Table A-2a Methodology/Process Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
-1200(a)	"… failure potential is conservatively assumed to be 1.0 in determining a consequence category in Appendix I."	"…failure potential is conservatively assumed to be 1.0 in performing the initial consequence evaluation per I-3.1 in Appendix I."	To be clear that the failure potential is conservatively assumed to be 1.0 in I-3.1, Consequence Evaluation. This allows the expert panel to assume other than 1.0 for the failure potential when considering the other relevant information in I-3.2 for piping segments determined to be Medium, Low, or None consequence category in I-3.1.
-1200(b)	"Class 1 items that are part of the reactor coolant pressure boundary…"	"Items optionally classified to Class 1 and Class 1 items…"	Although this section was modified for the WCGS IDP Version there were no Class 1 items in the two systems evaluated at Wolf Creek. Therefore, this provision was not applied at Wolf Creek. Nonetheless, it was decided that for all future applications at Wolf Creek all Class 1 items will be classified as HSS per the NRC endorsement of N-660 in Reg Guide 1.147, Rev 14.
I-1.0	N/A	Added figure[1] illustrating the modified RISC methodology process, including scope identification, consequence evaluation, consequence categorization, classification considerations, and final classification definitions.	Figure added to provide high level overview of RISC methodology process. New process calls for all segments to be included in the consequence evaluation to determine high, medium, low or none consequence category. Then only the non-high category segments would be considered in the classification considerations of I-3.2.2(b) – previously I-3.1.3.

Table A-2a Methodology/Process Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-2.0	N/A	"Items optionally classified to Class 1 and Class 1 items connected to the reactor coolant pressure boundary, as defined in paragraphs 10 CFR 50.55a (c)(2)(i) and (c)(2)(ii), are within the scope of the RISC evaluation process. All other Class 1 items shall be classified High Safety Significant (HSS) and the provisions of the RISC evaluation shall not apply."	Although this section was modified for the WCGS IDP Version there were no Class 1 items in the two systems evaluated at Wolf Creek. Therefore, this provision was not applied at Wolf Creek. Nonetheless, it was decided that for all future applications at Wolf Creek all Class 1 items will be classified as HSS per the NRC endorsement of N-660 in Reg Guide 1.147, Rev 14.
I-3.0, Title	"Consequence Assessment"	"Evaluation of Risk Informed Safety Classifications"	For clarification to meet Figure I-1.
I-3.0	"Piping segments can be grouped based on common conditional consequence…"	"All pressure retaining items, including supports for a piping system, shall be evaluated by defining piping segments that are grouped based on common conditional consequence…"	For clarification of the scope of components to be evaluated.
I-3.0	"Additionally, information shall be collected for each piping segment that is not modeled in the PRA, but considered relevant to the classification (e.g., information regarding design basis accidents, shutdown risk, containment isolation, flooding, fires, seismic conditions)."	"Additionally, information considered relevant to the classification shall be collected for each piping segment (e.g., information regarding design basis accidents, at-power risk, shutdown risk, containment isolation, flooding, fires, seismic conditions, etc.). This other relevant information is considered in conjunction with the Consequence Category to determine the Risk Informed Safety Classification."	Statement clarified for other relevant considerations besides internal events PRA.

Table A-2a Methodology/Process Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.1.1(a)	N/A	"(4) a small break with a calculated leak rate at design basis conditions for a through-wall flaw with a length six times its depth can be used when certain design and operational considerations are satisfied: - the pipe segment is not susceptible to any large break mechanisms or plant controls are in place to minimize the potential for occurrence of large break mechanisms, + a large break mechanism is one that produces significant loadings above the normal loading on the system and specifically includes water hammer for which no mitigation is provided and internal deflagrations, but excludes seismic, - the pipe segment is not part of a high energy system, - the pipe segment is greater than 4 inches in diameter."	Consideration given to specific design and operational characteristics of the pressure retaining and support items that can affect the size of failure of the pipe segments.

Table A-2a Methodology/Process Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.1.3, 3.1.4, & 3.1.5	All	Sections has been modified and moved into new section I-3.2.2(b). The process used at the WCGS IDP calls for all segments to be created and assigned a consequence category in Sections I-3.1.1 & 3.1.2. Then, for those segments with a consequence category of MEDIUM, LOW, or NONE, the user must evaluate a modified Sections I-3.1.3, 3.1.4, and 3.1.5 (now in I-3.2.2(b)) to assign final high or low safety significance.	Original intent of section was to provide additional considerations for segments not modeled in the PRA. However, the grouping of components into piping segments and the use of surrogate components in the PRA provide quantitative evaluations for each piping segment. The intent of this section now is to provide further considerations for piping segments with MEDIUM, LOW, or NONE consequence categories. See the following entries for specific changes to the original considerations of I-3.1.3, 3.1.4, and 3.1.5.
I-3.1.3	All	Questions changed such that all TRUE responses will support LSS and at least one FALSE response will support HSS.	For consistency with NEI 00-04 process.
I-3.1.3(a)(1)	"Failure of the piping segment will significantly increase the frequency of an initiating event, including those initiating events originally screened out in the PRA, such that the CDF or large early release frequency (LERF) would be estimated to increase by more than 10-6/yr or 10-7/yr, respectively."	Deleted	Redundant to the considerations in I-3.1.1 and I-3.1.2 when determining failure consequences and consequence category.
I-3.1.3(a)(2)	"Failure of the piping segment will compromise the integrity of the reactor coolant pressure boundary as defined in –1200(b)."	Deleted	All reactor coolant pressure boundary segments are ranked high safety significant per -1200(b).

Table A-2a Methodology/Process Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.2.2(b)	All	Rather than referring to Sections I-3.1.3, I-3.1.4, and I-3.1.5, new considerations have been provided as listed above. Process still requires user to evaluate the additional considerations for any segment with consequence category Medium, Low, or None.	To improve the process, the additional considerations were moved into this section from I-3.1.3, I-3.1.4, and I-3.1.5. See above for basis of consideration changes.
I-3.2.2(b)	"Any piping segment initially determined to be a Medium consequence category and that is subject to a known active degradation mechanism shall be classified HSS."	Deleted	Continued condition monitoring for known active degradation mechanisms would be a consideration in meeting 50.69 (d)(2) and (e) and therefore classification of HSS is unduly conservative.
I-3.2.2(b)(5)	N/A	"The plant condition monitoring program would identify any known active degradation mechanisms in the pipe segment prior to its failure in test or an actual demand event (e.g., flow accelerated corrosion program)."	In response to previous change immediately above.

Table A-2a Methodology/Process Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.2.2(b)	N/A	Following the new 11 considerations, there was a provision added to allow a pipe segment to be ranked as LSS even if one of the 11 considerations was answered FALSE. The provision states; "If any of the above eleven (11) conditions are not true, HSS should be assigned unless the following can be met: • A condition monitoring program would identify the degradation of the piping segment prior to its failure in test or an actual demand event, or • Historical data show that these failure modes are unlikely to occur and such failure modes can be detected in a timely fashion. Historical data should be restricted to items procured to a specification no more stringent than the minimum specification that could be imposed on a similar item determined to be LSS by this process.	This provision was not used at Wolf Creek and will not be used for future Wolf Creek applications. It was also suggested to ASME that this provision be removed from future revisions of N-660.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
Applicability	"… through 2001 Edition"	"… through 2003 Edition"	Updated to be current at the time of the WCGS IDP.
-1200(b)	Entire paragraph	Reworded for clarity	Clarification of the scope of items to be evaluated.
-1320	Entire paragraph	"(a) An Integrated Decisionmaking Panel (IDP) shall use the information and insights compiled in the initial categorization process and combine that with other information from design bases, defense-in-depth, and safety margins to finalize the categorization of functions/SSCs. (b) The designated as members of the IDP shall have joint xpertise in the following fields: - Plant Operations (SRO qualified), - Design Engineering, - Safety analysis, - Systems Engineering, and Probabilistic Risk Assessment. (c) Requirements for ensuing adequate expertise levels and training of IDP members in the categorization process shall be established. (d) To the extent possible, the classification of pressure retaining and support items in a system should be performed by the same IDP members as the categorization of active SSCs in that system."	Clarification of the process used for the WCGS categorization of pressure retaining and support items. An initial categorization of pressure retaining and support items was performed by an engineering function. The IDP, composed of the members with expertise in the disciplines identified in the original paragraph -1320, then considered the initial categorization, along with other information from their respective disciplines, to finalize the categorization. The method used at WCGS results in a categorization processes for classifying pressure retaining and support items that is similar to that used for active SSCs. This helps to ensure consistent consideration of information used the two categorization processes.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
-9000, high-safety-significant function	N/A	Added to end of definition – "or from other relevant information (e.g., defense in depth considerations)"	Added to consider defense in depth in determining the safety significance of a function.
-9000, plant features	N/A	"Plant features – systems, structures, and components that can be used to prevent or mitigate an accident"	Plant features terminology added to Code Case relative to operator and possible automatic actions
-9000, PRA	"a qualitative and quantitative assessment…"	"an assessment…"	Changed to be consistent with the ASME PRA Standard.
-9000, spatial effects	"A failure consequence affecting other systems or components, such as failures due to pipe whip, jet impingement or flooding."	"A failure consequence affecting other systems or components, such as failures due to pipe whip, jet impingement, jet spray, loss of inventory due to draining of a tank or flooding."	Including other possible forms of spatial effects.
I-2.0	"The owner shall define the boundaries included in the scope of the RISC evaluation process."	"The owner shall define the boundaries included in the scope of the RISC evaluation process. Items optionally classified to Class 1 and Class 1 items connected to the reactor coolant pressure boundary, as defined in paragraphs 10 CFR 50.55a (c)(2)(i) and (c)(2)(ii), are within the scope of the RISC evaluation process. All other Class 1 items shall be classified High Safety Significant (HSS) and the provisions of the RISC evaluation shall not apply."	The third and fourth sentences added for clarification of the scope of items to be evaluated. As previously stated, there is no intention for Wolf Creek to rank Class 1 items anything other than high safety significant. The second sentence will not be suggested for future inclusion in N-660.
I-3.0, Title	"Consequence Assessment"	"Evaluation of Risk Informed Safety Classifications"	For clarification to meet Figure I-1.
I-3.0, 1st Paragraph	"Piping segments can be grouped based on common conditional consequence…"	"All pressure retaining items, including supports for a piping system, shall be evaluated by defining piping segments that are grouped based on common conditional consequence…"	For clarification of the scope of components to be evaluated.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.0, 1st Paragraph	"Additionally, information shall be collected for each piping segment that is not modeled in the PRA, but considered relevant to the classification…"	"Additionally, information considered relevant to the classification shall be collected for each piping segment…"	Clarifies requirement to collect relevant information for ALL piping segments, not just those modeled in the PRA.
I-3.1.1, 1st Sentence	"Potential failure modes for each piping segment shall be identified…"	"Potential failure modes for each system or piping segment shall be identified…"	Clarify that evaluation should consider system level failure modes as well as piping segment failure modes.
I-3.1.1(c), Indirect Effects	"These include spatial interactions such as pipe whip, jet spray, and loss of inventory effects (e.g., draining of a tank)."	"A failure consequence affecting other systems or components, such as spatial effects."	To be consistent with glossary term for spatial effect.
I-3.1.1(d), Initiating Events	"These are identified using a list of initiating events from any existing plant specific Probabilistic Risk Assessment (PRA) or Individual Plant Examination (IPE) and the Owner's Requirements."	"For systems or piping segments that are modeled either explicitly or implicitly in any existing plant-specific Probabilistic Risk Assessment (PRA), any applicable initiating event is identified using a list of initiating events from that PRA."	Clarify source of initiating events.
I-3.1.2, 3rd sentence	"… (high, medium, low)..."	"… (high, medium, low, or none)…"	"None" is one of the four consequence categories which can be assigned in I-3.1.
I-3.1.2(a)(1)	"The initiating event shall be placed in one of the categories in Table I-1."	"The initiating event shall be placed in one of the Design Basis Event Categories in Table I-1."	More clearly defined what "category" means relative to Table I-1.
I-3.1.2(a)(1)	"… updated final safety analysis report, PRA, or IPE shall be included"	"… updated final safety analysis report or PRA shall be included"	Removed IPE because it was felt that the IPE does not provide any additional information in this area.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.1.2(b)	"The consequence category of a failure that does not cause an initiating event, but degrades or fails a system essential to prevention of core damage shall be based on the following:"	"The consequence category of a failure: • modeled in a PRA that degrades or fails a high-safety-significant function but does not cause an initiating event, or • not modeled explicitly or implicitly in a PRA, or • that results in failure of another high-safety-significant piping segment, e.g., through indirect effects, or • that will prevent or adversely affect the plant's capability to reach or maintain safe shutdown condition, shall be based on the following:"	Clarified to include the consideration of other consequences of a failure.
I-3.1.2(b)(1)	"Frequency of challenge that determines how often the mitigating function of the system is called upon. This corresponds to the frequency of initiating events that require the system operation."	"Frequency of challenge that determines how often the affected function of the system is called upon. This corresponds to the frequency of events that require the system operation."	Clarified to include functions other than simply mitigating functions and all events as opposed to only initiating events.
I-3.1.2(b)(3)	"Exposure time shall be obtained from Technical Specification limits."	Deleted	Deletion made because it was redundant to the 2nd sentence.
I-3.1.2(b)(3)	"In lieu of Table I-2, quantitative indices may be used to assign consequence categories in accordance with Table I-5."	Moved out from (b)(3) to directly under (b) and changed text to, "For failures modeled in a PRA, quantitative indices may be used to assign consequence categories in accordance with Table I-5 in lieu of Table I-2."	Clarification; this statement applies to all of (b) and not only (3) for Exposure Time.
I-3.1.2(c)	"In lieu of Table I-3, quantitative indices may be used to assign consequence categories in accordance with Table I-5."	"For failures modeled in a PRA, quantitative indices may be used to assign consequence categories in accordance with Table I-5 in lieu of Table I-3. The quantitative index for the combination impact group is the product of the change in conditional core damage frequency (CDF) and the exposure time."	Clarification of the use of Table I-5 and how the combination impact group quantitative index is calculated.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.1.2(d)	"The above evaluations determine failure importance relative to core damage."	"The above evaluations determine failure importance relative to core damage or the plant's capability to reach or maintain safe shutdown conditions."	Added consistent with the changes made to I-3.1.2(b).
I-3.1.3(a)(3)	"Even when considering operator actions used to mitigate an accident, failure of the piping segment will fail a high safety significant function."	New Section I-3.2.2(b)(1), "Even when taking credit for plant features and operator actions, failure of the piping segment will not directly fail a high safety-significant function."	Added plant features along with operator actions. Footnote provided for credible operator actions (see below).
I-3.1.3(a)(4)	"Failure of the piping segment will result in failure of other safety-significant piping segments, e.g., through indirect effects."	New Section I-3.2.2(b)(2), "Failure of the piping segment will not result in failure of another high safety-significant piping segment, e.g., through indirect effects."	Minor change.
I-3.1.3(a)(5)	"Failure of the piping segment will prevent or adversely affect the plant's capability to reach or maintain safe shutdown conditions."	New Section I-3.2.2(b)(3), Even when taking credit for plant features and operator actions, failure of the piping segment will not prevent or adversely affect the plant's capability to reach or maintain safe shutdown conditions.	WCGS IDP was given ability to credit valid operator action when evaluating failure impact on shutdown conditions. Footnote provided for credible operator actions (see below).
I-3.1.3(b)(1)	"The piping segment is a part of a system that acts as a barrier to fission product release during severe accidents."	Deleted	This statement was too conservative to force all segments to be ranked as HSS given that just one segment in the entire system meets this criterion. Also, the intent of this consideration is expressed in new subsections I-3.2.2(b)(6) and (11).

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.1.3(b)(2)	"The piping segment supports a significant mitigating or diagnosis function addressed in the Emergency Operating Procedures or the Severe Accident Management Guidelines."	New Section I-3.2.2(b)(4), "The piping segment is not relied upon to support an active function in the plant Emergency / Abnormal Operating Procedures or similar guidance as the sole means for the successful performance of operator actions required to mitigate an accident or transient of for achieving actions for assuring long term containment integrity, monitoring of post-accident conditions, or offsite emergency planning activities. This also applies to instrumentation and other equipment associated with the required actions."	The original statement was too limiting to any segment supporting functions addressed in the EOPs or SAMGs. The term significant was too vague. New statement is consistent with NEI 00-04 and clarifies the interpretation for the WCGS IDP. It allows for reasonable consideration of plant features and operator actions.
I-3.1.3(b)(3)	"Failure of the piping segment will result in unintentional releases of radioactive material in excess of plant offsite dose limits specified in 10 CFR Part 100."	New Section I-3.2.2(b)(6), "Even when taking credit for plant features and operator actions, failure of the piping segment will not result in releases of radioactive material that would result in the implementation of off-site emergency response and protective actions."	The off-site emergency response and protective actions limits are more conservative compared to those in Part 100.
I-3.1.4	All	No change to methodology but the appropriate items called out in Reg Guide 1.174 were placed in I-3.2.2(7) through (11) (see below).	For clarity and process improvement.
I-3.1.5	All	No change to methodology but section was moved to I-3.2.2(c). Format change also made to paragraph to more clearly identify questions for consideration.	For clarity and process improvement.
I-3.2	N/A	Added as first sentence, "Risk Informed Safety Classification is determined by considering the Consequence Category in conjunction with other relevant information."	Added to clarify intent of I-3.2.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.2.2(b)	N/A	"The following conditions shall be evaluated and answered true or not true:"	Clarification provided to answering the additional considerations as true or not true. If any of the eleven considerations are not true then the segment shall be assigned HSS, otherwise it can be assigned LSS.
I-3.2.2(b), footnote	N/A	To credit operator actions, the following criteria must be met: • There must be an alarm or clear indication of the failure. • A procedure must direct the response to the alarm or indication. • Equipment activated to alleviate the condition must not be affected by the failure. • There must be sufficient time to perform the compensatory action.	Words paraphrased from Supplement 2, Rev 1 of WCAP-14572, Rev 1 – the Pressurized Water Reactor Owners Group Application of Risk-Informed Methods to Piping Inservice Inspection Topical Report Clarifications. The guidance is provided for expert panel members when relying on operator actions to make decisions regarding safety significance.
I-3.2.2(b)(7)	N/A	"A reasonable balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation."	Taken from Reg Guide 1.174.
I-3.2.2(b)(8)	N/A	"Over-reliance on programmatic activities to compensate for weaknesses in plant design is avoided."	Taken from Reg Guide 1.174.
I-3.2.2(b)(9)	N/A	"System redundancy, independence, and diversity are preserved commensurate with the expected frequency, consequences of challenges to the system, and uncertainties (e.g., no risk outliers)."	Taken from Reg Guide 1.174.

Table A-2b Clarification Changes in ASME Code Case N-660 for WCGS Categorization			
N-660 Section	**Endorsed Revision 0**	**WCGS IDP Version**	**Basis for Change**
I-3.2.2(b)(10)	N/A	"Defenses against potential common cause failures are preserved, and the potential for the introduction of new common cause failure mechanisms is assessed."	Taken from Reg Guide 1.174.
I-3.2.2(b)(11)	N/A	"Independence of fission-product barriers is not degraded."	Taken from Reg Guide 1.174.
I-3.2.2(c)	All	The original text was combined in I-3.2.2(b). The new I-3.2.2(c) is a copy of the original I-3.1.5 section for safety margin assessment.	For simplification and process improvement.
I-3.2.2	A component support or snubber shall have the same classification as the highest-ranked piping segment within the piping analytical model in which the support is included. The Owner may further refine the classification ranking by more extensive application of the process defined in these requirements. These analyses shall be documented.	Moved into I-3.2.2(d) with no change to text.	For consistency.

Note 1 – Figure I-1, Risk-Informed Safety Classification Process

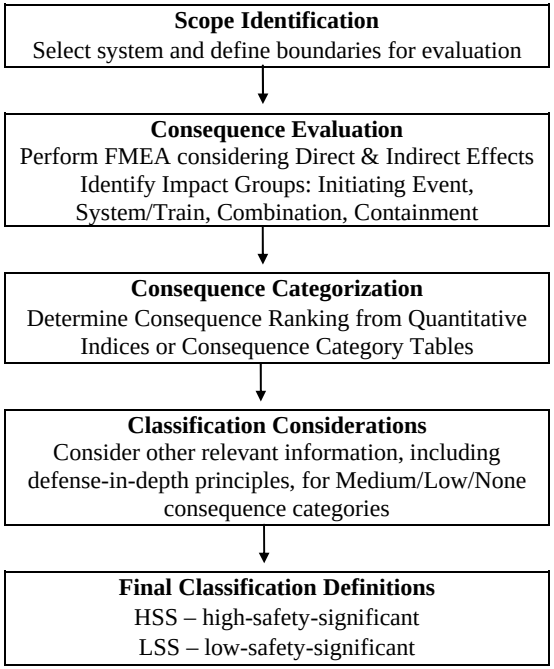

Figure I-1
Risk-Informed Safety Classification Process