EPRI Comments Table

Comment #	Comment	Comment page/Line	Reason for Comment	NRC Response
1	Revised text to include "technical". "The purpose of this TR is to provide a methodology and technical basis….".	Pg 1, line 16	Editorial; Clarification	
2	Revised text from "object" to "objective". "Section IWV stated that its objective was to…."	Pg 2, line 35	Editorial; Grammatical Correction	
3	Revised text to remove "this way". "This was written ~~this way~~ for valves that…"	Pg 4, line 37	Editorial; Grammatical Correction	
4	Revised table(row added) to include ASME OM Interpretations. "6/11/2007" and "ASME OM Interpretation 12-01-Q1(OMI-11-913) and 12-01-A2(OMI-11-913) addressed the clarifications concerning supplemental methods for obturator position verification in ISTC-3700 and ISTC-3530."	Pg 7, row 2 in the table	Editorial; Clarification	
5	Last row in table concerning "9/2020" entry, suggest it being moved up in the table so dates are in order to avoid confusion	Pg 7, last table row entry	Editorial; Grammatical Correction	
6	Clarification added. "However, it was not clear if the sheared component was the part connecting the disk to the shaft or the piece that couples the shaft to the actuator or manual handwheel, therefore these were not considered as part of this review."	Pg 9, lines 4-5	Editorial; Clarification	
7	Revised text to remove "~~The keyed design is not totally non-susceptible to failure. However, with proper attention to detail such as key material, dimensions, force being applied, vendor recommendations, and periodic preventive maintenance, this design can be considered not susceptible to disk-to-stem~~	Pg 9, lines 5-11	With only 5 failures in 46 years, the last failure being in 2002, and considering all failures were immediately known, the value of these statements is questionable. The proposed text captures intent without being prescriptive.	

	~~failure.~~" Replaced with "Therefore, the NRC staff agrees with the TR summary that the failure rate for this design is low and can be considered to be non-susceptible to stem-to-disk failure. Lessons learned from past OE concerning key materials, dimensions/tolerances, and force being applied should be considered when applicable."			
8	Revised text and inserted "with the TR summary". "The NRC staff agrees with the TR summary that the…"	Pg 10, line 10	Editorial; Clarification for consistency	
9	Revised text to include "with TR summary" and "stem-to-disk". "The NRC staff agrees with the TR summary that the integral/single piece design has a very low failure rate and can be considered to be non-susceptible to stem-to-disk failure.	Pg 10, lines 21-23.	Editorial; Clarification for consistency	
10	Revised text to remove "~~Precautionary considerations include periodic preventive maintenance, vendor recommendations, system conditions, stem material susceptible to embrittlement, and thermal transients~~". Replaced with "Lessons learned from past OE specific to system conditions, stem materials susceptible to embrittlement, and thermal transients should be considered when appropriate."	Pg 10, lines 23-27	The data shows 1 failure in 43 years and the last one was in 2001. The proposed text captures intent without being prescriptive and is consistent with other responses.	
11	Revised text to remove "~~In addition to the six additional OE involving a gate or globe valve, eleven OE involving check valves that experienced a broken tack weld occurred. It is noted that the TR did not address check valves or relief valves. Check and relief valve failures typically are self-revealing at the time of failure~~	Pg 11, lines 5-9	Because this is not pertinent to the EPRI report, it does not seem appropriate to include in the SE.	

	~~and they rarely have remote position indication which would not require testing per ASME OM Code, Subsection ISTC, paragraph ISTC-3700.~~"			
12	Revised text to delete "~~However, the failure rate for valves that rely on a tack weld increases the susceptibility to failure. The NRC staff agrees that this type of valve connection design can be considered to be non susceptible to failure provided that a preventive maintenance measure be in place that reviews system conditions for vibration, system fluid that could affect the threaded connection (untreated water), verification that the weld (if applied) is sufficient, and follow vendor recommendations.~~" Replaced with "The NRC staff agrees with the TR summary that the failure rate for this design is low and essentially not susceptible to stem-to-disk failure. Lessons learned from past OE concerning system conditions such as vibration, system fluid that could affect the threaded connection (untreated water), verification that the weld is sufficient, and vendor recommendations should be considered when appropriate."	Pg 11, lines 11-20	The data shows 10 failures in 43 years with the larger amount being found during normal operation with no unit impact. No failures have been reported since 2011 and this is more common on non-safety related valves. The proposed text captures intent without being prescriptive and is consistent with other responses.	
13	Revised text to add "when applicable". "Lessons learned on application of excessive force should be considered when applicable."	Pg 12, line 17	Clarification. This is a specific operating condition that is not always applicable.	
14	Revised text to delete "~~…provided that attention and precautions are made with…".~~ Replaced with "The NRC staff has reviewed the OE with this type of valve design and agrees with the TR conclusions that the failure rate is low and that it can be essentially considered to be not susceptible to stem-to-disk separation.	Pg 13, lines 4-6	The data shows 8 failures in 43 years with only 4 of those being related to safety related applications. The proposed text captures intent without being prescriptive and is consistent with other responses.	

	Lessons learned from past OE concerning vendor recommendations and evaluation of system vibration impact on internal connection components should be considered when appropriate."			
15	Revised text to delete "~~The NRC staff agrees that this type of valve connection design can be considered to be non susceptible to failure provided that a preventive maintenance measure be in place that reviews system conditions for vibration, system fluid that could affect the threaded connection (untreated water), verification that the weld (if applied) is sufficient, and follow vendor recommendations~~." Replaced with "The NRC staff agrees with the TR summary that the failure rate for this design is low and essentially not susceptible to stem-to-disk failure. Lessons learned from past OE concerning system conditions such as vibration, system fluid that could affect the threaded connection (untreated water), verification that the weld is sufficient, and vendor recommendations should be considered when appropriate."	Pg 14, lines 1-5	The data shows 28 failures in 43 years and most common on manual valves in safety related applications. The proposed text captures intent without being prescriptive and is consistent with other responses.	
16	Revised text to delete "The NRC staff agrees with this assessment however end users should also evaluate ~~and establish preventive maintenance measures such as disassembly, inspect, and refurbish internals until system vibration levels, valve operation, and internal wear rates of components are fully understood.~~" Replaced with "The NRC staff agrees with this assessment however end users	Pg 17, lines 18-2	Many sites have applied the recommended industry guidance on this design and it shows in the decrease of failures since 1989. The proposed text captures intent without being prescriptive and is consistent with other responses.	

	should also evaluate lessons learned from past OE concerning system conditions such as vibration and valve operation and apply preventive maintenance measures such as disassembly, inspection, and refurbishment when appropriate."			
17	Revised text to move last sentence of paragraph to the front of the paragraph. "The NRC staff agrees with ~~T~~the TR review of the T-head/T-slot design. ~~yielded that m~~Many of the failures were attributed to those valves operating in an untreated raw water system. The TR recommends that this design of valve in untreated raw water systems should be considered susceptible to stem-to-disk failure unless the stem and disk materials can be verified to be not subject to corrosion in a raw water environment. For the other valve failures not involving operation in an untreated raw water system, the failure rate over a long period of time is relatively low and that they may be considered non-susceptible to failure provided that the other variables such as conditions that could lead to PL/TB, stress corrosion cracking, or embrittlement are monitored and addressed appropriately. ~~The NRC staff is in agreement on this assessment.~~	Pg 18, lines 12-19 and pg 19, lines 1-2	Moved last sentence to the beginning of paragraph to be consistent.	
18	Revised text from "The NRC staff agrees with this assessment however end users should evaluate and establish preventive maintenance measures based on vendor recommendations, system conditions, stem material susceptible to embrittlement, and thermal transients" to read "The NRC staff agrees with ~~this~~ the TR	Pg 20, lines 10-13	The proposed text captures intent without being prescriptive and is consistent with other responses.	

	assessment however end users should evaluate lessons learned from past OE and consider establishing preventive maintenance measures based on vendor recommendations, system conditions, stem material susceptible to embrittlement, and thermal transients when appropriate"			
19	Revised text to delete "~~Each valve that has been determined to be not susceptible to stem-to-disk separation shall have a documented justification entered in their IST Program Plan~~"	Pg 21, lines 34-35	This is a condition for applying OMN-28 but is not relevant to the EPRI TR SE review.	
20	Revised text to add "in safety related applications", "known flow induced" and "considered when applicable" to first sentence. Deleted "high" and "system" from first sentence. "For those valve designs in safety related applications that rely on a weld to secure the stem-to-disk connection and operate under ~~high~~ known flow induced ~~system~~ vibration conditions, additional justification for relying on the welded connection shall be considered when applicable." Deleted "~~This may be in the form of~~ …" and replaced with "Examples could include..". "Examples could include~~This may be in the form of~~ a structural analysis (weak link) or disassembly and inspection after a number of years of service that evaluates the connection condition."	Pg 21, lines 36-42	Clarification to focus on safety related applications that operate with known flow induced vibration conditions and consideration for an additional justification when applicable with examples.	
21	Revised text to delete "However, end users shall also evaluate ~~and establish preventive maintenance measures such as disassembly, inspection, and refurbish internals until system vibration levels, valve operation, and internal wear rates of components are fully~~	Pg 21, lines 47-50 and pg 22, lines 1-2	The number of pinned failures has dropped significantly since 1989. The data does not support a need for routine PM measures if industry guidance has been applied. The proposed text	

	~~understood.~~" Replace with "However, end users shall also evaluate lessons learned from past OE concerning system conditions such as vibration and valve operation and potentially apply preventive maintenance measures such as disassembly, inspection, and refurbishment when appropriate."		captures intent without being overly prescriptive.	
22	Revised text to delete "~~For valves that are high failure rate valve types (Captured and Clamped, Pinned, T Head/T Slot, Threaded and Pinned) and have been determined to be not susceptible to stem-to-disk separation, local observation during the required valve exercise shall be completed at least once every 2 years looking for any abnormal operation of the actuator to valve stem interface. Valve position indication testing as described in ASME OM Code Case OMN-28 may remain at the 12-year interval.~~"	Pg 22, lines 3-8	The value of a 2 yr local observation requirement is unclear when the valve position indication testing is pushed to 12 years. This comment is more specific to the adoption and use of code case OMN-28 and not relevant to the use of the EPRI TR.	