PUBLIC SUBMISSION

As of: 12/27/17 3:16 PM
Received: December 20, 2017
Status: Pending_Post
Tracking No. 1k1-90gf-td2d
Comments Due: December 26, 2017
Submission Type: Web

Docket: NRC-2016-0238
Managing Aging Processes in Storage

Comment On: NRC-2016-0238-0001
Managing Aging Processes in Storage Report; Request for Comment on Draft NUREG

Document: NRC-2016-0238-DRAFT-0002
Comment on FR Doc # 2017-22983

Submitter Information

10/24/2017
82FR49233
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General Comment

See attached file(s)

Attachments

NUREG 2214 Comments from NUTUG_NAC 121917 Carver

SUNSI Review Complete
Template = ADM – 013
E-RIDS= ADM-03
Add= J. Wise (JPW1)

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December 19, 2017

Ms. Cindy Bladey
Chief, Rules, Announcements, and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop: TWFN-8-D-36M
U.S. Nuclear Regulatory Commission
Washington, DC 20555 0001

Subject: NUREG 2214/Docket ID NRC-2016-0238: Comments from NAC International and the Nuclear Technology Users Group

Dear Ms. Bladey:

NAC International, Inc. (NAC) and the Nuclear Technology Users Group (NUTUG) are pleased to submit our comments on the draft NUREG 2214, "Managing Aging Processes in Storage," Docket ID NRC-2016-0238.

Please see the attached table and contact me if you should have any questions. I can be reached at (678) 328-1205 (office) or at gcarver@nacintl.com.

Sincerely,

George C. Carver
Vice President, Engineering and Licensing

Attachment

NAC / NUTUG Comments to Draft NUREG-2214 MAPS Report

Page #	Line #, Table #, Section #	Comment
1-3	Line 3	Add parenthetical "(CNWRA)" after "Analyses". Acronym is used in third sentence but hasn't been defined yet.
2-3	Table 2-2	Recommend expansion of Fully Encased (steel) (FE) to include neutron shielding and gamma shielding materials within sealed or welded steel enclosures such as the Transfer Cask Body and Shield Doors, and VCC Shield Plug and Lid. Currently some of these components are identified as embedded-NS or embedded-lead, which is not as good a description.
2-8	Table 2-3	Wet corrosion and blistering would only occur during repeated loading and drying, not single load storage operation. Given the relatively short duration of loading and drying, this mechanism is probably not substantial and would not occur over the PEO.
3-2	Table 3-2	It seems that all nine environments in Table 3-1 should be accounted for between the Credible and Noncredible Environment columns. The assumption is that the ones not listed are also noncredible.
3-6	Table 3-6	Should include Stainless Cladding fuel cladding materials
3-7	Line 6	Indoor air is not a listed environment, sheltered is probably the environment being referred to.
3-12	Line 11	Although MIC is considered credible, it probably isn't plausible on embedded steel with an engineered soil that is well drained and clean under the pad.
3-22	Line 28	'eubcomponents' should be subcomponents
3-34	Line 28	Editorial – Return error on last sentence.
3-34	Lines 27 & 28	Formatting.
3-66	Line 6	Groundwater monitoring would be conducted when a pad is in scope and there is reason to believe that the ground water is conducive to concrete degradation. If a site has historical ground water monitoring demonstrating low risk for concrete degradation, then this should be allowed to be used to show no AMP is necessary, or at least a reduced monitoring frequency, since ground water chemistry has been shown to change very little over many years of trending when there are no new contributors to a site.
3-66	Line 6	Editorial – Return error on sentence.
3-66	Line 6	Formatting.
3-69	Line 35-37 Section 3.5.1.8 "Leaching of Calcium Hydroxide"	Minor and moderate calcium leaching is a common occurrence identified during the annual VCC inspections. NAC believes a threshold is needed for an acceptance criterion, so sites are not evaluating numerous areas that are not compromising function. A reasonable threshold would be one that is beyond the minor and moderate leaching seen and offer that "Excessive leaching of calcium hydroxide" can be used as a criterion.

Page #	Line #, Table #, Section #	Comment
3-72	Line 14	Although MIC is considered credible, it probably isn't plausible on concrete with an engineered soil that is well drained and clean under the pad, especially with no operating experience to show any history.
3-73	Line 18	"C-S-H" term has not been defined.
3-75	Line 24	Formatting.
3-85	Entire Section 3.6	Does not include Stainless Clad Fuel Assemblies. LACBWR fuel is 348H SS.
3-87	Line 31	Formatting.
3-100	Paragraph 3.6.2	LACBWR assemblies have Inconel 600 and 304 SS components.
4-159	Table 4-11, Bolting (Top Neutron, port covers), Steel, Sheltered	Stress Relaxation was said to be not credible per 3.2.1.10 for CS and again in 3.2.2.10 for SS. Aging Management should therefore be "No". Currently refers to bolted seal AMP.
4-169	Line 23, Section 4.5.2, 1st paragraph	The next to last sentence should read: "The square fuel tubes in the BWR basket, including four oversized cross section fuel tubes, may include stainless-steel encased Boral® sheets on up to two sides for criticality control".
4-170	Line 35, Section 4.5.3, 4th paragraph	The fifth sentence, should read as follows: "The Yankee Rowe and Connecticut Yankee PWR fuel tubes are covered with stainless-steel encased Boral® sheets on all four sides for criticality control."
4-170	Line 38, Section 4.5.3, 4th paragraph	Add new last sentence: "The LaCrosse BWR-MPC fuel tubes have Boral® sheets on up to four sides encased in stainless-steel sheets."
4-176	Table 4-12	Incorrectly identifies Structural Lid as exposed to a helium environment. The Structural Lid is installed above and encases the Shield Lid. Environment between the two lids would be indoor air.
4-176	Table 4-12	The Structural Lid interior surface environment is Fully Encased, not Sheltered. The exterior Structural Lid surfaces are in a sheltered environment.
4-177	Table 4-12	The Spacer Ring is in the airspace between the structural lid and the shield lid which are both welded in place. Therefore, the environment is not Sheltered but rather a dead airspace that is not conducive to CISCC and this component should not have an AMP assigned. Fully Encased would be a more appropriate environment.
4-177	Table 4-12	The Shield Lid should have its own row with both Helium and Fully Encased environments.
4-177	Table 4-12	The Port Cover environment is Fully Encased, not Sheltered.
4-177	Table 4-12	Leaves out Shield Lid, though shield lid support ring is identified. The Shield Lid (top) would be encased by the stainless steel

Page #	Line #, Table #, Section #	Comment
		Structural Lid and the interior surface exposed to the internal helium environment. Add immediately following Spacer Ring.
4-177 thru 4-178	Table 4-12	Port Covers are installed in the shield lid above the quick disconnect valve couplings and only underside of port covers would be potentially exposed to a helium environment. The top welded side of the Port Covers would be exposed to the encased indoor air environment.
4-180	Table 4-12	MAPS cite 17-4 PH as needing aging management per section 3.2.2.8, however did not transfer it to Table 4-12, page 4-180 as on MPC Table 4-15, page 4-206.
4-180	Table 4-12	MAPS report proposes aging management of unwelded 17-4 PH fuel basket support disks per Section 3.2.2.8 for thermal aging in a helium environment. However, the identified threshold temperature is at the maximum calculated disk temperature for a UMS system loaded to maximum decay heat capacity of 23 kWs, and is significantly below ASME Code material specification limits. Additionally, the MPC 17-4 PH fuel basket support disks are significantly below the threshold temperature identified in the report. Therefore, this aging mechanism should be deleted from Table 4-15 and not included in Table 4-12.
4-181 to 4-183	Table 4-12	Please use the term "Damaged Fuel Can" after Maine Yankee for those components on pages 4-181 mid page to 4-183.
4-181 thru 4-183	Table 4-12	Revise nomenclature for "Maine Yankee Fuel Can" to "Maine Yankee Damaged Fuel Can (DFC)"
4-185	Table 4-13	Minor and moderate calcium leaching is a common occurrence identified during the annual VCC inspections. NAC believes a threshold is needed for an acceptance criterion, so sites are not evaluating numerous areas that are not compromising function. A reasonable threshold would be one that is beyond the minor and moderate leaching seen and offer that "Excessive leaching of calcium hydroxide" can be used as a criterion.
4-185	Table 4-13	Reinforcing Steel environment is air-outdoor. These components are not exposed to groundwater, so this environment should be deleted.
4-186	Table 4-13	Inner Shell main safety functions are as a gamma shielding component and a heat transfer component, not structural, so intended safety function should be identified as "SH, TH", or "SH, TH, SR" not "SH, SR".
4-186 to 187	Table 4-13	General comment on recommending use of the vendor terminology for components. Example: NAC believes the term Base Plate Assembly refers to both the NAC Baffle Weldment & Base Weldment components combined, Pedestal Plate refers to the NAC Base Plate and the Pedestal Cover refers to the NAC cover. If there is confusion on what components require AMPs, the Licensee might not address it during inspection.

Page #	Line #, Table #, Section #	Comment
4-186 to 187	Table 4-13	The VCC Inner Shell, Pedestal Plate and Base Plate Assembly have an External Surfaces Monitoring of Metallic Components AMP assigned for corrosion, however these are sheltered areas and will only be seen during the canister inspections. These should probably be termed as an Internal VCC Metallic Components Monitoring AMP.
4-188	Table 4-13	The Base Plate Nelson Studs identify either a TLAA or AMP to address general and pitting/crevice corrosion; however, NAC doesn't see where an AMP can address this because the studs are embedded in concrete and are not accessible for inspection.
4-188	Table 4-13	Is the galvanic corrosion mechanism on the Outlet Vent Assembly intended to be with the vent screens?
4-188	Table 4-13	Base Plate Nelson Studs are an embedded (concrete) components, and should be addressed by a Reinforced Concrete Structure AMP like the embedded steel reinforcements.
4-188 thru 4-189	Table 4-13	Outlet Vent hardware is defined as a structural component, but its main intended safety function is thermal (external protection of the outlet vent from entry and blockage of foreign materials), so intended safety function should be "TH, SH", not "SR".
4-188 thru 4-189	Table 4-13	The listing does not include the Inlet Vent Hardware, so Outlet Vent Hardware should be revised to be "Inlet and Outlet Vent Hardware".
4-189	Table 4-13	Is the galvanic corrosion mechanism on the Lid intended to be with the bolts?
4-191	Table 4-13	MAPS state a TLAA is needed for NS-3 Boron Depletion. NS-3 used in UMS/MPC VCC shield plugs is a concrete composite without added boron and therefore, would not require a Boron Depletion TLAA.
4-191	Table 4-13	Change the Neutron Shield environment from embedded in steel to fully encased in steel.
4-191	Table 4-13	The neutron shield materials contained in the Shield Plug should be defined as "Fully Encased (FE) (Steel)" rather than "Embedded (steel)".
4-195	Table 4-14	Why is Neutron Shield (Cask Body) identified as requiring a TLAA/AMP for Thermal Aging, whereas it is not identified as required for the Steel MAGNASTOR Transfer Cask, but is for the Stainless Steel MAGNASTOR Transfer Cask? Please clarify or correct.
4-194 thru 4-195	Table 4-14	NAC defines the Transfer Cask body and shield door neutron shielding and gamma shielding as Fully Encased (FE) (Steel) as these components are fully encased in steel components.
4-197	Table 4-14	Shield Door Rails, which are coated steel, are identified as requiring aging management by the Transfer Cask AMP for Galvanic Corrosion for loss of material when the doors rails are

Page #	Line #, Table #, Section #	Comment
		not connected to other non-carbon steel materials. Please clarify or delete.
4-200	Table 4-15	Section 3.2.2.9 states that radiation embrittlement is not credible, so the TLAA/AMP for the shell helium environment should be removed.
4-202	Table 4-15	The Spacer Ring is in the airspace between the structural lid and the shield lid which are both welded in place. Therefore, the environment is not sheltered but rather a dead airspace that is not conducive to CISCC and this component should not have an AMP assigned. Fully Encased would be a more appropriate environment.
4-203	Table 4-15	The Port Covers are in the airspace between the structural lid and the shield lid which are both welded in place. Therefore, the environment is not sheltered but rather a dead airspace that is not conducive to CISCC and this component should not have an AMP assigned. Fully Encased would be a more appropriate environment.
4-203	Table 4-15	Leaves out Shield Lid (for Yankee MPC and CY-MPC only), though shield lid support ring is identified. The Shield Lid (top) would be encased by the stainless steel Structural Lid and exposed to the internal helium environment. Add immediately following Closure Lid assembly spacer. The MPC-LACBWR has a closure lid/closure ring in place of the standard MPC shield lid and structural lid.
4-202 thru 4-203	Table 4-15	The Closure Lid Spacer of the MPC-LACBWR design, which is aluminum, is identified as affected by Thermal Aging and Creep and requiring aging management, although the lid spacer's principle function is to act as a spacer to limit movement of the fuel assemblies located in the central section of the fuel basket, and has no defined structural loading conditions. However, the aluminum heat transfer disks in the MPC-LACBWR and in both the NAC-UMS, and Yankee-MPC and CY-MPC TSC designs, which are exposed to higher temperatures in the central section of the fuel basket, do not require aging management for these aging mechanisms. Please clarify and/or correct.
4-203	Table 4-15	The MPC-LACBWR Closure Lid outer redundant port cover plate is exposed to a Sheltered environment, like the Closure Ring, and the inner surface is exposed to trapped air between the two redundant port covers. The inner port cover plate is encased in steel on the outer surface and potentially helium or indoor air on the inner surface.
4-206	Table 4-15	Fuel Basket Support Disk for all MPC TSCs is 17-4 stainless steel, identical to NAC-UMS PWR support disks. However, MPC TSC table requires aging management for thermal aging for the stainless-steel support disks although it is not required for the UMS stainless-steel support disks, only the steel support disks of

Page #	Line #, Table #, Section #	Comment
		the BWR fuel basket assembly. Please correct to delete the aging management requirement or clarify discrepancy. (See earlier comment on Page 4-180 and Table 4-12).
4-215	Table 4-16	Inner Shell main safety functions are as a gamma shielding component and a heat transfer component, not structural, so intended safety function should be identified as "SH, TH", or "SH, TH, SR", not "SR".
4-215 to 4-217	**Table 4-16**	**The VCC Inner Shell, Pedestal Plate and Base Plate Assembly have an External Surfaces Monitoring of Metallic Components AMP assigned for corrosion; however, these are sheltered areas and not external, so they will be seen only during the canister inspections. Also, only the accessible surfaces of the Pedestal Plate can be viewed by remote visual versus the entire plate. These should probably be termed as an Internal VCC Metallic Components Monitoring AMP.**
4-217	Table 4-16	The Base Plate Nelson Studs have both TLAA and AMP to address general and pitting/crevice corrosion; however, NAC doesn't see where an AMP can address this because the studs are embedded in concrete and are not accessible for inspection.
4-217	**Table 4-16**	**Base Plate Nelson Studs are an embedded (concrete) components, and should be addressed by a Reinforced Concrete Structure AMP like the embedded steel reinforcements.**
4-218	Table 4-16	Outlet Vent hardware is defined as a SH, SR, TH component, but its main intended safety function is thermal (external protection of the outlet vent from entry and blockage of foreign materials) and shielding of access points, so intended safety function should be "TH, SH".
4-218	**Table 4-16**	**Inlet Vent Hardware should have the same defined functions as the outlet vent hardware of "SH, TH", not SR.**
4-219	Table 4-16	Note that only the MPC-LACBWR VCC has fixed inlet vent supplemental shielding assemblies, and YR-MPC has removable inlet vent supplemental shielding assemblies. CY-MPC is not certified with inlet vent shielding assemblies.
4-219 thru 4-220	**Table 4-16**	**The Lid Assembly (for LACBWR-MPC design) incorporates a concrete neutron shield fully encased (FE) (steel). Revise to show it as FE, not E-S. Also note that it is not feasible for Radiation Damage or Reaction with Aggregates aging effects to be managed by an External Surfaces Monitoring of Metallic Component AMP. If aging management is required, a TLAA or Shield Effectiveness management plan would be recommended. Please correct or clarify.**
4-219 thru 4-220	Table 4-16	The Lid Assembly for the MPC-LACBWR, which incorporates the function of the Shield Plug in the Yankee-MPC and CY-MPC designs, has internal Lid Nelson Studs identified. These components are embedded in concrete and fully encased in steel

Page #	Line #, Table #, Section #	Comment
		(FE), and potential aging effects from General Corrosion and Pitting and Crevice Corrosion are not expected in the fully encased environment. Please correct or clarify.
4-219 thru 4-220	**Table 4-16**	**The Lid Assembly for the MPC-LACBWR has Fully Encased Concrete like Hi-Storm 100. The MPC-LACBWR Lid Assembly is identified as requiring aging management for radiation damage. On the Hi-Storm 100, no aging management is identified for the encased concrete. Please clarify or correct.**
4-220	Table 4-16	The "Lid Center Support, Nelson Studs" is specific to Dairyland and not applicable to Connecticut Yankee or Yankee Rowe.
4-221 thru 4-222	**Table 4-16**	**The Shield Plug for Yankee-MPC and CY-MPC has neutron shielding that is fully encased (FE) in steel, not embedded. Please correct.**
4-224	Table 4-17	Why is Neutron Shield (Cask Body) identified as requiring a TLAA/AMP for Thermal Aging, whereas it is not identified as required for the Steel MAGNASTOR Transfer Cask, but is for the Stainless Steel MAGNASTOR Transfer Cask? Please clarify or correct.
4-223	**Table 4-17**	**NAC defines the Transfer Cask body neutron shielding and lead gamma shielding as Fully Encased (FE) (Steel) as these components are fully encased in steel components. Correct "Gamma Shielding" to "Neutron Shielding" for NS-4-FR materials.**
4-226	Table 4-17	Shield Door Rails, which are coated steel, are identified as requiring aging management by the Transfer Cask AMP for Galvanic Corrosion for loss of material when the doors rails are not connected to other non-carbon steel materials. Please clarify or delete.
4-229	**Table 4-18, Closure Lid**	**Intended Safety Function should also list Confinement (CO) in addition to SR.**
4-230	Table 4-18, Closure Ring	Intended Safety Function should also list Confinement (CO) in addition to SR.
4-239	**Table 4-18**	**Under Damaged Fuel Can Screen also add Wiper to the list as the wiper extends out further than the screens and acts as the CO boundary between the DFC lid and DFC collar.**
4-246	Table 4-19, Lid Assembly, Concrete	Radiation Damage (both cracking and loss of strength) refers to TLAA or AMP but 3.5.1.9 says radiation damage to concrete is not credible. Aging management should therefore be "No".
4-250 thru 4-251	**Table 4-19**	**Inner Shell main safety functions are as a gamma shielding component and a heat transfer component, not structural, so intended safety function should be identified as "SH, TH", not "SR, SH, TH".**
4-245 thru 4-247	Table 4-19	The Lid Assembly incorporates a concrete neutron shield embedded in concrete. It is not feasible for Reaction with Aggregates aging effects to be managed by an External Surfaces

Page #	Line #, Table #, Section #	Comment
		Monitoring of Metallic Component AMP. If aging management is required, a TLAA would be required. Please correct or clarify. Also, the environment should be Fully Encased (FE) (steel).
4-247 thru 4-248	Table 4-19	The Lid Anchor (standard and alternate configuration) steel components that are embedded in concrete cannot be monitored for aging management for General Corrosion or Pitting and Crevice Corrosion by an External Surfaces Monitoring of Metallic Component AMP. If aging management is required, a TLAA or the Reinforced Concrete Structures AMP would be appropriate. Please correct or clarify.
4-293	Table 4-24	The proposed AMP to look for cracking and loss of strength by Aggressive Chemical Attack under the Groundwater/Soil environment implies that the site would be looking at the pad concrete below ground level. The site will be taking this to mean that this will be an opportunistic inspection in the case of other work that exposes the pad below ground level, especially considering the site will be taking groundwater samples to monitor for an aggressive environment.
6-1	Table 6-1	Suggest breaking section 6.7 into two separate AMPS. One for readily accessible, metallic, external surfaces exposed to outdoor atmospheres and one for sheltered, internal metallic surfaces available for inspection during remote camera inspections of the canister. There will be different inspection programs, repairs, inspection frequencies, etc. for these two cases.
6-6	Table 6-2, Element 1, 3rd bullet	The scope of this bullet should be revised to "Known areas of the canister to which temporary supports or attachments...". This would be based on document reviews of locations where temporary attachments were used.
6-6	Table 6-2, Element 1, 3rd bullet	Add ", if known" to end of sentence.
6-6 thru 6-16	Table 6-2	Current draft AMP specifies the use of volumetric examination methods for determining size and depth of pits or cracks indication potential for SCC. However, such inspection techniques are not currently commercially available with a proven performance record, and therefore, would be difficult to implement at the current time. The AMP should be modified to specify that volumetric examination methods may be implemented when proven effective for the inspection conditions and have proven results.
6-6 thru 6-16	Table 6-2	It is noted that not all areas of temporary attachments were mapped relative to the longitudinal weld of the canister, and therefore it may be impossible to identify all such areas on canisters fabricated in the early 2000s. However, it is noted that all NAC fabricated canisters had temporary attachments

Page #	Line #, Table #, Section #	Comment
		removed correctly, surfaces prepped, and dye penetrant examined in accordance with the requirements of the NAC Fabrication Specification. The AMP should be revised to state that areas of removed temporary attachments will be identified to the extent possible based on available fabrication records and canister surface accessibility for inspection.
6-6 thru 6-16	Table 6-2	What level of examination of the canister surface is expected, e.g., 75%, 50%, or best effort?
6-7	Table 6-2, 3rd sentence under the Volumetric Examination section	Recommend not implying that cleaning is to be performed simply because it can be done. A cleaning assessment may be more appropriate prior to cleaning than the assumption to clean simply because it's possible. This was evident on the vertical surfaces of the GTCC canister at Maine Yankee which were absent of surface accumulation and would not need a cleaning. Also, there have been discussions at the ASME code case meetings on whether the industry wants to disturb the as-found condition on the canisters as with a cleaning.
6-7	Table 6-2, Element 4, Visual Examination Section	A performance demonstration is overly conservative for this type of inspection and not warranted as corrosion areas will be readily apparent to prompt further investigation. The visual inspection requirements in IWA 2200 that MAPS cites further down the paragraph are adequate.
6-9	Table 6-2, Element 5, 1st bullet	Likely, the CoC renewal application will not be approved before or at the beginning of the period of extended operation, therefore NAC is questioning how a baseline would be performed if the AMP is not approved yet. The site would be taking a risk that the AMP is changed during the application review process and therefore the baseline would not really be a representative baseline if the AMP is changed.
6-10	Table 6-2, Element 6, 2nd and 3rd paragraphs	ASME Section XI Class 1 acceptance criteria is not designed for this application, whereas the EPRI guidance in document 3002008193 has been generated for canister inspections and acceptance criteria. Recommend using the EPRI acceptance criteria.
6-10	Table 6-2, Element 6, 4th paragraph	This removal of iron deposits and rust stains should be reserved for welds and their associated heat affected zones. While this section implies this, it is not clearly stated, and the section should be revised accordingly.
6-10	Table 6-2, Element 6, 2nd bullet	Establishing an acceptance criteria of a single 1 mm diameter red/orange colored is overly conservative and may extend a site's inspection well beyond what it was intended on being due to having to investigate numerous non-relevant indications. The corrosion specimens presented at various conferences/committees reflect a cluster of circular corrosion indications versus just a single spot, therefore NAC recommends

Page #	Line #, Table #, Section #	Comment
		basing this criteria on the density of corrosion indications and/or a larger diameter threshold with referenced basis.
6-12	Table 6-2, Element 7, last sentence	At ISFSI-only sites the canister cannot be taken out of service like an active component, and therefore, NAC recommends the course of action would be for the site to enter the condition into their corrective action program and allow the site to evaluate the situation to determine the proper action.
6-18	Table 6-3, Element 1, Section 3	Radiation surveys are initially obtained per Technical Specification requirements and are also taken routinely at the site, therefore additional surveys would be unnecessary.
6-18	Table 6-3, Element 1, Item 2	Need additional clarification for groundwater chemistry monitoring - is this deep wells or surface conditions in direct contact with the concrete being monitored? This should be ground in immediate vicinity/depth of concrete being monitored vs drilling deep wells.
6-18	Table 6-3, Element 1, Item 3	Item 3 is not related to aging management. Sites are already required to perform periodic monitoring of boundary doses which are cited as sufficient to detect failed systems and abnormal conditions. Sufficient radiation monitoring will already be performed during execution of other aging management activities above and beyond surveys required by DSS and ISFSI TS requirements. A radiation monitoring requirement embedded in an AMP is not only not substantiated but it will cause undue work and exposure to station employees for no gained benefit. All other references to radiation surveys should be removed from Table 6-3.
6-19	Table 6-3, Element 2	The first paragraph should be deleted. This paragraph is not substantiated by the MAPs document and is not related to or mitigate any aging management issues. TS monitoring requirements (via temperature monitoring or inlet/outlet inspections) are not changed during license renewal and will continue to be required on a more frequent basis than prescribed here. Any abnormal conditions identified by this already required monitoring will be corrected by licensee's corrective action program.
6-21	Table 6-3, Element 4, Frequencies	2nd paragraph lists 5yr interval which seems to contradict first paragraph of inspections per ACI 349.3R-02.
6-21	Table 6-3, Element 4, Sample Size	1st paragraph - 100% surface area concrete structure inspection should be limited to sampling size of 1 or 2, similar to canister inspection. Detailed inspection of a few systems will be sufficient to identify initiation of issues that would warrant increased inspections per licensee's CAP program (extent of condition evaluation). Performing 100% surface exam of all systems will result in undue work and exposure with no measurable benefit.

Page #	Line #, Table #, Section #	Comment
6-18 thru 6-25	Table 6-3	Reinforced Concrete Structures AMP – Currently the draft AMP specifies doing 100% inspection of external concrete structures for 100% of the concrete casks deployed at a given site. Would it be considered appropriate to perform the inspections of large deployments of casks (e.g., 60 or 100+ casks per site) to do the inspections in tranches of 20% of deployed casks based on age instead of the frequency and timing specified. Also, once a concrete cask enters the PEO, or GL determines it appropriate, would it be acceptable to defer or eliminate the normal VCC maintenance inspections performed annually or biannually as specified in the FSAR as they would be effectively redundant with the AMP?
6-18 thru 6-25	Table 6-3	Under Scope of Program, Item 3, Radiation Survey requirements does not appear to be necessary or beneficial to determining the aging effects on a VCC. At the current time, all Licensees are required to verify compliance to 10 CFR 72.104 for off-site dose. Also prior to and during Reinforced Concrete Structure inspections, radiation protection personnel (RP) will survey the entire area of the planned work to establish dose rates for personnel access. Requiring quarterly additional individual dose assessments for each cask would require significant resources including man-lift(s) and several RP personnel to access all areas of the cask originally surveyed following loading. This would also result in significant additional personnel dose with no discernable benefit and not compliant with ALARA principles. Due to the decay of the stored fuel assemblies, all doses are expected to be lower than originally measured and the cask structure would have needed to withstand significant degradation to loss the effectiveness of the concrete and steel shields. Such degradation would be observable during the concrete structures or external/internal steel structures inspections.
6-30	Table 6-4, Element 4	The parameters monitored do not need a VT-3 level of inspection to identify loss of coating, general corrosion, missing hardware...etc. This level of inspection has been and can easily be accomplished by the resources at the sites. Recommend leaving the training and qualification to the sites for these inspections.
6-31 & 6-32	Table 6-4, Elements 4 & 5	Timing/Baseline Inspection: The initial inspections should not start until the AMP is approved in the C of C renewal application. Section 3.6.3 under NUREG 1927 allows one year to implement the AMPs after the C of C is approved.
6-32	Table 6-4, Element 6	Having acceptance criteria of no coating defects and no corrosion products in the base metal is too conservative as this does not affect the function of the VCC structure. The first bullet is more appropriate to ensure the base metal is sound. Coating damage

Page #	Line #, Table #, Section #	Comment
		on outside surfaces has been both monitored and repaired at sites, but having an acceptance criterion of no coating damage is unrealistic. Coating damage found on sheltered/inaccessible areas shows superficial corrosion on exposed areas, which can be monitored and/or addressed with a TLAA.
6-33	Table 6-4, Element 10, "Operating Experience"	The operating experience cited for this AMP is about stainless steel CISCC which is outside the scope of this AMP. There is Op-Ex in the AMID database that applies to this AMP and describes inspection findings on a GTCC VCC cask. These examples include coating failures yet superficial corrosion on the carbon steel in the sheltered regions of the cask.
6-35	Section 6.8	This verification is done daily at the sites (per procedure OP-1 at the Yankee sites) to satisfy Tech Spec requirements, therefore this AMP would be redundant and probably lead to confusion at the sites. Recommend deleting this AMP.
6-35	Section 6.8	This entire section should be deleted. Validation of ventilation acceptability is already required by DSS TS and is not specifically related to or mitigate any aging management condition. DSS TS already have a monitoring requirement sufficient to detect abnormal conditions. Any abnormal condition will then be entered into the licensee's CAP. This section will do nothing but provide additional administrative burden on the licensee.
6-36 thru 6-41	6-5	It does not appear that a separate AMP is required for Ventilation Systems, as temperature monitoring and/or visual inspection program requirements are currently specified in the CoC's Technical Specifications. The inspection of the actual inlet and outlet vent assemblies can be appropriately incorporated into the internal or external surfaces monitoring of metallic components to determine if there are vent blockages that could negatively affect the thermal performance of the concrete cask structure.
6-37 & 6-40	Table 6-5, Elements 4 and 9	Temperature monitoring is not safety related or calibrated, at least at the NAC-UMS sites. It is not relied upon to satisfy Tech Specs as the loss of temperature monitoring does not impact the passive system and a visual surveillance will satisfy the Tech Spec. TEs and RTDs are inherently reliable and failures are self-evident by going high, therefore no calibration is warranted.
6-60	Table 6-8, Element 1, "Scope of the Program"	There should be a statement in the Scope that this AMP does not apply if the HBU fuel is canned or otherwise contained.