ammonia monitor AM-NH3-1, • Any activity that manipulates <i>[facility]</i> equipment from the <i>[other facilities]</i>. <p>JUSTIFICATION: The material at risk during Shutdown Mode is insufficient for activities within the scope of this categorical exclusion to be a USQ.</p> <p>Note: The facility is a Haz Cat 2 nuclear facility with Shutdown Mode defined in its TSR. In the Shutdown Mode, there is no MAR in the facility.</p>
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	<p>are replaced shall remain unchanged (e.g., temperature or pressure achievable by a unit must not change, downstream pressure for a compressed air system must not change).</p> <p>Exception: Where the change involves unique high energy interim state hazards (e.g., use of cranes, large object lifting over a glovebox), a USQD is required.</p>			
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C. Modifications⁶

Modification	Modification	Modification		Modification Activities
<p>Changes to buildings, structures, or components that are not EITS and clearly cannot affect the proper operation of safety systems discussed in the facility SB, as defined below, are excluded from further USQ processing.</p> <p><u>Justification:</u></p> <p>The following changes do not have the potential to invalidate the SB:</p> <p>Changes that are physically confined to offices and administrative areas that do not introduce new hazards cannot affect the proper operation of safety systems discussed in the facility SB and for which common commercial practices would suffice.</p> <p>Changes for which a nuclear grade change control process is not warranted, that do not introduce new hazards, and for which common commercial practices would suffice (e.g., changing fixtures for fluorescent lighting in a control room of the facility).</p>	<p>Modifications explicitly require review under 830.203. The only modifications exempt are those listed below:</p> <ol style="list-style-type: none"> 1. Changes for which a nuclear grade change control process is not warranted: <ol style="list-style-type: none"> A. Changes that are physically confined to offices and administrative areas. B. Changes that do not introduce new hazards and for which common commercial practices would suffice (e.g., changing fixtures for fluorescent lighting in a control room of the facility). 	<p>Modifications explicitly require review under 10 CFR 830.203, <i>Unreviewed Safety Question Process</i>. The only modifications exempt are those listed below. This CatEx cannot be applied in situations where modification activities could cause “changes to the facility” during execution.</p> <ol style="list-style-type: none"> 1. Changes for which a nuclear grade change control process is not warranted. <ol style="list-style-type: none"> a. Changes that are physically confined to offices and administrative areas. b. Changes that do not introduce new hazards and for which common commercial practices would suffice (e.g., changing fixtures for fluorescent lighting in a control room of the facility). c. Changes that are physically confined outside the nuclear facility’s building structure that cannot affect the building structure, cannot affect outside SSCs (e.g., utilities, fire suppression system backup water supplies, emergency diesel generators) relied upon by the nuclear facility, do not create any interaction potentials with the nuclear facility, and for which common commercial practices would 		<p><i>Facility specific CatX</i></p>

⁶ Note that CatXs for changes when common commercial practices would suffice are also listed in the DOE National Training Center (NTC) USQ training, SAF-786, Objective 5.9.

		suffice.		
<p>Installation and Modification of Non-EITS Structures, Systems, and Components</p> <p>1. Diagnostic Cable Categorical Exclusion. Changes whose effects are physically confined to diagnostic cable fabrication, install, transport, routing, and connections and disconnections. Diagnostic cable does not serve a safety function and therefore would not impact EITS and would not impact radioactive material or collocated explosives.</p> <p>NOTE: This CatX and its limitations were evaluated in USQDs: [USQDs] This exclusion applies to the following systems at [facility A] and [facility B]:</p> <p>[facility A]:</p> <ul style="list-style-type: none"> • [particular] equipment <p>[facility B]:</p> <ul style="list-style-type: none"> • [particular] diagnostics • [particular] equipment <p>Clarification: Consistent with the intent of the USQ process, that screening is a simple go/no go decision process, manipulation of diagnostic cabling for systems that are considered in an approved DSA do not introduce interim state hazards and do not constitute a change to the facility as described in the DSA and can be screened out of the USQ process.</p>				

D. Prior USQ Process/DOE Approval

<p>Prior USQ Process (USQD & DOE)</p> <p>Changes that have previously undergone the USQ process, as defined below, are excluded from further USQ processing:</p> <p>NOTE: USQ Preparers should use care when utilizing CatX E.1 for WPs to implement facility modifications that were reviewed under a USQD. USQ Preparers should ensure that the work activities associated with the implementation of a facility modification are covered in the USQD. That is, if only the design of the facility modification is reviewed by the USQD, a CatX cannot be utilized for the work related to implementation.</p> <p>A. The change, considering location differences, has been fully evaluated by a previously approved USQD or applicable NNSA approval letter. This includes implementation documents as they only provide a means to identify specific work to be performed but do not change the scope of work.</p> <p>B. Analytical/Diagnostic Quality. Changes to a procedure or activity that only affect analytical/diagnostic quality. The analytical/diagnostic quality aspect has no safety aspect.</p> <p>Clarification: Consistent with the intent of the USQ process, this CatX does not apply if the diagnostic system is being changed or removed. Changes to a procedure, checklist, or activity that involve analytical/diagnostic quality of equipment or process can be</p>	<p>Prior USQ Process (USQD & DOE)</p> <p>Changes that have previously undergone the USQ process, as defined below, are exempt from further USQ processing. For application of this Categorical Exclusion, the applicable document (e.g., prior USQD, DOE approval letter, OSP, FSP, SRP, CSAM) shall be indicated in the CatX block.</p> <p>1. The change, considering location differences, has been fully reviewed by a previously approved USQ screening, USQD (Expert or standard USQD), or applicable DOE approval letter. This includes implementation documents as they only provide a means to identify specific work to be performed but do not change the scope of work.</p> <p>2. Activities/Operations authorized by the facility safety basis: activities/operations described in the facility FSP, an existing OSP, or other approved documents (including procedures) that has been subjected to the USQ process.</p> <p>3. Changes to procedures involving only: (1) addition or deletion of existing standard criticality control conditions (e.g., SCCC A,B,C, D...) for an activity previously evaluated by the USQ process, or (2) changing workstation specific controls under the same SCCC for an activity previously evaluated by the USQ</p>	<p>Product Quality</p> <p>The following changes, as defined below, are exempt from further USQ processing.</p> <p>1. Revisions to a procedure (which has previously undergone the USQ process) reflecting only an approved Criticality Safety Evaluation (CSE) (containing an activity that has previously undergone the USQ process) under the facility's Criticality Safety Program.</p> <p>Clarification: Consistent with the intent of the USQ process, this categorical exclusion does not apply if the operation itself is being changed (e.g., going from microscope examination to lapping operations). It applies if only criticality controls are being changed within the context of the same operation previously evaluated by the USQ process, when the criticality safety program has approved those changes.</p> <p>2. Changes to a procedure or activity that only affect product quality where the procedure or activity has been fully evaluated by a previously approved USQ screening, USQD, or applicable DOE approval letter.</p> <p>Clarification: Consistent with the intent of the USQ process, this categorical exclusion does not apply if the operation itself is being changed (e.g., going from hand lapping to casting).</p> <p>3. Changes to a procedure or activity that only affect analytical quality</p>	<p>Categorical Exclusion for Document Changes that Implement Safety Bases</p> <p>Changes to existing and issuance of new procedures: technical documents, administrative documents; drawings, and other supporting documents that only implement a new or revised DOE-SRS approved safety basis are excluded from review in the USQ process.</p> <p>MINIMUM QUALIFICATIONS TO APPLY:</p> <p>Qualified USQ Reviewer as defined in 11Q 1.05.</p> <p>PREREQUISITES:</p> <p>The accuracy of the proposed technical changes has been verified.</p> <p>SCOPE AND BOUNDARIES:</p> <p>This Categorical Exclusion applies only to changes being made to initially implement new or revised portions of a safety basis as approved by DOE-SRS.</p> <p>This Categorical Exclusion does not apply to:</p> <p>Changes to documents unrelated to initial implementation of DOE-approved SB requirements;</p> <p>Changes to, or issuance of documents to perform tasks other than implementation of an approved SB change;</p> <p>Activities in the affected procedures, technical documents, administrative documents, drawings, and other supporting documents not explicitly identified and addressed in the safety basis change submittal;</p> <p>Implementation of changes to documents prior to the implementation date of the SB;</p> <p>Design Change Packages, Design Change Forms, other design documents, and Temporary Modifications related to an SB change or work instructions that implement them.</p>	<p>Changes that are Within the Scope of a Previously Evaluated Negative USQ Determination</p> <p>This Categorical Exclusion allows changes that are within the scope of a previously evaluated negative USQ determination, as defined by the Categorical Exclusion Scope and Boundaries section, to be excluded from further review in the USQ process.</p> <p>MINIMUM QUALIFICATION TO APPLY: Qualified USQ Evaluator</p> <p>PREREQUISITES: This categorical exclusion may only be applied for changes where the original document has been previously evaluated in a negative USQ determination and the proposed change is within the scope of the USQD that was prepared for the original document.</p> <p>CATEGORICAL EXCLUSION SCOPE AND BOUNDARIES: Proposed changes that are within the scope of a previously evaluated negative USQ determination applicable to the [<i>facilities listed</i>], are within the scope of this categorical exclusion, where:</p> <ul style="list-style-type: none"> The original document was evaluated in a negative USQD; The proposed change falls entirely within the scope of the previous USQD that was prepared for the original document and does not necessitate any changes be made to the previous USQD. [Exception: This categorical exclusion can be applied if the only change to the USQD is to update the revision number of the document (e.g., Rev. A-1 to A-2).] <p>JUSTIFICATION: Based on the results of a negative USQ determination, changes that meet the criteria specified in the Categorical Exclusion Scope and</p>
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<p>categorically excluded. For example, changes to the following parameters that are within those previously evaluated may be categorically excluded: response times and tolerances for analytical/diagnostic equipment; diagnostic quality of monitoring equipment in Screen or control rooms; changing steps in a procedure for data collection sequence. This exclusion applies to the following systems at [facility A] and [facility B]</p> <p>NOTE: This CatX cannot be used for physical or component changes with the systems. This CatX and its limitations were evaluated in USQDs: ...</p> <p>[facility A]:</p> <ul style="list-style-type: none"> [particular] equipment <p>[facility B]:</p> <ul style="list-style-type: none"> [particular] diagnostics [particular] equipment <p>3. Facility-specific procedures that implement a site wide safety management program procedure that has been previously evaluated by USQD. For new or revised procedures that directly implement a site wide safety management program procedure, a consistency review is required, but no USQD review is required.</p> <p>Clarification: Consistent with the intent of the USQ process, that screening is a simple go/no go decision process. A facility implementing procedure for a site wide safety management program that are</p>	<p>process.</p> <p>Clarification: Consistent with the intent of the USQ process, this categorical exclusion does not apply if the operation itself is being changed (e.g., going from microscope examination to lapping operations). It applies if only criticality controls are being changed within the context of the same operation previously evaluated by the USQ process, when the criticality safety program has approved those changes.</p> <p>4. Product Quality/Specifications. Changes to a procedure or activity that only affect product quality/product specifications where the procedure or activity has been fully reviewed by a previously approved USQ screening, USQD (Expert or standard USQD), or applicable DOE approval letter. For example, changes to the following parameters that are within those previously evaluated: thickness of material to remove via lapping; height, weight, width, and/or shape of a sample to cut; specification of surface roughness for polishing; and acceptable tolerances for parts.</p> <p>Clarification: Consistent with the intent of the USQ process, this categorical exclusion does not apply if the operation itself is being changed (e.g., going from hand lapping to casting).</p>	<p>where the procedure or activity has been fully evaluated by a previously approved USQ screening, USQD, or applicable DOE approval letter.</p> <p>Clarification: Consistent with the intent of the USQ process, this categorical exclusion does not apply if the operation itself is being changed (e.g., going from dissolving in water to adding boiling nitric acid).</p>	<p>BASIS AND INTENT:</p> <p>This CX excludes proposed activities that have been approved by DOE-SRS. Since DOE-SRS has approved these activities, no further USQ review is required and these activities cannot represent a USQ.</p> <p>Some document changes may result in interim conditions that were not explicitly considered by the DOE-SRS during the safety basis change. This categorical exclusion does not exempt those conditions from USQ review.</p> <p>The scope of changes under this categorical exclusion is limited such that excluded changes cannot represent a USQ. The changes excluded by this categorical exclusion are limited to those necessary to initially implement a new or revised DOE-approved SB, i.e., the CX may not be utilized for subsequent changes.</p>	<p>Boundaries section cannot credibly result in a positive USQ.</p> <p>Categorical Exclusion to Allow Procedures to be Revised to Incorporate DOE Approved Safety Basis Changes</p> <p>This Categorical Exclusion allows DOE-approved safety basis changes to be incorporated into procedures, technical documents, administrative documents, drawings, Engineering Documents, and other supporting documents to be excluded from the USQD process.</p> <p>MINIMUM QUALIFICATION TO APPLY: Qualified USQ Evaluator.</p> <p>PREREQUISITES: The accuracy of the proposed technical changes to TOC documents has been verified.</p> <p>CATEGORICAL EXCLUSION SCOPE AND BOUNDARIES: This Categorical Exclusion applies only to initially implement new or revised safety basis changes as approved by DOE, provided the changes are effective with or following the implementation of the safety basis changes.</p> <p>This Categorical Exclusion does not apply to:</p> <ul style="list-style-type: none"> Changes to documents unrelated to implementation of ORP approved safety basis changes and Implementation of changes to documents prior to the effective date of the safety basis changes. <p>JUSTIFICATION: The USQ process is used to determine the approval authority for changes. Changes to implementing documents resulting from DOE-approved</p>
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<p>compared for consistency does not constitute a change in a procedure as described explicitly or implicitly in the DSA and the change can be Categorically Excluded.</p>				<p>safety basis changes are in effect DOE-approved changes, and therefore, no further USQ review is required since these activities cannot represent a USQ.</p>
			<p>Cancellation of Procedures for Equipment That Has Been Permanently Abandoned or Removed</p> <p>Procedures associated with equipment permanently abandoned or removed may be cancelled without further USQ review.</p> <p>MINIMUM QUALIFICATIONS TO APPLY:</p> <p>Qualified USQ Reviewer as defined in 11Q 1.05.</p> <p>PREREQUISITES:</p> <p>The SSC has been permanently abandoned or removed and the procedure does not affect remaining equipment.</p> <p>SCOPE AND BOUNDARIES:</p> <p>This Categorical Exclusion applies only to procedure cancellations for equipment that can no longer be utilized and its permanent abandonment or removal has been USQ reviewed. Equipment is permanently abandoned or removed from service when it requires a design change to restore its operation. For example, the equipment may be permanently abandoned by designating it abandoned in place in a configuration control program that requires a design change to return it to use. Alternatively, the equipment may be removed by approved design changes by being physically isolated from interconnections or power supplies required for the system to function.</p> <p>BASIS AND INTENT:</p> <p>Configuration management controls permanent abandonment and eventual physical removal, and ensures USQ review of such activities. Procedures that</p>	

			only affect equipment that has been permanently abandoned or removed are no longer utilized so their cancellation cannot result in a USQ.	
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(E Cont'd) - Proposed CatXs for NMMP as it relates to Prior DOE Approval

NMMP (Variation 1)

Changes to the Nuclear Maintenance Management Plan (NMMP), which has been previously approved by DOE, may be made to correct spelling, punctuation, consistency with other documents subject to the USQ process, or other editorial items. Other changes to the NMMP may also be made provided they do not:

- 1) affect DOE O 433.1B Attachment 2 requirements, including exemptions to or deviations from the requirements, OR
- 2) degrade how EITS are maintained and operated within the approved safety basis.

NMMP (Variation 2)

Changes to the NMMP, which has been previously approved by DOE, may be made to correct spelling, punctuation, consistency with other documents subject to the USQ process, or other editorial items. Other changes to the NMMP may also be made provided they do not affect DOE O 433.1B Attachment 2 requirements - including exemptions to or deviations from the requirements.

Basis: DOE O 433.1B, *Maintenance Management Program for DOE Nuclear Facilities*, states the following requirements.

- Section 4 *Requirements*, states, “c. Changes to NMMPs must be reviewed under the unreviewed safety question (USQ) process to ensure that SSCs are maintained and operated within the approved safety basis, as required by 10 CFR part 830, *Nuclear Safety Management, Part B-Safety Basis Requirements*. Changes which would result in an unreviewed safety question must be approved prior to the change taking effect.”
- Attachment 2, *Maintenance Management Program Requirements for DOE Nuclear Facilities*, page 2, paragraph i, states, “Federal and contractor organizations must review proposed changes to the NMMP, which could affect the performance of safety SSCs, as part of the ongoing unreviewed safety question (USQ) process. This review is intended to evaluate whether safety SSCs are maintained and operated within the approved safety basis, as required by 10 CFR 830.203. Changes which would result in a positive USQ must be submitted to DOE/NNSA for approval prior to the change taking effect.”

Furthermore, as approved by NNSA, ES&H Manual Document 52.1, *Maintenance Management Program for Non-Reactor Nuclear Facilities*, states the following requirements.

- Section 3.2.1.11, *10 CFR part 830, Nuclear Safety Management; Subpart B, Safety Basis Requirements*, "Changes to the NMMP must be reviewed under the USQ process. See Section 5.0 of this document.”
- Section 5.0 *Required Revisions* states, “Changes to the NMMP shall be subject to the USQ process. Changes to the NMMP should be provided to NNSA for informational purposes when they are made. Changes that would result in a positive USQD shall be submitted to NNSA for approval prior to the change taking effect.”



Proposal for Categorical Exclusion

Title: Categorical Exclusion for New Procedures or Procedure Changes Required for a New DSA/TSRs or Changes to an Existing DSA/TSRs

Changes to existing and issuance of new procedures, technical documents, administrative documents, drawings, engineering document changes, and other supporting documents to implement a new or revised DOE-approved Safety Basis are excluded from review under the USQ process.

Categorical Exclusion Scope and Boundaries

This categorical exclusion applies only to changes made to initially implement a new or revised Safety Basis as approved by DOE. This categorical exclusion does not apply to:

- Changes to documents unrelated to initial implementation of DOE-approved Safety Basis requirements,
- Implementation of changes to documents prior to the effective date of the Safety Basis, or facility modifications related to the Safety Basis change being implemented.

Justification

This categorical exclusion excludes procedures to implement new DSA requirements that have been approved by DOE. Since DOE has approved these changes, no further USQ review is required, as these activities cannot represent a USQ.

Implementation of newly approved/changed controls cannot be verified via the USQ process. This verification is performed as part of the readiness assessment (ORR, RA, IVR, etc.) process conducted prior to implementation of a new or changed safety basis.

The scope of changes under this categorical exclusion is limited such that excluded changes cannot represent a USQ. The changes excluded by this categorical exclusion are limited to those necessary to initially implement a new or revised DOE-approved safety basis.

Table 2. CatXs in Current USQ Process (Ref. 1)*

CY 2009**	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
Changes that entered USQ process	15,000	2,958	2,000	365		780	2,500	1,000		3,000	2,476	238	3,060	25,000	3,550		8,371
CatX's		137			12		300	550		150		0	60	11,400	418		6,343
USQ Screens		823		325	4,000	350	800	130	137	825		238	3,000	11,400	1,069	1,300	1,585
USQDs		1,998		48	100	430	1,300	300	514	2,000	1,300	214	30	2,200	2,063	700	443
USQs (Positive USQDs) and Safety Basis amendments	100	11	14	0	7	3	8	20	4	11	6	1	25	4			16
Avg. time per USQD (hrs)***		6	11	8	34	9	15	15		6		3	40	5	20		8
Avg. time per screening (hrs)		2		3	6	3	1	4		2		8	5	1	3		3

*Note: These statistics reflect that some sites have already implemented the improvements discussed in this white paper.

** Note: These statistics reflect data from last year or the average across the last several years. The number of facilities varies from site to site.

***Note: Differences in site missions and configuration management/work control processes drive these variations. The complexity of their activities can make a significant difference in the amount of time required to prepare a USQD. For some waste sites, USQDs do not generally require more than a few hour to prepare. For other sites, the amount of work preparing input for the USQD varies and reduces the time for actual preparation of the USQD.