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Request Num	ber:	1					
Individual Contacted:		Sid Powell		Date Contacted: 10		0/15/2009	
Requestor/Ins	pector:	Anthony Masters		Category:	s tos an instrumentationareautorian	Question	
Request:	Request: There is an area on the containment dome on the south, ap walking platform and the peak of the dome that is depressed covering that is seriously deteriorated. Is this evidence of re			the south, approxima t is depressed. Ther vidence of repeat de	tely half wa e appears t lamination	ay between the o be a grout damage?	
References:					a agage a produgg denoted all the a product denoted a		
Response Ass	signed to:	Craig Miller		Date Due to Ins	pector:	10/16/2009	
Response:							
investigation up had been a nur the same as it I pours of the do curvature and h Furthermore, a returning to the insert into our c	bcoming re mber of yea has been in me due to had severa s part of ou dome this data base o	garding the condition of the ars since my last visit up the n my past trips as part of te the original delamination, t I localized uneven areas. ur ongoing Condition Monit evening (10/16/2009) with on this subject so that we h	le concrete here, the over endon surv the final su The one in toring of St n Dayna M have a refe	on the dome (refere verall condition of the eillance. I believe th rface did not end up question is exactly t ructures effort (EGR endez to obtain digita rence point for future	nce AR 357 a dome is pr at when the being a sm hat. -NGGC-035 al photograp inspection	7670). Although it retty much exactly by made the re- looth arcing 51), I will be phs of the area to s.	
Misc Notes:						· · · · · · · · · · · · · · · · · · ·	
Response By:	Joe Lese		*****	RETURNED AND AND AND AND AND AND AND AND AND AN	n mar ver om 1 av de av delen som en sen	Nacher all generalise for a second program to a graph of the second and a second and a second and a second and	
Reviewed By:				Date Response Pro	ovided:	10/16/2009	
Status:	Closed		"]	Date (Closed:		

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Page 1 of 94 2

				20-	Jan-10	2:10:13 PM
Request Num	ber:	2				
Individual Cor	stacted:	Sid Powell	Date Con	itacted:	10/16/2	2009
Requestor/Inspector:		Anthony Masters	Са	tegory:	Informa	tion Request
Request: The Inspector has requested a procedure that was used for tensioning the tendons originally						ns originally.
References:						
Response Ass	signed to:	Sid Powell	Date Du	e to Inspect	or:	10/16/2009
Response:						
Prescon Field I A\POWELL Q-/	nstallation A\Request	Manual.tif was placed in 2, Original Tendon Tensi	folder L:\Shared\2009 NI oning Procedure	RC SPECIAL	INSPEC	TION TEAM Q-
Misc Notes:						
Response By:	· · · · · · · · · · · · · · · · · · ·				C.C.all Diff Chinamakananakan	alanta tatarah data mina kanang panananan kana sa
Reviewed By:			Date Respo	nse Provide	əd:	
Status:	Open			Date Close	ed:	

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Request Num	ber:	3				
Individual Contacted:		Paul Fagan		Date Contacted:	10/	16/2009
Requestor/Ins	pector:	George Thomas		Category:	Info	rmation Request
Request:	George T copy and issued ye	Thomas of the NRC reques delivered to Mr. Thomas at t.	ted a copy 0900. Th	of our EC 74801 on this is a preliminary copy	e core b since th	ores. I printed a ne EC has not been
References:						
Response Ass	signed to:	Glenn Pugh		Date Due to Inspe	ector:	10/16/2009
An approved (i 10/28/09.	ssued) cop	by of Revision 1 of the EC 7	74801 was	printed and hand carri	ed to Ge	eorge Thomas on
Misc Notes:	See ques	tion #19 for continued subr	nittal of NE	E and Core Bore Plan	change	S.
Response By:	Glenn Pu	ıgh		na anta da anta any any any ang	diter minne sokra tova signt	nan kana seri si
Reviewed By:	Charles	Villiams		Date Response Prov	ided:	10/28/2009
Status:	Closed	······································		Date Cl	osed:	
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Request Num	ber:	4					
Individual Contacted:		Sid Powell		Date Contacted:	10/16/2009		
Requestor/Ins	pector:	George Thomas	annouel as baseling and an annual and an annual an	Category:	Inform	ation Red	quest
Request:	Please pro original co concrete u	ovide the concrete mix des onstruction of the containm used in the original constru	e the concrete mix design and associated material test data for concrete use in ruction of the containment wall. Also provide original test data of production I in the original construction of the containment wall.				
References:	Calculatio	n S00-0047					
Response As	Response Assigned to: Sid Powell Date Due to Inspector: 10/17/2009						
Response:							
Response: The RB exterior shell consisted of around 105 separate concrete pours. Attachment B of calculation S00-0047 shows a listing of these pours by elevation and buttress zone. It also lists the mix design for each pour. For example, the SGR containment opening is between buttress 3 and 4 and between Elevations 180' and 220'. P the pour list in the calculation the corresponding pour numbers are 685RB, 695RB, 700RB, 712RB, and 722RB The construction microfiche listing then gives a corresponding microfiche card number for each of these pours. For example the records for pour number 685RB are on card 1P08022. A typical microfiche card will contain several pages of information including the mix design, batch tickets (truck slips), the date of the pour, curing data, and other relevant data. CR3 Document Services are attempting to scan these cards for use by the NRC and Root Cause team. At this time, there are some examples of the pour cards at L:\Shared\Containment Root Cause Files\Requested by NRC. A copy of calculation S00-0047 is also included at this location. Document Services is attempting to scan the pours between buttresses 3 and 4 (all elevations) first. If a different location required, please let Glenn Pugh C. G. Pugh 10/17/09 Misc Notes:						For 20'. Per 722RB. pours. ntain ing ∋ NRC nt Root nent cation is	
Response By:	Glenn Pu	ıgh					4010000
Reviewed By:				Date Response Prov	ided:	10/	16/2009
Status:	Closed	2 & 51 - 55 51-154-0000 (011) 207 76-00/000 1 2010 2010/0001 00/00/01 F-007 7618-000 10 51 51 50		Date Clo	osed:		

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Request Num	ber:	5				
Individual Contacted: Requestor/Inspector:		Sid Powell	Date Contacted:	: 10/16/2009		
		George Thomas	Category:	ory: Inform		mation Request
Request:	With rega and surro prior to te After rest	ard to the SGR Constructio bunding areas for the Dead andon detensioning and ren oration of opening and tend	n Opening, please provide stress load + Prestress load combinatio noval (ii) after tendon removal; (ii lon retensioning.	s plots o on for the i) with S	f the SGR e following GR openi	t Opening g cases: (i) ng and (iv)
References:				1990 b 3 112 Million (1990) 10 Million (1990)		
Response Ass	signed to:	Sid Powell	Date Due to Insp	ector:	10/17	7/2009
Response:						
George asked Load combinati the various load etc.) were indiv factors applied structural analy conditions throu plots.	if we could ion at the d combina ridually eva to the des vsis packa ughout the	4 stages of the SGR project tions. Each load element (aluated. Additionally each sign basis evaluations. The ge and processed, as nece e outage. Unfortunately, th	e analysis at the SGR opening to st. Unfortunately we did not run of dead load, pressure, liner plate t were run at unit values, as to sup e results of these analyses were the essary, to address the load comb e program used does not have th	br the Decompute compute port the chen extra inations ne ability	r stress and thermal g various a racted from for variou to develo	Pressure nalyses for radient, amplificatior m the is building op stress
Misc Notes:	Response structural applicable configura the pertin pending r	e inadequate. By this ques behavior and response of e Prestress Load) in and ar tions prior to, during and fo ent information in an easily response to Question 28.	tion, the NRC is seeking informa the Containment Wall under real round the SGR construction oper llowing creation of the SGR cons reviewable form. This informati	tion to u loads (i ning area struction on may	nderstand .e., Dead a for the opening. be provide	the + Provide ed with
Response By:	Dan Jop	ling				an the state of th
Reviewed By:			Date Response Pro	vided:	[1	0/20/2009
Status:	Open		Date C	losed:		

and the annuation for which the

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Request Num	ber:	6					
Individual Cor	ntacted:	Sid Powell		Date Contacted:	10/16	/2009	
Requestor/Ins	pector:	Dan Naus		Category:	(Question	
Request:	: Were the vertical and hoop tendons in the SGR opening area subject to lift-off measurements before detensioning and removal. If so provide lift off measurements. Were the removed tendons inspected/examined and if so what were the findings.						
References:							
Response Ass	Response Assigned to: Sid Powell Date Due to Inspector: 10/16/2009						
Response:							
No lift off meas	urements	were made for the tendor	ns that were	removed from the ope	ening.	r tart an and second of succession community and state for the second second second second second second second	
IWL examinations www.examinations www.examinations www.examinations www.examinations.com/actions/a	ons were p vere perfor and examin	erformed on the concrete med on the two longest t ed for the two longest te	e and bearin tendons that ndons.	g plates for the remov were non-destructive	ed tendons. ly removed.	tendon end One wire each	
Misc Notes:	sc Notes: Does CR3 plan on performing tension testing (i.e., ultimate strength, yield strength and elongation) on a wire sample from one or more of the removed hoop tendons that exhibited higher than anticipated loss of prestressing force (i.e., hoop tendons that did not meet the 95% predicted value criteria in IWL)? This information may be provided with pending response to Question 22.						
Response By:	Sid Powe	11	-				
Reviewed By:				Date Response Pro	vided:	10/16/2009	
Status:	Open			Date C	losed:		

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Request Num	ber:	7				
Individual Contacted: Requestor/Inspector:		Garry Miller	Date Contacted:	10/	10/22/2009	
		Dan Naus	Category:	Info	ormation Re	quest
Request:	Provide d anyone h	e-tensioning sequence in R ear anything?	16 for the construction opening.	Provide	e procedure	? Did
	Follow up noise or b during a s detension	request: Documents relate boom was heard on Decemb subsequent visual inspectio ing procedure related to the	ed to the dome delamination seer per 4, 1974, however, no noticeal n. Did anyone hear a loud noise SGR contruction opening?	n to indi ble dam or boor	icate that a age was ol n during th	loud oserved e
References:						
Response As:	signed to:	Charles Williams	Date Due to Inspe	ctor:	10/26/2	2009
Response:		5. A.				
R16 Tendon D	etensiong	sequence.pdf: {E-mail from	n the SGR Tendon Field Enginee	er on the	e detension	ing
sequence.}			X			
sequence.} Containment C responses as v)pening - T well as son	endon Removal Timeline.xl ne plant shutdown/mode tim	sx: {Spreadsheet containing so nes and tendon detensioning seq	me inter uence ir	rview quest nformation.	ions and }
Sequence.} Containment C responses as v Z3R5 PSC Fie address Tendo	Opening - T well as son Id and Qua on Detensio	endon Removal Timeline.xl ne plant shutdown/mode tim ality Control Manual1.pdf: { oning/Removal, Plasma Ter	sx: {Spreadsheet containing so nes and tendon detensioning seq PSC Procedures [ALL], F&Q 8.0 ndon Detension, and Tendon Rer	me inter uence ir , 8.1, ar noval}	rview quest nformation. nd 10.0 spe	ions and } cifically
Sequence.} Containment C responses as v Z3R5 PSC Fie address Tendo Follow up Resp detensioning a were asked sp Additionally, se shows no evide data retrieval. L:\Shared\2009 Portmann	Opening - T well as son Id and Qua on Detension ponse: Inte nd hydroble ecifically if eismic mon ence of mo The other 9 NRC SPI	Tendon Removal Timeline.xl he plant shutdown/mode timelity Control Manual1.pdf: { oning/Removal, Plasma Tere erviews were performed with asting. None indicated any any loud noises were heard itoring data was obtained a ovement. Note: One direction two directions showed no ne ECIAL INSPECTION TEAM	sx: {Spreadsheet containing so hes and tendon detensioning seq PSC Procedures [ALL], F&Q 8.0 hdon Detension, and Tendon Rer h craft and supervisory personnel abnormal noises occurring durin d and no one identified any abnor nd reviewed for indication of mov on was invalidated due to disturbation hovement. See Seismic Data - P Q-A\WILLIAMS Q-A\Request 7,	me inter uence ir , 8.1, ar noval} associa g these mal lou rement. ance tha T-379.p Q1 Res	rview quest nformation. nd 10.0 spe ated with evolutions d noises. WO 1654 at occurred odf file at sponse Info	ions and } cifically . Some I88-01 during -
Sequence.} Containment C responses as v Z3R5 PSC Fie address Tendo Follow up Resp detensioning a were asked sp Additionally, se shows no evide data retrieval. L:\Shared\2009 Portmann Misc Notes:	Opening - T well as son Id and Qua on Detension ponse: Inte nd hydrobl ecifically if eismic mon ence of mo The other 9 NRC SPI	Tendon Removal Timeline.xl ne plant shutdown/mode timelity Control Manual1.pdf: { oning/Removal, Plasma Tenterviews were performed with asting. None indicated any any loud noises were heard itoring data was obtained a ovement. Note: One direction two directions showed no not ECIAL INSPECTION TEAM	sx: {Spreadsheet containing so hes and tendon detensioning seq PSC Procedures [ALL], F&Q 8.0 hdon Detension, and Tendon Rer h craft and supervisory personnel abnormal noises occurring durin d and no one identified any abnor nd reviewed for indication of mov on was invalidated due to disturbation novement. See Seismic Data - P Q-A\WILLIAMS Q-A\Request 7,	me inter uence ir , 8.1, ar noval} associa g these rmal lou rement. ance tha T-379.p Q1 Res	nview quest nformation. and 10.0 spe ated with evolutions d noises. WO 1654 at occurred of file at sponse Info	ions and } cifically . Some 188-01 during -
Sequence.} Containment C responses as v Z3R5 PSC Fie address Tendo Follow up Resp detensioning a were asked sp Additionally, se shows no evide data retrieval. L:\Shared\2009 Portmann Misc Notes: Response By:	Opening - T well as son Id and Qua on Detension ponse: Inte nd hydroble ecifically if eismic mon ence of mo The other 9 NRC SPI	endon Removal Timeline.xl he plant shutdown/mode tim ality Control Manual1.pdf: { oning/Removal, Plasma Ter erviews were performed with asting. None indicated any any loud noises were heard itoring data was obtained a ovement. Note: One direction two directions showed no m ECIAL INSPECTION TEAM	sx: {Spreadsheet containing so hes and tendon detensioning seq PSC Procedures [ALL], F&Q 8.0 hdon Detension, and Tendon Rer h craft and supervisory personnel abnormal noises occurring durin d and no one identified any abnor nd reviewed for indication of mov on was invalidated due to disturbation novement. See Seismic Data - P Q-A\WILLIAMS Q-A\Request 7,	me inter uence ir , 8.1, ar noval} associa g these mal lou rement. ance tha T-379.p Q1 Res	nview quest nformation. and 10.0 spe ated with evolutions d noises. WO 1654 at occurred off file at sponse Info	ions and } cifically . Some 188-01 during -
Sequence.} Containment C responses as v Z3R5 PSC Fie address Tendo Follow up Resp detensioning a were asked sp Additionally, se shows no evide data retrieval. L:\Shared\2009 Portmann Misc Notes: Response By: Reviewed By:	Opening - T well as son Id and Qua on Detension ponse: Inte nd hydroble ecifically if eismic mon ence of mo The other 9 NRC SPI	endon Removal Timeline.xl he plant shutdown/mode tim ality Control Manual1.pdf: { oning/Removal, Plasma Ter erviews were performed with asting. None indicated any any loud noises were heard itoring data was obtained a ovement. Note: One direction two directions showed no n ECIAL INSPECTION TEAM	sx: {Spreadsheet containing so hes and tendon detensioning seq PSC Procedures [ALL], F&Q 8.0 hdon Detension, and Tendon Rer in craft and supervisory personnel abnormal noises occurring durin d and no one identified any abnor nd reviewed for indication of mov on was invalidated due to disturbation novement. See Seismic Data - P Q-A\WILLIAMS Q-A\Request 7, Date Response Prov	me inter uence ir , 8.1, ar noval} associa g these mal lou rement. ance tha T-379.p Q1 Res	rview quest nformation. nd 10.0 spe ated with evolutions d noises. WO 1654 at occurred of file at sponse Info	ions and } cifically . Some 188-01 during -

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Request Num	ber:	8		
Individual Contacted:		Garry Miller	Date Contacted:	10/22/2009
Requestor/Ins	pector:	Dan Naus	Category:	Information Request
Request:	Any inforr construct	nation on significant repairs on to today.	s (concrete related) between buttres	s 3 and 4 from original
References:	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
Response Ass	signed to:	Charles Williams	Date Due to Inspecto	or: 10/26/2009
Response:				
for any Work O "concrete crack away by review The results wer However, none L:\Shared\CR3 In addition, con that was emplo the area of inte is original cons Misc Notes:	vinders, NC c." There ving the titl re several of the iter Containm versations yed in the rest. No r truction.	Rs, Correspondence, or oth were several "hits" on these e of the document. Any "hi AR's and Work Orders to re ms reviewed were in the are ent\NRC SIT Team Questions s were held with several per early 1970's. No one could nodifications could be ident	her documents using the keywords " key words. The majority of these "I ts" where the title was not clear were epair damaged or cracked concrete a of concern. Document search su ons & Info\Request 8, Q2 Response ople in maintenance and engineering d remember making any repairs on t ified. Conclude that the concrete b	concrete repair" and hits" were screened reviewed individually. on the RB containment. Immaries are here: Info- Pugh g, including one person he RB shell concrete in etween buttress 3 and 4
n fan Bloganda y Karangan Mangandaryk filmilia y santar a generalden i standar y santar				
Response By:	Glenn Pu	Jgh		
Reviewed By:	Chales V	Villiams	Date Response Provide	d: 10/28/2009
Status:	Closed		Date Close	d:

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Request Num	ber:	9						
Individual Contacted:		Garry N	Miller		Date Contacted:	10	/22/2009	
Requestor/Inspector:		Dan Na	aus		Category:		Question	
Request:	 Request: Was there any analysis of why re-tensioning was required in past tendon surveillance activities (done at that time of surveillance testing)? Follow up request: Since lower than expected lift-off loads have been obtained in the recent 3 tendon surveillanceds for a significant number of horizontal tendons, describe your plan, if any, to dtermine, evaluate and eliminate the cause(s) of the condition not meeting the IWL acceptance by examination criteria. Follow up request: Is the cause of the larger than anticipated losses of prestressing force in several hoop tendons being addressed as part fo the root cause assessment? 							
References: Response Ass Response:	signed to:	Charle	es Williams		Date Due to Ins	pector:	10/26/20	009
There was no a Additional infor folder, under su related to tendo	analysis pe mation in r ub-folder: ' on lift-off te	rformed esponse 'IWL - T sting an	during past surve e to the above que endon Surveilland d re-tensioning.	eillance tes estion: Se ce History"	ing years in which ter e License Request No for information, discus	ndons we o. 24 – NI ssions an	re re-tensior RC SIT Ques d actions tak	ied. stion# 18 sen
Misc Notes:								
Response By:	Rick Port	mann					g 1.1.441.111.1	
Reviewed By:					Date Response Pro	vided:	11	/2/2009
Status:	Open				Date C	losed:		

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Request Num	ber:	10						
Individual Cor	ntacted:	Garry Miller		Date Contacted:	10/22	10/22/2009		
Requestor/Ins	pector:	Dan Naus		Category:	(Question	a ummaa mummu	
Request: When CT part of C ⁻		L is using IR and IE, ca L NDE procedures?	an they determine	relative concrete qu	ality of loc	ations teste	ed as	
References:			· · · · · · · · · · · · · · · · · · ·				 	
Response As	Response Assigned to: Paul Fagan Date Due to Inspector: 10/26/2009							
Response:								
the test point. significant void delamination w difference in qu RBCN-0014-N the concrete, w areas with sub	The aspec or honeyo hich effecuality of cc (Core #1 which char sequent b	ts in concrete influencing comb and change in co tively reduces the thick increte is typically reflect 3) where a higher mob inged density and modul oroscope examinations	Its is initialitie of a ng IR results inclu- oncrete properties (ness of wall or sla cted in the test re pility value was ob lus in that localize s.	de presence of dela The most significan ab responding to the sults. For example, a tained by NDT, had d area, no delamina	in existence mination, c it factor is t impact. Co a core remo less coars tion was no	racking, he presence onsiderable oved from p e aggregat oted in thes	ce of canel te in se	
MISC NOLES.					and works of south and a south and a south a so			
Response By:	Paul Fag	jan	× · · · · · · · · · · · · · · · · · · ·					
Reviewed By:			D	ate Response Prov	ided:	11/12	/2009	
Status:	Closed			Date Clo	sed:			

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Request Num	ber:	11				
Individual Contacted:		Garry Miller	Date Contacted:	10/22/2009		
Requestor/Inspector: Louis Lake Categ			Category:	Question		
Request: Does the PGN Testing Procedure identify how CTL calibrates their equipment, qualification of personnel, and equipment set-up (i.e., frequencies)? Provide Testing Procedure to NRC.						
References:	······································		· · · · · · · · · · · · · · · · · · ·			
Response As	signed to	: Paul Fagan	Date Due to Inspe	ector: 10/26/2009		
Response:				,		
Revision 2. The question is Area 1 – Calib Step 3.2 Resp Step 3.2.1 The Condition Provide equipr Step 3.3 Limits Step 3.3.2 The equipmen of validating th assessments u Step 5.3 Repo Step 5.3.1 An equipment calibration/vali Enclosure 7 For a critical st calibration. Enclosure 8 Individual equi individual equi individual NDT requires an Eq Number is trace Area 2 – Quali Step 3.2.1 The Condition supervision are	s split into ration onsibilities Assessme nent list and s & Precau t utilized to e test prod utilizing NE rts list with ca dation doo tructure of pment pao locations pupment P ceable to a fication onsibilities Assessme	three areas with specific procedur ent Consultant is responsible for: nd associated calibration document itions o perform the NDT was calibrated in cess and equipment for a specific a DT. alibration documentation will be pro- cument will be included in the repor- this scale, more correlation data is ckages have been established to tr with a calibrated equipment packa Package Number to be recorded for permanent plant record document set Consultant, CTLGroup, shall be trained in the use of this procedure	e steps stated to address of ntation in the field during trial use I application is standard prace ovided for the NDT used. T rt. is desired in order to finalize rack specific calibrated equage. The Exterior Containr r each NDT location. The ting the calibration records e responsible for assuring the e and associated equipment	each area. by CTLGroup. This method ctice for concrete condition The NDT process e a more comprehensive ipment in order to link nent Inspection Log Equipment Package for the equipment.		
The Condition Provide person Step 3.5.2 Initi ENSURE that inspection.	Assessme nnel qualif al Conditio all person	ent Consultant is responsible for: ication records for lead Engineer ons nel are familiar with the operating i	manuals of the equipment	to be used during the		

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Step 5.3 Report Step 5.3.1 The report will in Area 3 – Equipt Step 3.2 Respond Step 3.2.1 The Condition A Provide calibrate dedication of th Step 3.3 Limits Step 3.3.2 The equipment of validating the assessments un Enclosure 5, part TURN ON the of Enclosure 6, part	nclude personnel qualification record nent set-up nsibilities Assessment Consultant is responsibl ion/validation documentation to subs e software (SMASH) being used to e & Precautions utilized to perform the NDT was calified test process and equipment for a sp tilizing NDT. ge 1 computer to start setup process. ge 1 computer to start setup process.	Is of lead engineers who performed the NE e for: stantiate the NDT methods to be used and evaluate the NDT data. brated in the field during trial use by CTLG becific application is standard practice for c)T. to support the roup. This method
Misc Notes:	/ .		
Response By:	Paul Fagan		Manador Sandra (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997) (1997)
Reviewed By:	·	Date Response Provided:	11/12/2009

Date Closed:

Status:

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Request Numb	er:	12			
Individual Cont	acted:	Garry Miller	Date Contacted:	10/22/	2009
Requestor/Insp	ector:	Dan Naus	Category:	C	Question
Request: (a l a a	Once the allowed to Follow up delaminat affected?	construction opening is refilled with o cure, and what is decision process request: In light of the apparent muc ion, how will the concrete curing and	concrete, how and for h for start of post-tension ch more extensive repai decision process for st	ow long will ing the stru ir area affec tart of post-1	the concrete be cture? ted by tensioning be
References:	ne fil fill sleptstepp-skanner ritrigeninger				
Response Assi	gned to:	Don Dyksterhouse	Date Due to Inspe	ector:	10/26/2009
 Response locate Concrete will After forms a Forms may be as demonstrated Tendon retent concrete reache (34V18 thru 34V 42H26, 53H23 th tendons within th Tendon retensio The following is removing the for The use of autoge use involves add actual concrete would be betwee based on results between the two Attachment Z55 are reproduced Age, days Auto 1 5,620 psi 4, 2 6,450 5,930 3 6,590 6,320 5 6,860 6,830 28 8,050 8,48 The results clea expected. The h containers result 	ed in L:\SI be cured re strippe e removed d through sioning st sioning st sioning st sioning sequences (24, 34V1 hru 53H20 he opening extracted mwork ea genous con ditional re placement en the two s of Phase o curing m R3 contai below: ogenous C 760 psi 1 9% incr 0% 0 5% de rly indicat ieat of hyd ting in a h	hared\2009 NRC SPECIAL INSPEC for 7 days from the time of placemen d a curing compound is applied (Ref d after 3 days, or sooner if the concr strength testing (Ref. 1) arts with the verticals at buttress #3 ressive strength of 5000 psi, followe thru 34V7) in parallel with the hoop 5, 42H35 thru 42H39 and 53H36 thru g are retensioned (34V8 thru 34V17 uence is shown in detail on drawing from Ref. 3, page 86 and provides of arlier: uring containers is not planned durin tainers would better represent the c sources and storage space. Therefor t at the opening. To better understate onethods, S&ME was tasked with the e II testing i.e. Option 1A) and deterr tethods at 1, 2, 3, 5 and 28 days. Ins the S&ME test methodology and Containers Alternative Proposed Cu 8% increase ease ease ease ease ease ease ease	TION TEAM Q-A\DYKS at (Ref. 1). 1) ete has achieved a corr and #4 (23V1 thru 23V3 d by the remaining verti tendons above and belo a 53H39). After the cond and 42H27 thru 42H34 421-352 (Ref. 2). concrete mix strength in g the containment open uring environment befor re, standard curing met hd what the difference in esting a batch of concre nining the difference in test results. Test results ring Autogenous/Alt	TERHOUS apressive st 3, 45V22 the icals outside ow the oper crete reacher and 53H27 formation the ing concrete thods will be n compressive the (concrete compressive s for compre- s for	E Q-A rength of 3000 ps ru 45V24) after the the opening ning (42H22 thru es 6000 psi the 7 thru 53H35). nat may support e placement. removal, their e used during ive strengths e proportions e strength essive strength

		20-J	an-10 2:10:13 PM
Specified Concr Slump: 6" to 9" Air Entrainment: Concrete Unit W	ete Strength: 6000 psi at 5 days, 700 0% to 3.5% maximum /t: 145 pcf minimum	00 psi at 28 days	
References: 1. Specificatior Containment Sh 2. Drawing 421 3. EC 63016, F	CR3-C-0003, Rev. 0, Specification ell. -352, Rev. 0, RB Temporary Access lev. 26, Containment Opening	for Concrete Work for Restoration o Opening for SGR – Restoration – S	f the SGR Opening in the Sheet 1 of 1
Misc Notes:			
Response By:			
Reviewed By:		Date Response Provide	:d:
Status:	Open	Date Close	d:

					20-Jan-10	2:10:13 PM
Request Numb	er:	13				· ·
Individual Con	tacted:	Garry Miller		Date Contacted:	10/22	/2009
Requestor/Ins	pector:	George Thomas		Category:	(Question
Request:	Before add these tend	ditional tendons are de-tens lons.	sioned, will th	ere be as-found lift	off measur	ements taken for
References:						
Response Ass	igned to:	Charles Williams		Date Due to Insp	ector:	10/26/2009
Response:		•				
Planning and so are going to be & 34V18 thru 34 See lift-off data	cheduling a detension 4V22 and l provided i	are currently in progress to ed. The root cause team ha norizontal tendons 42H22 th n Request 6 response.	obtain lift-off as requested hru 42H26 &	measurements of s lift-off data on vert 42H35 thru 42H39	some of the ical tendon	tendons which s 34V3 thru 34V7
Misc Notes:						
Response By:	Rick Port	mann		new water of the first of the permittene and the start of the second start of the second start of the second st		antan kanan menangkaran penangkan kanangkan kanangkan kanangkan kanangkan kanangkan kanangkan kanangkan kanang Antan kanangkan kanang
Reviewed By:			Da	ite Response Prov	vided:	11/4/2009
Status:	Closed			Date Cl	osed:	

					20-Jan-10	2:10:13 PM
Request Num	ber:	14				
Individual Co	ntacted:	Garry Miller		Date Contacted:	10/2	2/2009
Requestor/Ins	spector:	Dan Naus		Category:	······································	Question
Request:	For the o near it?	riginal structural inte	grity test, were the	ere any strain gauges	in the SGI	R opening area or
References:						
Response As	signed to	: Charles Williams	της το δε πλατική που τη πορογραφική τη πορογραφική το στο τη πορογραφική το πορογραφική το πορογραφική το πορ Η πορογραφική το πορο Η πορογραφική το πορο	Date Due to Insp	ector:	10/26/2009
Response:						
Section 5.3.2 c attached.	of the Dom	ne Repair report inclu	ided with Letter 3F	1276-10 outlines whe	ere the stra	ain gauges were
In addition to th a detailed listir buttresses 3 an area. The clos	he final re ng of strair nd 4) from sest would	port, Attachment 1 to a gages for the SIT. Elevations 180' to 2 be at azimuths 90o	Supplement num The construction of 10'. The listing in and 200o at Eleva	ber 2 (transmitted via opening is centered or Attachment 1, does n tion 204' (gages 13, a	letter 3F1 azimuth ot show a ind 15).	076-05) contained 150o (between ny gages in this
The SIT report B, Page B-5 of	: (GAI Rep f the GAI r	ort 1930, dated 12/7 eport).	/76) contains radia	al displacements for th	iese gage	s (See Appendix
Documents for Info\Request 1	this respo 4, Q8 Res	onse are located here sponse Info- Pugh	e: L:\Shared\CR3	Containment\NRC SI	T Team C	uestions &
Misc Notes:						
Response By:	Glen Pu	gh		es de parte en la companya de la com	ele many including and chi	et dan program kanna fins fins fins fin da dan dan dan dan dan dan dan dan dan
Reviewed By:	Charles	Williams		Date Response Prov	vided:	10/28/2009
Status:	Closed			Date Cl	osed:	

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Request Num	ber:	15			
Individual Cor	ntacted:	Garry Miller	Date Contacted	1(0/22/2009
Requestor/Ins	pector:	Louis Lake	Category		Question
Request: When the 1976 roof delamination issue occurred, was there any evaluation of the rest of containment, including a "notch sensitivity" review? Refer to the FPC Final Report Page # 110 a) was the concrete different in the containment versus the dome?					of the rest of Report Page # 110.
References:	1 - 21 - 21 - 21 - 21 - 21 - 21 - 21 -				· · · · ·
Response As	signed to:	Charles Williams	Date Due to Ins	pector:	10/26/2009
Response:					
Misc Notes:		· ·			
Response By:	dentricut sederers, and a comparison of a				
Reviewed By:			Date Response Pr	ovided:	
Status:	Open		Date	Closed:	

			terreter de la caracteristica estatutiones de la contra de	
			20-Jan-10	2:10:13 PM
Request Number:	16			
Individual Contacted:	Garry Miller	Date Contacted:	10/22	2/2009
Requestor/Inspector:	Louis Lake	Category:	Inform	nation Request
Request: Discuss	the planned NDE method, its reliability	industry experience.	and other r	pertinent
informa B) Disci	ion. uss supplementary verification plans to	ensure results are reli	able.	
References:				
Response Assigned to	p: Paul Fagan	Date Due to Insp	ector:	10/26/2009
Response:			fara ann	
the element under test. Both the hammer and the records for both the ham domain using the Fast I Average Mobility is the velocity responding to the range is directly related of significant voiding or value. On the other ham value. The test results of identified through a scat Comparing to another with the absolute depth of the absolute depth of the absolute depth of determined in the IR test method has is in the process of bein characterize defects in fossil power plants. CB) According to the Prowith high mobility value removed in areas where the slightly elevated value the IR test results along the test results of the slightly elevated value the IR test results along the test res	The response to the input stress is me ne geophone are linked to a portable fie nmer force and the geophone velocity r Fourier Transform (FFT) algorithm. key parameter that the dynamic IR test ne impact divided by the force input [(m to the modulus, density and the effective an internally delaminated or un-bonded d, a sound concrete element without di can be analyzed and presented in the for led color scheme. well-known NDT method Impact-Echo (I 00 times that of the IE test. This greater bending mode over a very much lower e mode of the IE test which normally re- binforcement and tendons in the structu at relatively shallow depth, if any, will of the the presence of delamination without the testing in a time critical project. How elamination; rather it's on a comparative sting. been used to evaluate concrete structu- to g standardized by ASTM. CTLGroup has concrete. IR test has been used in eval TL Group experience for nuclear relater gress Energy procedure PT-407T, Rev s (greater than 1.0) to confirm the prese e mobility value is in the "Gray" (between use can be dispositioned through evalua- tion the boundary of delamination in the server.	asured using a velocit Id computer for data a esponse are transform produces. It is defined /s)/NJ. The mean mob /e thickness of the ele I layer will result in an stress will produce a r orm of contour plots. T E) test, the IR test use stress input means th frequency range (0-1 I quires a frequency range thaving to layout loca wever, the IR test can be basis. The width or s are condition in the para as extensive experien- uating concrete struct d structures has been . 2, concrete core sam ence of delamination. a ton. Many cores have the basis and the para attent of the para attent of the para as extensive experien- uating concrete struct d structures has been . 2, concrete core sam ence of delamination.	ty transduct acquisition a ned into the d as the stru- ility value of ment. In ge- increased a elatively low he suspect es a compre- hat the plate kHz for plate nge of appr mpact than sponse in II tions of ten not detect v ize of crack st 20 years ces in utiliz ures in both compiled (nples are re Core sample to verify the ve been rem nerator ope	er (geophone). and storage. Time e frequency uctural surface over the 0.1-1 kHz eneral, presence average mobility w average mobility w average mobility areas can be essive stress e responds to the te structures), as oximately 5 to 30 it would for IE R testing. It don and with high certainty c cannot be . The test method ing this method to n nuclear and see attached). moved in areas les are also e condition, unless noved based on ening is located.

characterizing the extent of delamination in the steam generator opening area. Also according to the test procedure, a population of core samples is also removed from areas where low mobility values (less than 0.4) are obtained to confirm the sound concrete condition. Based on the core samples removed, the IR results have been accurate to detect a delamination in the concrete.

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Misc Notes:	ymmenses rinna andanadamasanan rinna tahaqar rinna a sakadada ya sayada ya sayada ada sa rinna tahada ada saya	·	
			alarandalad (64) jilana a araa araa ahaa ahaa ahaa ahaa ahaa
Response By:	Paul Fagan		nama dan ang kang mang kang mang kang kang kang kang kang kang kang k
Reviewed By:		Date Response Provided:	11/12/2009
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And the second dependence of the second strategy between the

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Request Num	ber:	17					
Individual Cor	ntacted:	Garry Miller	Date Contacted:	10/22/2009			
Requestor/Ins	pector:	George Thomas	Category:	Question			
Request:	Request: For petrographic analysis, who are the labs and what are their credentials? Follow up Request: Provide information on the qualification of the petrographers from CTL and Photometrics who are performing/supervising petrographic examination work for CR3.						
References:							
Response Ass	signed to:	Paul Fagan	Date Due to Inspec	tor: 10/26/2009			
Two labs have & Consulting a program, while data point. The for CR3 is attact A third laborato standard. The involve method examinations, l electron micros from the Photo Misc Notes:	performed nd CTL Gr CTL perfo resume a ched, as w ory, PhotoM material ex sintended but using to scope (SEI Metrics we	I petrographic analyses in accor oup. MACTEC performed petro ormed an informational "compari- nd qualification package of the ell as the CTL analyst's resume Metrics, is also performing mate caminations being performed by I to examine similar conditions a ools and techniques more frequ M) and micro-hardness examina absite is attached.	dance with ASTM C 856: MAC graphic analysis under their A son" analysis as an additional Mactec individual who perform and petrography literature fro rial analysis, although not per Dr.Mostafa at the PhotoMetric and attributes evaluated under ently used in material science ations that are more thorough.	CTEC Engineering ppendix B , independent ed the analysis m the CTL website. the ASTM cs laboratory petrographic , e.g., scanning Information			
Response By:	Craig Mil		ant to the and a manufactured to de an optimised report of an and a definition of a definition of the activity	ngen generation of the second secon			
Reviewed By:			Date Response Provid	led: 11/18/2009			
Status:	Open		Date Clos	ed:			

				2	0-Jan-10	2:10:13 PM
Request Numb	er:	18				
Individual Con	tacted:	Garry Miller		Date Contacted:	10/22	2/2009
Requestor/Ins	pector:	Dan Naus		Category:		Question
Request: How are core samples being processed and sent to the labs for petrography? A) How will you determine that the results are consistent between the labs? Follow up Request: Please expand your response on the quesiton of determining consistency of results between the labs. This may be provided with response to new quesiton below.						
References:						· · · · · · · · · · · · · · · · · · ·
Response Ass	igned to:	Paul Fagan	74 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Date Due to Inspe	ector:	10/26/2009
Response:						
Each of the cord aluminum foil and shipped via Fect and #7 were se #6 was sent to The labs are ead the relative age Final reports with	es used fo nd plastic, lex for ove nt to MAC PhotoMetr of the crac Il be issued	r petrographic analysis wa wrapped in bubble wrap, might delivery. Chain of C TEC for analysis. MACTE ics using the same proces ning independent analyse cked surface. Each lab wa d with results.	as obtained v and package Custody form C cut core # ss. ss. The prima as given this	with a 4" diamond core ad in wooden crates. s are used to track ea 5 longitudinally and se ry goal of the analyse objective when the we	e bore bit, The packa ach core. C ent half to s was to e ork was au	sealed in ges were Cores #5 CTL. Core stimate uthorized.
Misc Notes:	watering of the transformation second					
Response By:	Craig Mill			narran ang akarang kang kang kang ang kang ang kang kan		ana ang mananing mang mang mang mang mang mang mang ma
Reviewed By:				Date Response Prov	ided:	11/18/2009
Status:	Open			Date Clo	osed:	

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Request Numb	oer:	19					
Individual Con	tacted:	Garry Miller		Date Contacted:	10/	/22/2009	
Requestor/Ins	pector:	George Thomas		Category:		Question	
Request:	What is th	ne sampling plan for ND	DE and core sa	mples,			
References:	· · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·					·
Response Ass	igned to:	Paul Fagan		Date Due to Insp	ector:	10/26/2	009
Response:							
is performed on area between e progress on the Intermediate Bu Exposed Surface Exposed Surface included in the surfaces has ph Adjoining Buildi Surfaces within the condition as plan; however, 1) areas with we contaminated a Core Bores The location an Team. Core bo characterized b the delaminatio characterized b	The nondestructive testing (NDT) and core bores are being executed based on the requirements specified by the Root Cause Team in support of the root cause analysis, design basis evaluation, and repair requirements. NDT is performed on the exposed surfaces of the containment in each of the six bays, where a bay is defined as the area between each of the six buttresses. NDT is also planned to be performed on the dome surface and is in progress on the containment walls accessible from within adjoining buildings such as the Auxiliary Building, Intermediate Building, and the Fuel Transfer Building. Exposed Surfaces accessed via work platforms, scaffolding, ladders, and roofs of adjoining buildings are included in the condition assessment of structure. A small percentage of the overall surface area of exposed surfaces has physical constraints that make access impractical. Adjoining Building Surfaces Surfaces within adjoining buildings are accessed via permanent platforms, scaffolding, and ladders included in the condition assessment of the structure. A large percentage of the accessible surfaces are included in the plan; however, physical constraints exist in each of the three adjoining buildings that limit access. Examples are 1) areas with wall attachments that limit access to the concrete surface, 2) locked high radiation areas, and 3) contaminated areas. Core bores are taken to provide samples for concrete testing. Cores in both solid and delaminated areas characterized by NDT are used to confirm the test results. Core bores have been drilled around the perimeter of the delamination characterizer by NDT.						
					anna an		
Response By:	Paul Fag	jan		_			
Reviewed By:				Date Response Prov	rided:	11/	12/2009
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Request Numl	ber:	20			
Individual Cor	ntacted:	Garry Miller	Date Contacte	ed: 10/	/22/2009
Requestor/Ins	pector:	George Thomas	Catego	ry:	Question
Request:	What are	your examination plans	for below grade?		
References:			· ····································	· · · · · · · · ·	· ··· · · · · · · · · · · · · · · · ·
Response Ass	signed to:	Paul Fagan	Date Due to I	nspector:	10/26/2009
Response:					
The containme Intermediate, a the foundation to concrete bei permanent plat percentage of t each of the thre access to the c	nt exterior nd Fuel Tr mat is at E ng in conta forms, sca he access ee adjoinin concrete su	concrete surfaces not e ansfer Buildings. The c L. 93'-0" (ref. drawing 4 lot with backfill (below g ffolding, and ladders are ble surfaces are include g buildings that limit acc rface, 2) locked high ra	xposed to the elements are acc ontainment wall rests on the for 21-004). No portion of the cont rade). Surfaces within adjoinin e included in the condition asse ed in this assessment; however cess. Examples are 1) areas wit diation areas, and 3) contamina	essed from v undation mat ainment wall g buildings an ssment of the , physical cor ith wall attach ated areas.	within the Auxiliary, . The top surface of is inaccessible due re accessed via e structure. A large nstraints exist in ments that limit
Misc Notes:					
Response By:	Paul Fag	an			
Reviewed By:			Date Response	Provided:	11/12/2009
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			:	20-Jan-10 2:10:13 PM		
Request Num	ber:	21				
Individual Cor	ntacted:	Garry Miller	Date Contacted:	10/22/2009		
Requestor/Ins	spector:	George Thomas	Category:	Information Request		
Request: Provide interview observations from personnel involved with hydro-demolition and detensioning/cutting of tendons (when their comments note something of interest). Provide information from additional interviews of personnel when they become available. Also, include interviews conducted by PII.						
References:			· · · · · · · · · · · · · · · · · · ·			
Response As	signed to:	Charles Williams	Date Due to Insp	ector: 10/26/2009		
Response:						
Response loca Response Info	ated in L:\S - Portman	hared\2009 NRC SPECIAI n	- INSPECTION TEAM Q-A\WILL	IAMS Q-A\Request 21, Q15		
Misc Notes:						
Response By:	Charles	Williams		999 (1967) (1979) (1979) (1976) (1976) (1977) (1977) (1977) (1977) (1977) (1977) (1977) (1977) (1977) (1977) (1		
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Request Numl	ber:	22								
Individual Cor	ntacted:	Garry Miller	Date Contacted:	10/22/2009						
Requestor/Inspector:		George Thomas	Category:	Question	•					
Request:	Have rem	oved tendons been inspec	ted and were there any significa	ant findings?						
	Does CR3 plan on performing tension testing (i.e., ultimate strength, yield strength and elongation) on a wire sample from one or more of the removed hoop tendons that exhibited higher than anticipated loss of prestressing force (i.e., hoop tendons that did not meet the 95% predicted value criteria in IWL)?									
References:										
Response Ass Response:	signed to:	Charles Williams	Date Due to Ins	pector: 10/26/2009)					
There was no r of the SGR Ter {Containment 0 {10 28 interview {Interview with	equested/ ndon Field Opening - v Cliff Pete Gary Goet	required inspections perfor Engineer and PSC Lead Ir Fendon Removal Timeline. rs Gary Goetsch.pdf} sch.pdf}	med of the removed tendons. N ndividual, responses documente xlsx}	/arious questions were a ed in the enclosed.	sked					
Misc Notes:		- · · · · · · · · · · · · · · · · · · ·								
Response By:	Rick Port	mann								
Reviewed By:	¹⁰⁰ and a subsection of the second		Date Response Pro	ovided: 11/2/2	2009					
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Request Numl	ber:	23			
Individual Con	ntacted:	Garry Miller	Date Contacted:	10/2:	2/2009
Requestor/Ins	pector:	George Thomas	Category:		Question
Request:	When we construc At what I of progre Provide a demolitic	ere observations of surface tion opening? ocation of the SGR opening ession for the creation of the a copy of NCR 358724 that	feature changes and water leaka area did hydro-demolition begir opening? identified voids in the RB concre	age noted b and what te in the ar	below the was the sequence rea of hydro-
References:					
The below is th pages attached 10/1/2009 4:28 10/1/2009 1:15 10/2/2009 3:55 10/2/2009 5:15 transfer openin 10/2/2009 6:41 10/7/2009 12:5 Copy of NCR 3 A\Request 23,	e timeline) : :59 AM B :08 PM H :53 AM R :30 AM S g. Hydro- :11 AM V 2:15 PM :58724 al: Q17 Res	e of events as noted in the C egin hydro-demolition ydro-demolition to first layer estart hydro-demolition tream of water identified exi demolition suspended. oiding identified in RB wall 2 ft x 4 ft loose concrete bel so provided in L:\Shared\20 ponse Info - Miller	Dutage Autolog system (relevant r of rebar is complete, begin cutt ting RB wall from below/to the ri ow the containment opening. 09 NRC SPECIAL INSPECTION	Autolog ing rebar ght of the I TEAM Q- <i>i</i>	A\WILLIAMS Q-
Misc Notes:				и та амалий на рабо ра "2010 год. об ч. 10 ч. 10 ч. 10 ч.	
Response By:	Charles	Williams			
Reviewed By:			Date Response Pro	vided:	11/18/2009
Status:	Open		Date C	losed:	

•		20-Jan-10 2							
Request Numb	ber:	24							
Individual Con	tacted:	Garry Miller		Date Contacted:	10/	22/2009			
Requestor/Ins	pector:	George Thomas		Category:		Question			
Request:	Request: What were results of the last three IWE/IWL surveillance reports (provide actual complete reports)? Provide inspection procedures and including qualification of personnel information?								
References:									
Response Assigned to: Charles Williams Date Due to Inspector: 10/26/2009									
Response:									
Response locat Response Info-	ted in L:\S Portmann	hared\2009 NRC SPECIA	AL INSPECTI	ON TEAM Q-A\WILI	_IAMS Q-	A\Request 24, Q18			
Misc Notes:									
Response By:	Charles V	Villiams			na an a	rsati da nga na anga na ang nga nga nga nga nga			
Reviewed By:			. D	ate Response Pro	vided:				
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			20-	Jan-10 2	2:10:13 PM				
Request Num	oer:	25							
Individual Cor	tacted:	Garry Miller	Date Contacted:	10/22/2009	9				
Requestor/Ins	pector:	George Thomas	Category:	Information	Request				
Request:	Provide re	esults of current visual ins	spections.						
References:					· · · · · · · · · · · · · · · · · · ·				
Response Assigned to: Paul Fagan Date Due to Inspector: 10/26/2009									
Response:									
this outage as thas been proviet The only IWL eand following the However as a recompare to the file RO-16 IWL Info". The SGR-QC at those tendons required IAW IN Rev. 1: The SG provided in this Misc Notes:	they are period ded to you xamination he ILRT on result of the R15 inform Exam Rep also perform affected by NL . GR-QC exat NRC fold	erformed every 5 years a under NRC Folder "WILI his scheduled are the As- the repair/replacement a e containment crack we of mation as part of the root ports pdf enclosed in the med visual inspections of y the containment openin mination reports (File: T er.	nd were performed last in outage R15 LIAMS Q-A" file "Request 24, Q18 Re Left Pre-Service IWL exams to be per area which is yet to be completed. did an augmented IWL scope between cause investigation. I have included NRC folder "FAGAN Q-A" file "Reque the tendon ends, bearing plates and g Engineering Change (EC). These i endon Bearing Plate and Concrete In	5 (2007) [that isponse Info-F rformed prior n buttresses 3 these reports ist 25, Q19 Re surrounding o inspections we	information Portmann"]. to, during, 3-4 to , reference esponse concrete for ere not f) has been				
Response By:	Rick Port	mann							
Reviewed By:			Date Response Provid	ed:	11/30/2009				
Status:	Open	• • • • • • • • • • • • • • • • • • • •	Date Clos	ed:					

				20-Ja	n-10 :	2:10:13 PM	
Request Num	ber:	26					
Individual Cor	ntacted:	Garry Miller	Date Co	ntacted:	10/22/2009		
Requestor/Ins	pector:	Louis Lake	C	ategory:	Ques	stion	
Request: Will PGN be doing the overall IWL inspection this R16 outage concurrent with ILRT?							
References:					· · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
Response Ass	signed to	: Paul Fagan	Date Di	ue to Inspector	: 10/	/26/2009	
Response:							
The IWL Inspe inspection in R Pre-Service IS following the IL Visual Examina includes the ter	ctions req 15 (2007) I VT exam .RT. In su ation be p ndon galle	uired by ASME Section X . During R16 the ASME ination be performed on upport of the containment erformed on the containmery and the vertical face o	(I are required every 5 ye Section XI Repair / Repla the containment opening root cause it has been re nent between Buttresses f containment only.	ars. CR3 last p acement require repair area pric equested that ar 3 and 4. This A	erformed ments req rr to, durin Augment ugmentec	this juire that a g and ted IWL d area	
Misc Notes:					Manage companies () =	••••••••••••••••••••••••••••••••••••••	
Response By:	Rick Po	tmann					
Reviewed By:			Date Resp	onse Provided	•	11/4/2009	
Status:	Open			Date Closed	•	· · · · · · · ·	

		20	Jan-10 2:10:13 PM
Request Number:	27		
Individual Contacted:	Garry Miller	Date Contacted:	10/22/2009
Requestor/Inspector:	George Thomas	Category:	Question
Request: What wa analysis	is technical analysis for decision to d ?	etension only specific tendo	ons? Provide the
References:			· · · · · · · · · · · · · · · · · · ·
Response Assigned to	o: Charles Williams	Date Due to Inspect	or: 10/26/2009
Response:			
maintained. This resulte 2. The requirement to a analysis was based on a generator opening. The conditions. The controll loads from the polar cra White paper The purpose of this white identifying which tendor Generators Removal (S Sargent & Lundy (S&L) Ref. 1, Section 6.0. The model of the containment the equipment hatch. Si account bending and me basis analysis to simula A significant goal of the the design basis level postudies utilizing these F the opening. These prel not possible unless the or higher than the axial evaluated the mechanice opening, including the e when subjected to susta 92, Prediction of Creep, by Professor Domingo (resulted in the requirem concrete sections within opening. As part of the design cons- outage construction to a the tendons are retention	A link of the need to de-tension 30 vertices and the need to de-tension 30 vertices are the containment shell to move state-tensioning only the 10 vertical ten remaining tendons adjacent to the oring load case was loss of decay heat ne. e paper is to document the engineer is to detension in and around the CR GR) activities. created Finite Element Models (FEM se FEMs were created using the GTS of which includes the containment she milar to the design basis analysis, the ambrane action in the shell. Linear state the support provided by the rock for SGR project team was to restore the rior to SGR and thus maintain the ori EMs to determine the optimum numb iminary studies indicated that restora axial stiffness of the existing concrete section stiffness of the existing concrete in the field load, i.e. prestress). This evaluates the access opening with the axial statest of the access opening with the axial statest opening the number of tendor a minimum to minimize the duration condition process.	al tendons and 35 horizontal cam generators in and out of dons and the 17 horizontal opening were required to me t removal accident in combined ing processes and subseque 3 temporary access opening (s) of the containment shell. STRUDL program through the ell, dome, basemat, represe e models utilize thin shell ell coil springs were also model bundation. The prestress within and aroun ginal design margins. S&L present ever of vertical and hoop tend this within the access opening tions around the opening. R he opening and the existing pendent increase in strain in ation was based on the require in Concrete Structures, an the that prepared ACI 209F enters to approximately equire iffness of the existing concre- g alternatives were consider ons that have to be detension of construction yet at the same pendent increase with a same to be detension.	al tendons. of containment. This tendons within the steam set design loading nation with the applicable ent decisions made in g in support of Steam that are summarized in he generation of a 3-D entative soil springs and ements that take into led similar to the design d the access opening to performed preliminary lons to detension outside the access opening was g are nearly the same as lef. 2, Section 4.1 g concrete around the n the hardened concrete uirements of ACI 209R- d was partially developed R-92. This evaluation alize the stiffness of the ete sections around the red. This was necessary oned during the SGR ne time ensure that when hin and around the

20-Jan-10 2:10:13 PM

access opening is restored to approximately the levels that existed prior to SGR construction thus maintaining the original design margins.

Determination of Prestress Reduction Level

The analysis in Reference 2 to determine the number of hoop and vertical tendons to detension was performed using the following FEM models:

FEM Model A:

Original design basis prestress. Tendon forces are based on original lock-off stress (0.7xFu) and losses at end
of outage and EOL.

Access opening has not been created yet and is not in model.

Creep adjusted E is based on age of concrete when initially loaded and load duration to end of outage and EOI
i.e. E = 2681.62 ksi (for both end of outage and EOL)

Element forces and stresses analyzed at end of SGR outage and EOL

FEM Model B:

• Same as Model #A except access opening is included in model.

• Tendon forces are based on original lock-off stress (0.7xFu) and losses at end of outage and EOL.

Creep adjusted E is based on age of concrete when initially loaded and load duration to end of outage and EOI
 i.e. E = 2681.62 ksi (for both end of outage and EOL)

 Reduced prestress in containment shell from de-tensioning 30 vertical and 35 hoop tendons is derived from two main load cases:

B1. All vertical and hoop tendons included in load case (as in Model A).

B2. Only the 30 vertical and 35 hoop tendons included in second load case

B3. Final reduced prestress = B1-B2

FEM Model C:

 This model reflects re-tensioning of the tendons at the end of the SGR outage. Young's modulus is the same for the new patch concrete and existing concrete, E= 3767.168 ksi (reflects the stiffening of the concrete section within the opening by adding rebar (#11s at 11" c/c vertical and horizontal, both faces).

 Include 30 vertical tendons and 35 hoop tendons. Tendon forces are based on re-tensioning to 0.7 Fu minus tendon losses to end of life (EOL).

By adding the results from Models B and C (at end of SGR outage and EOL) and comparing to the design basis results for vertical and hoop prestress from Model A, it can be determined if the prestress in and around the access and hatch area can be restored to pre-outage levels. The calculation (Ref. 2) determined that the prestress levels in and around the opening after re-tensioning would be at levels similar to those before the SGR outage.

Note: After Ref. 2 was issued it was decided by S&L and Progress Energy that since the creep adjusted Young's Modulus (E) of the new and old concrete have been equalized (by adding #11 rebar's to the access opening), that for all future analysis a reduced E value = 2500 ksi (Original design basis calculations were performed using a reduced Young's Modulus E=2500 ksi) would be used for both short and long term loads (Refer to Ref. 1, Section 6.0, Task 2 and Ref. 2, Attachment 5, pages 7 and 8 for further discussion concerning the use of E=2500 ksi).

Shell Analysis with Reduced Prestress for Activities Occurring During SGR

Based on the results of Ref. 2, i.e. detension a total of 35 hoops (17 in the opening and 9 above and 9 below the access opening) and 30 vertical tendons (10 within the access opening and 10 on either side of the access opening), S&L evaluated the containment shell (Ref.3) for activities occurring during the SGR as follows:

1. Modes 5 and 6 with the access opening created and the exposed liner plate in-place. The maximum number c tendons that may be detensioned should be such that no overstressing of the concrete shell or liner plate occurs for all accident load cases/combinations, including a LODHR accident.

2. Defueled (No Mode) with the access opening created in the concrete shell and liner plate for all construction loads resulting from rigging the steam generators (SGs) into and out of containment and for moving the auxiliary crane on the hatch transfer system (HTS). The maximum number of tendons that may be detensioned should be such that no overstressing of the concrete shell occurs.

20-Jan-10 2:10:13 PM

Preliminary studies performed by S&L in the development of this calculation (Ref. 3) initially considered all 30 vertical and 35 hoop tendons detensioned prior to creating the opening, however, these preliminary studies revealed that the containment shell was grossly overstressed in this configuration when evaluated for loads resulting from moving the old SGs out and the new SGs into containment (these preliminary studies are not available). S&L determined that the maximum number of tendons that could be detensioned while lifting the SGs on the HTS is 10 vertical and 17 hoop tendons within the access opening. The remaining 20 vertical and 18 hoop tendons outside and adjacent to the access opening must remain fully tensioned until all lifting activities involving the SGs on the HTS are completed. The remaining 20 vertical and 18 hoop tendons outside and adjacent to the access opening may then be detensioned. This conclusion resulted in the containment shell having two stages of prestress:

Stage 1 Prestress - Reduced prestress based on de-tensioning 17 hoop and 10 vertical tendons within the opening. Applicable during Modes 5 and 6 descending and No Mode while the SGs are being moved on the HTS

Stage 2 Prestress – Reduced prestress based on de-tensioning 17 hoop and 10 vertical tendons within the opening and de-tensioning an additional 9 hoops above and below the opening (total of 35 hoops de-tensioned) and 10 additional vertical tendons on either side of the opening (total of 30 verticals de-tensioned). Applicable after all lifts involving the SGs on the HTS are completed thru Modes 6 and 5 ascending (Refueling).

The containment shell was evaluated in Ref. 3 for Stage 1 prestress, SGR opening with concrete removed but the liner plate intact and loads applicable during Modes 5 and 6 descending. Ref. 3 also evaluated the containment shell for Stage 1 prestress, SGR opening with concrete and liner plate removed, reactor defueled, and applicable loads for moving the SGs in and out of the containment. Ref. 5 evaluated the containment shell for Stage 2 prestress during Modes 6 and 5 ascending, prior to restoration of the opening, during which time a LODHR accident is the controlling load case in combination with the applicable loads from the polar crane. These Ref. 3 and 5 evaluations show that containment shell stresses for Stage 1 and Stage 2 prestress and the applicable loadings during the SGR construction sequence are within code allowables. The containment shell with all detensioned tendons retentioned, SGR opening plugged with concrete, and the liner plate opening welded back was evaluated for design basis loading (Ref.4) to show that the containment concrete and liner plate stresses are within code allowable and the as repaired containment has approximately the same design margins as the as-found containment prior to the SGR construction.

Prestress MODE Concrete Liner Fuel HTS Polar Crn DB Loads Ref Stage 1 5 and 6 Cut Uncut Old No Yes (*) Yes (**) 3 Stage 1 No Mode Cut Cut None Yes ? No 3 Stage 2 5 and 6 Cut Restored New No Yes No 5 All All Plugged Restored New No Yes Yes 4

(*) Dead weight of polar crane only

(**) Included design basis load combinations but substituted accident pressure and temperature resulting from a LODHR accident for LOCA pressure and temperature.

Restored Condition Analysis

The evaluations in Ref. 4 were performed using the following Finite Element Method (FEM) models: FEM Model A:

 Original design basis prestress. Tendon forces are based on original lock-off stress (0.7xFu) and losses at end of outage and end of life (EOL).

- Access opening has not been created yet and is not in the model.
- E=2500 ksi for concrete (same as design basis calculations)
- Element forces and stresses analyzed at end of SGR outage and EOL

FEM Model B:

• Same as Model A except access opening is included in the model.

Tendon forces are based on original lock-off stress (0.7xFu) and losses at end of outage and EOL.

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Response By:	Don Dyksterhouse	· · · · · · · · · · · · · · · · · · ·
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Status:	Open	Date

Reduced prestress in containment shell from de-tensioning 30 vertical and 35 hoop tendons is derived from two

E=2500 ksi for concrete (same as design basis calculations)

Dead load of wet concrete within the opening is included

B1. All vertical and hoop tendons included in load case (as in Model A). B2. Only the 30 vertical and 35 hoop tendons included in second load case

main load cases:

B3. Final reduced prestress = B1-B2

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 FEM Model C: This model r is the same for the opening by Include 30 vet tendon losses t By adding the r results for vertic access opening prestress levels those before th certain element 	reflects re-tensioning of the tend the new patch concrete and ex adding rebar (#11s at 11" c/c v ertical tendons and 35 hoop ten o end of life (EOL) esults from Models B and C (at cal and hoop prestress from Mo g and hatch area can be restore s in and around the opening after e SGR outage for a majority of ts in and around the access ope	dons at the end of the SGR outage. Young's n isting concrete (reflects the stiffening of the co ertical and horizontal, both faces). idons. Tendon forces are based on re-tension ed of SGR outage and EOL) and comparing odel A , it can be determined if the prestress in ed to pre-outage levels. The calculation determ er re-tensioning would be at levels approximat the elements. Pre-outage prestress levels cou ening. For these elements detailed stress eval	nodulus (E=2500 ksi) oncrete section within ing to 0.7 Fu minus to the design basis and around the nined that the ely the same as ald not be restored to uations were
performed that References: 1. Calculation Criteria. 2. Calculation of New Concret 3. Calculation Evaluation durit 4. Calculation of Restored Sh 5. Calculation for Refueling pr	demonstrated they met all appl S06-0002, Revision 1, Contain te for Access Opening and Nun S06-0005, Revision 1, Contain ng Replacement Activities. S06-0006, Revision 1, "Contain ell" S09-0025, Revision 0, Contain rior to Restoration of Access Op	Incable design basis allowable stresses. ment Shell Analysis for Steam Generator Rep nber of Hoop and Vertical Tendons to be De-to ment Shell Analysis for Steam Generator Rep nment Shell Analysis for Steam Generator Rep ment Shell Analysis for Steam Generator Rep pening.	lacement – Design lacement – Propertie ensioned. lacement – Shell placement - Evaluatio lacement – Evaluatio
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Request Numl	per:	28								
Individual Cor	itacted:	Garry Mille	ſ		Date Contacted	: 1()/22/2009			
Requestor/Ins	pector:	George Th	omas		Category		Questio	n		
Request:	 What were forces acting on SGR opening area and adjacent areas: A) Prior to tendon de-tensioning and concrete removal? B) After de-tensioning and tendon removal? C) After detention and concrete removal? By this question, the NRC is seeking information to understand the structural behavior and response of the Containment Wall under real loads (i.e., Dead + applicable Prestress Load) in and around the SGR construction opening area for the configurations prior to, during and following creation of the SGR construction opening. Provide the pertinent information in an easily reviewable form. 									
References:				•						
Response Ass	signed to:	Don Dykst	terhouse	:	Date Due to Ins	pector:	10/26	/2009		
Response:										
Refer to Calcul requested by G References: 1. Calculation	ation S09- eorge Tho S09-0048	0048 stress mas. Revision 1	plots. These p , Stress Plots	plots are for of for SGR Cor	dead load + vertical Itainment Analysis	and hoo	p prestress) as		
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Request Num	oer:	29							
Individual Con	itacted:	Garry M	liller		Date Contacte	d: 1)/22/2009	an fully specify and the s	
Requestor/Ins	pector:	George	Thomas		Categor	'y:	Questi	on	
Request:	How were the forces acting on the buttress analyzed when the horizontal tendons were releand the forces became unbalanced?								
References:	· · · · · ·	. <i>.</i>		·····	· · · · · · · · · · · · · · · · · · ·	να, , , , , , , , , , , , , , , , , , ,			
Response Assigned to: Don Dyksterhouse Date Due to Inspector: 10/26/2009									
Response:									
The unbalance 3, 4 and 5 (Ref the centerline of direction of the load cases 6 ar lock-off stress - References: 1. Calculation Activities. 2. Calculation Access Openin	d force(s) . 1, Pages of each but tensioned nd 10 and - tendon lo S06-0005 S06-0004 g and Nun	and mom 90 thru 9 tress. No tendon. load com osses at t , Revision , Revision nber of H	ients from deten 15) and these fo te that the force When these ten binations 102 a he time of the si n 1, Containmer n 0, Containmer oop and Vertica	nsioning hoop rces and mone adons are det nd 104). The team generat nt Shell Analy nt Shell Analy al Tendons to	tendons were evanents were applied nents were applied nts shown on page ensioned the signs unbalanced forces or replacement ou sis for SGR – She sis for SGR –Prop be Detensioned.	aluated for d to the app es 90 thru 9 s reverse (F s are derive itage (Ref. ell Evaluation perties of ne	Buttress r propriate r 25 of Ref. Ref. 1, Atta ed from th 2, Section on During ew Concre	iumbers 2, nodes along 1 are in the achment 2, e original n 4.2.1.2). Replacemen ete for	
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Response By:	Don Dyk	sterhouse		• VARIA					
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Request Num	ber:	30				
Individual Contacted:		Garry Miller	Date Con	tacted:	10/22/2009	
Requestor/Ins	spector:	George Thomas	Cal	tegory:	10/22/09	
Request:	Where is A) What Provide F	PII based, and provide is their root cause appro PII's failure mode chart r	a description of their creder ach? eferred to in item (5) under	ntials? the title, "Uniq	ue Qualificatior	n" of the
	Identify th title "Unic report.	ne root cause failure ana que Qualification" of the	lysis report for the MOX fac response, if submitted to the	cility referred to e NRC, or pro	o in Item (6) un vide a copy of t	der the he
References:		Manadara , familiana (), a manadada , a mara <i>d</i> a baran ()		• a	· · · · · · · · · · · · · · · · · · ·	
Response As: Response:	signed to	: Charles Williams	Date Due	to Inspector	: 10/26/20	009
PII location, ba response was SPECIAL INSF	ckground provided a PECTION	, qualification and metho and discussed on 10/28/ TEAM Q-A\WILLIAMS (ds were reviewed with Geo 09. Electronic copy of this f Q-A\Request 30, Q24 Respo	orge Thomas. file is in L:\Sha onse Info - Wil	A hard copy of ired\2009 NRC liams	the
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Response By:	Charles	Williams		an maligar. An lu donn in fairt a la chuir an sha	d Banya ku	
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AND CONTRACTOR
				20-Jan-1	0 2:10:13 PM
Request Num	ber:	31			
Individual Cor	ntacted:	Garry Miller	Date Contacted:	10/	22/2009
Requestor/Inspector:		George Thomas	Category:		Question
Request: What are the various root causes and fault tree scenarios being co Provide a list of root cause failure modes being considered under e (i.e., break down each of the 9 categories into the approximately 7 evaluated for CR3 containment).					9 broad categories odes being
References:					
Response Ass	signed to:	Charles Williams	Date Due to Ins	pector:	10/26/2009
Response:					
A listing of pote response was p L:\Shared\2009 Williams	ential cause provided an NRC SPE	es categories and example nd discussed with George CIAL INSPECTION TEAN	es were reviewed with George T Thomas on 10/28/09. Electroni M Q-A\WILLIAMS Q-A\Request 3	homas. A c copy of 31, Q25 R	hard copy this file is in esponse Info -
Misc Notes:					
Response By:	Charles V	Villiams			NARAN TANÀN NA TANÀN ANG ANG ANG ANG ANG ANG ANG ANG ANG AN
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Request Num	ber:	32			
Individual Cor	ntacted:	Garry Miller	Date Contacted:	: 10/22/2009	
Requestor/Ins	pector:	George Thomas	Category:	· Qu	estion
Request:	When and results of Provide a analysis, provided	d what will be the deliverable core bore samples, and des response to part of the origi extent of condition (NDE/cor to the NRC for review?"	for the NRC to review, i.e., sch ign basis analysis? nal question "What deliverables e bores), design basis analysis	edule for root related to roo and repair op	t cause, NDE, ot cause otions would be
References:	signed to:	Charles Williams	Date Due to Inspe	ector: 1	0/26/2009
Response:	-	L		I <u></u>	
l asked George current schedu hard copy was INSPECTION	e Thomas le for activ provided o TEAM Q-A	for a clarification of this requ ities for the Root Cause, Co on 10/29/09. Electronic copy \WILLIAMS Q-A\Request 32	est on 10/28/09. He said he wo ndition Assessment, Design Bas of this file is in L:\Shared\2009 2, Q26 Response Info - Williams	uld like a cop sis and Repai NRC SPECI	by of the ir teams. A AL
Misc Notes:					
Response By:	Charles	Williams			
Reviewed By:		· · · · · · · · · · · · · · · · · · ·	Date Response Prov	ided:	10/28/2009
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Request Num	ber:	33				
Individual Contacted:		Garry Miller		Date Contacted:	10/22	2/2009
Requestor/Ins	pector:	George Thomas		Category:	Inforn	nation Request
Request: Provide copy of PGN's and PII's Root Cause Analysis procedure. Include a statement on PII's root cause analysis procedure or if they would be working to PE procedure.						
References:						- • • • • • • • • • • • •
Response As:	signed to:	Charles Williams		Date Due to Inspe	ector:	10/26/2009
Response:		•				
A hard copy of PII does not ha of response to Q-A\WILLIAMS	the PGN r ive a writte Request 3 S Q-A\Requ	oot cause procedure CAP- n procedure. The PII Root D. Electronic copy of this fi lest 33, Q27 Response Inf	-NGGC-020 t Cause pro file is in L:\S fo - Williams	5 was provided to Ge cess was discussed v hared\2009 NRC SPE	orge Thom vith Georg CIAL INS	nas on 10/28/09. e Thomas as part PECTION TEAM
Misc Notes:						
Response By:	Charles \	Villiams				
Reviewed By:				Date Response Prov	ided:	10/28/2009
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	ine Deficiencies - politice administration	an san an a			20-Jan-1	0 2:10:13 PM	
Request Num	per:	34					
Individual Con	itacted:	Garry Miller		Date Contacted:	10	/22/2009	
Requestor/Ins	pector:	George Thomas		Category:		Question	
Request:	Who is the efforts?	contractor doing Design Ba	asis Analysis	? How does this	relate to l	Root Cause analysis	
References:			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		· · · · · · · ·	
Response Ass	signed to:	Don Dyksterhouse	UNITER INTER COLORE FOR THE COLOR	Date Due to Insp	pector:	10/26/2009	
Response:							
The selected ve Aided Engineer finite element n The Root Caus Oceanside, Ca root cause(s) ic impact on the c	endor to pe ring (CAE) nodel. se Analysis lifornia and dentified by lesign anal	rform Design Basis Analysi Associates, Middlebury, Co team efforts are being sup has independent technical the Root Cause Analysis te ysis and on the design basi	s is MPR Ass nnecticut, is ported by Pe capabilities t eam will be ev s.	sociates, Inc. Alex supporting MPR in rformance Improv o support the Roc valuated by the D	andria, V n the dev ement In ot Cause esign Ba	/irginia. Computer elopment of the 3-D ternational, PII, Analysis team. The sis Analysis team for	
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Request Num	nber:	35		
Individual Co	ntacted:	Garry Miller	Date Contacted:	10/22/2009
Requestor/In:	spector:	Robert Carrian	Category:	Question
Request:	Are you o analyses A) Are yo	changing the design or licensi be required? ou changing the ACI 318-63 co	ng basis? Will a License Amend ode of record?	ment or 10CFR50.59 type
References:		· · · · · · · · · · · · · · · · · · ·		
Response As	signed to	: Don Dyksterhouse	Date Due to Inspec	tor: 10/26/2009
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Request Numl	ber:	36			
Individual Cor	ntacted:	Garry Miller	Date Contacted	: 10/	22/2009
Requestor/Ins	pector:	Robert Carrian	Category	•	Question
Request:	Will there	e be a past-operability analy	ysis completed?		• (1) • (1)
References:					
Response Ass	signed to	: Don Dyksterhouse	Date Due to Ins	pector:	10/26/2009
Response:					
•	uum a . aa kiingkaadkad 7 Agg (11) Lo'had ka				
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Request Numb	ber:	37				
Individual Con	tacted:	Garry Miller	Date Co	ontacted:	10/22/2009	
Requestor/Ins	pector:	George Thomas	c	Category:	Questio	n
Request:	What type	of analysis and codes (by	names) is expected t	o be used in the	design basis	analysis?
References:						
Response Assigned to: Don Dyksterhouse Date Due to Inspector: 10/26/2009					/2009	
Response:						
The analysis co	omputer coo	te that will be used for the	e design basis analyse	es is ANSYS Vers	sion 11.0 SP	1.
Misc Notes:		•	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·
Response By:	Don Dyks	erhouse		ng ang kang kang kang pang pang kang kang kang kang kang kang kang k	95-MAREA FILMINIA MARKANI YA KATA TATIKA MANDALA	********
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Request Num	ber:	38				
Individual Cor	ntacted:	Garry Miller		Date Contacted:	10/2	22/2009
Requestor/Ins	pector:	Anthony Masters		Category:	Infor	mation Request
Request: Provide p (containr		rocedures and drawings for ent walls and dome), and	or tendon ins also after the	allation and stressi 1976 dome repair.	ng in origir	al construction
References:		· · · · · · · · · · · · · · · · · · ·				· · · ·
Response Ass	signed to:	Don Dyksterhouse		Date Due to Ins	pector:	10/26/2009
Response:						
Design drawing System. Gene that starts with included in the series of drawi	gs for both rally the dr 421-300 c shared dri ngs are av	original design and post-c awing series that start with ontains the dome repair du ve. Drawing copies are in ailable only on aperture ca	dome repair a th 421-001 is Irawings. Spo ncluded in the ards. A draw	tre included in the C the original plant de ecifications for conc drive where availal ing list is in the Exce	R3 Docum rete and re ole. Sever el file.	nent Control ings. The series sinforcement are al of the 421-300
L:\Shared\CR3	Containm	ent\ROOT CAUSE ANAL	YSIS Files\(1) Concrete Design\(Concrete D	esign Drawings
Misc Notes:						
Response By:	Glenn Pu	gh		an a		
Reviewed By:	Charles \	Villiams		ate Response Pro	vided:	10/28/2009
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				20-Jan-	10 2:10:13 PM
Request Num	ber:	39			
Individual Co	ntacted:	Garry Miller	Date Contacted:	10)/22/2009
Requestor/Ins	spector:	Louis Lake	Category:	1 m. 1 100mm - 1110 mm	Question
Request:	Were the rebars)?	re any changes to the dome	made in 1976 (additional new	anchors	and/or radial
References:					
Response As	signed to	Don Dyksterhouse	Date Due to Ins	pector:	10/26/2009
Response:					
replace damag any #8 circumf #11 bar was us and only a por References: Final Report - SC-421-341, F SC-421-342, F SC-421-343, F SC-421-344, F Reinforcement SC-421-345, F Misc Notes:	Reactor Bu Reactor Bu Reactor Bu Reactor Bu Reactor Bu Reactor Bu Reactor Bu Reactor Bu	cumferential bars. There wer ars were damaged during con e of the #8 bar. If any #8 cir bar was exposed, a new # 8 uilding Dome Delamination F ilding – Concrete Dome Rep ilding – Concrete Dome Rep ilding – Concrete Dome Rep ilding – Concrete Dome Rep	e approximately 1,850 radial # ncrete removal and the entire cumferential bars were damag bar was cadwelded to the em Report, December 10, 1976 air Dome Reinforcement Nortl air Dome Reinforcement Sout air Dome Reinforcement Sout air Dome Reinforcement Sout	the reinford hoop was ged during bed bar. h Half – T h Half – E h Half – E ions & De	cong bars added. If to be replaced, a g concrete removal Top Reinforcement Top Reinforcement Bottom Reinforcemen Bottom
Response By:	Don Dyk	sterhouse			
Reviewed By:			Date Response Pro	ovided:	11/13/2009
Status:	Open	N. GATE ING CHIME AND A CONTRACT OF CONTRACT AND	Date (Closed:	

				. 2	0-Jan-10	2:10:13 PM
Request Num	ber:	40				
Individual Con	ntacted:	Garry Miller		Date Contacted:	10/22/2	2009
Requestor/Ins	pector:	Anthony Masters		Category:	Q	uestion
Request:	What is th A) Email f from the f	e cause of the low spot of rom Lese said it was san inal documentation and p	on the dome? ne as previous photographs in	inspections since 19 1976?	76. Can thi	s be confirmed
References:						
Response Ass	signed to:	Don Dyksterhouse	nt versionen die staat konstantie die kanne die kanne die beskelen. 	Date Due to Inspe	ctor:	10/26/2009
Response:	-	(a-aana ,			t	nanan ananan an
The construction microfiche database contains a listing of microfiche for the dome repair project. The cards range in number from 2C01024 to 2C02089. A search of the database titles showed several microfiche card (2C02064 and 2C02065) containing nonconformance's and corrective actions for the repair project. A revier these microfiche records did not reveal any information on a low spot. A check of the pour cards also did not mention a low spot or other problem. However, to help in answering this question a conversation was held with Mr. Earnest Gallion about this rep Mr. Gallion was an employee at the time of the dome repair. He reported that the concrete finishers used at time of the repair where not as experienced as could be. There were several low spots and other imperfect that existed from the initial concrete pours. These are not considered detrimental to the qualification of the dome. Would also consider that these existing since the repair project. This confirms statements by Mr. Joe Lese.					rofiche cards ct. A review of also did not out this repair. ers used at the r imperfections ion of the	
Misc Notes:	Related to	o question #1	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	
Response By:	Glenn Pı	ıgh	NY KAOMININA DIA MANJARA NA MANJARA MAN	n mana mangkan kang mana ng karana ng ka	Angeneting and a grant state of the	an a
Reviewed By:	Charles	Williams	C	Date Response Prov	ided:	10/28/2009
Status:	Open			Date Clo	sed:	

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				2	0-Jan-10	2:10:13 PM
Request Num	ber:	41				
Individual Cor	ntacted:	Garry Miller		Date Contacted:	10/22	·2009
Requestor/Inspector:		Anthony Masters		Category:	0	Question
Request: NCR 360 expecting		269 mentions SG g a thin wall sheat	R expected flexib h?	le tendon sheaths? What	was the b	asis for them
References:						
Response Ass	signed to:	: Charles William	naderated between mid Annual Constant Constant Constant State	Date Due to Inspe	ctor:	10/26/2009
Response:						
Enclosed in thi FW_ NRC Que	s folder in estion - D	response to the a Jopling Response	above question: .pdf		1 1911- 199 109	
Misc Notes:						
	••••••••••••••••••••••••••••••••••••••					
Response By:	Rick Por	tmann	10-1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1			
Reviewed By:		nara anta atau na makaaddanaan a		Date Response Provi	ideđ:	11/2/2009
Status:	Closed			Date Clo	osed:	

				nan on an	20-Jan-10	2:10:13 PM
Request Num	ber:	42	2			
Individual Contacted:		Garry Miller		Date Contacted:	10/2	2/2009
Requestor/Ins	pector:	Anthony Mas	sters	Category:		Question
Request: Were radial tension stresses due to the hoop tendons considered in the original			I design?			
References:			······································			
Response As	signed to:	Don Dykste	rhouse	Date Due to Ins	pector:	10/26/2009
Response:						
Cannot readily that the tendor stresses in me memorandum the tensile stre considered the	determine a design is ridional, ar outlining th sses in the tensile str	from the old obased on limited based on limited hoop direct e critical load concrete for esses in the c	Gilbert Calculations ting the concrete ter ions. See Book 2, S ing of the cylindrical the load combinatio concrete outside the	what the direct answer is nsile stress to 212 psi. T Section 1.01.7, pages 1.0 RB wall. The tendon pr ns. However, it does not tendon's influence.	s to the requ his limit bou 01.7/6 and 1 e-stress is o t appear tha	uest. It appears unds the tensile 1.01.7/7 for a brief designed to limit at the calculations
Copies of calcu	ulation pag	es are include	ed at following drive	location:		
L:\Shared\200	9 NRC SPI	ECIAL INSPE	CTION TEAM Q-A\\	WILLIAMS Q-A\Request	42, Q36 Re	sponse Info- Pugh
Misc Notes:	Considera	ation is on-goi	ng by George/Antho	ony		
Response Bv:	Glenn Pu	Iah		n an		ng manakan 276 2020 276 2020 2020 2020 2020 2020 2

ł Reviewed By: Charles Williams

Closed Status:

Date Response Provided:



rptAll Questions

				:	20-Jan-10	2:10	:13 PM
Request Numb	ber:	43					
Individual Con	tacted:	Dennis Herrin Anthony Masters		Date Contacted:	11/2	11/2/2009	
Requestor/Ins	pector:			Category:	Inform	nation Re	quest
Request:	Please pr Specificat Reports: Calculatio	ovide Drawings: SC-400 ions: SP-5566, 5569, 55 VT-3C Report VT-07-106 ns: S-07-0019 and S-07	-007, 008, 00 83, 5618, 56 3 and VT-3C -0033	9, and 015; and S-42 48, and 5909 Report VT-07-111	5-011 and	I S-425-0	12
References:				anno 1. p. 1. mar	· · · · · · · · · · · · · · · · · · ·		
Response Ass	igned to:	Don Dyksterhouse		Date Due to Insp	ector:	11/2/2	009
Response:							
Enclosed in this 5566, SP-5583	s folder in . 11/3/09	response to the above qu Update. The last 2 spec'	uestion: All i 's requested	equested information have been included in	provided the file.	except for	r SP-
Misc Notes:							A MARINA MARINA DA MARINA INTE CA A MARINA MARINA DA CAMANA
Response By:	Rick Port	mann				wet that the protocol of the second	
Reviewed By:				Date Response Prov	vided:		
Status:	Closed	· · · · · · · · · · · · · · · · · · ·		Date Cl	osed:		-

where we have a property of the second

			20	0-Jan-10 2:10:13 PM
Request Num	ber:	44		
Individual Cor	ntacted:	Dennis Herrin	Date Contacted:	11/3/2009
Requestor/Ins	pector:	Anthony Masters	Category:	Information Request
Request:	In continu If possible listed as	uing evaluation of the IWL e, I would like to speak with the inspectors on two previ	inspection and maintenance progra h Mr. Bernard Komara and Mr. Mai ious inspection reports that I have	am: rc LeBlanc as they were reviewed.
References:	* Josef 11 901 0 1	· · · · · · · · · · · · · · · · · · ·		······································
Response As	signed to	: Don Dyksterhouse	Date Due to Inspe	ctor:
Response:				
Mr. Marc LeBla refuel 16. Mr. the site QC Or Bernie's availa	anc (NIC C Bernard K ganization bility.	Contractor Inspector) was h omara (NIC Contractor Ins . The Supervisor for Mr. K	nere in refuel 15 (2007) and to my k spector)has returned to CR3 for refu comara is Jeff Bennett Please cor	nowledge is not here for uel 16 and is working for ntact Jeff (x-3323) for
Misc Notes:	Evaluatio	n of containment liner bulg	jes still in progress.	
adamin'ny arana kaominina dia kaominina dia kaominina dia kaominina.				
Response By:	Rick Por	tmann		
Reviewed By:	1		Data Response Provi	dod: 11/9/2009
	l		Date Response i Tovi	ded. 11/3/2009

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Request Numb	er:	45						
Individual Con	tacted:	Dennis H	lerrin		Date Contacted	l: 11/3/2009		Trought (1) - A Marken (1)
Requestor/Ins	pector:	Anthony	Masters		Category	: Info	ormation F	Request
Request:	Request: In continuing evaluation of the IWL inspection and maintenance program: SP-182, Rev. 16 (Dated 5/22/09) Reactor Building Structural Integrity Tendon Surveillance Program, indicates compliance with the 1992 addenda of the 1992 Edition of ASME Section XI, Subsection IWL, while the document titled ASME Section XI/ASME OM Code Program, Interval 4: Containment Inspection Program (2nd CISI) Revision 3 (Dated 5/6/09) indicates the 2001 Edition through the 2003 Addenda. Please clarify. References:							
References:		MANNER DAMAGNER				munumum		
Response Ass	igned to:	Don Dyl	ksterhouse	12 201 20 201 201 201 201 201 201 201 20	Date Due to Ins	pector:		
Response:			41					
The last perform record during the accordance with ASME Section 2 August 13, 2000 through the 2000 to its next requile Misc Notes:	nance of t nat time w h 10CFR5 XI once e 8 and the 03 Addenc red 5 yea	he Tendor as the 199 i0.55a, lice very 10 ye new interv la is the co r tendon s	n Surveillance 2 addenda of ensees are re- ars or inspect val (4th) bega ode of record. urveillance.	e under SP-18 f the 1992 Edi quired to upda tion interval. n on August 1 . The SP-182	2 was in 2007. The tion of ASME Section ate their ISI Program The 3rd inspection in 4, 2008. For the 4th will be revised to ref	ASME Se n XI, Subs s to meet terval was interval , lect the ne	ction XI co section IWI the require s complete the 2001 I sw code e	ode of L. In ements of ed on Edition dition prior
art a same di sugari ta segundani della si sediti di all'anda _{an} t				• • • • • • • • • • • • • • • • • • •				
Response By:	Rick Por	tmann						
Reviewed By:					Date Response Pr	ovided:		11/9/2009
Status:	Closed	101 102 10 4 1 0 1 1	13 M. Maria - 11 - 11 - 11 - 14 - 14 - 14		Date	Closed:		· · · · · · · · · · · · · · · · · · ·

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Request Num	ber:	46						
Individual Contacted:		Dennis Herrin		Date Contacted:	1	1/3/2009		
Requestor/Inspector:		Anthony Masters		Category:	Infe	Information Reques		
Request:	In continu	ing evaluation of the IWL in	nspection a	nd maintenance prog	gram:			
	SP-182, Rev. 16 (Dated 5/22/09) Reactor Building Structural Integrity Tendon Surveillance Program, has some concrete inspection activites associated with it as part of the tendon survelliances. Are the documented and reported in separate documentation or are the VT-1C and VT-3C examinations credited for this (i.e. VT-07-111 and VT-07-289)? If not, I would like to review the additional documentation.							
References:				ningananingkanangkanangkangkangkangkangkangkangka				
				na na suman na sa barana sumana ta sa ay a matanda na kara ay sa				
Response As:	signed to:	Don Dyksterhouse		Date Due to Insp	ector:	alationskulligiliging of a state of the stat		
Response:								
The visual exa examinations. See the Reque	minations The last ty est #24, NF	for the tendon surveillances vo tendon surveillances an RC SIT Question #18 folder	s are docun id the last tv r for these e	nented separately fro vo IWL examination r xamination reports.	m the IW eports h	VL concrete ave been s	e supplied.	
Misc Notes:								
Response By:	Rick Por	mann						
Reviewed By:				Date Response Pro	vided:		11/9/2009	
Status:	Closed			Date C	losed:			

				2	0-Jan-10	2:10:13 PM
Request Num	ber:	47				
Individual Cor	ntacted:	Dennis Herrin Anthony Masters		Date Contacted:	11/3/2	009
Requestor/Ins	pector:			Category:	Informa	tion Request
Request:	In continu SP-182, I Program,	uing evaluation of the l Rev. 16 (Dated 5/22/0 , Section 3.5.3.1 spec	IWL inspection an 9) Reactor Buildi ifies requirement	nd maintenance progra ng Structural Integrity s for calibration for all	am: Tendon Sui measuring	veillance devices. I
	would like	e to review a sample o	of those records a	llso.		a i shana nananganikiking kananalin kal na nata a mana mananananan
References:			an an ann an		,	
and do not the subscript of the subscrip			analastan status and an	n n n n n n n n n n n n n n n n n n n	· · · · · · · · · · · · · · · · · · ·	• • • •
Response As	signed to	Don Dyksterhouse) inter Stado-Schulzenhaufberechte dem is ein () admit einter volltige Auflichter Haussberger () - 1 k	Date Due to Inspe	ector:	
Response:						
The tendon sur tendon surveill examination re	rveillance ances rep ports.	reports have the calibr orts have been supplie	ration records for ed. See the Requ	the tendon testing eq uest #24, NRC SIT Qເ	uipment. Th uestion #18	e last two folder for these
Misc Notes:						
Response By:	Rick Por	tmann	9-134254847848478484495549444455494444544949494944444444	ngenn september og øren er en for men er stæret af som er stæret er som er som er som er som er som er som er s	ntara ka	na an tao mang mang mang mang mang mang mang mang
Reviewed By:				Date Response Prov	ided:	11/9/2009
Status:	Closed			Date Clo	osed:	
	·	anninininininininininininini - uu ak kaluadakalarininininininininininininininininini - n uu uu kaluanninini			L	namenalisen and a second se

<u></u>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				20-Jan-1	10 2:10:14 P	M	
Request Numb	per:	48						
Individual Con	tacted:	Dennis Herrin		Date Contacted:	1.	1/3/2009		
Requestor/Ins	pector:	Anthony Masters		Category:	1 H 30-11111 - H 1 H 1 H 1 H 1 H 1 H 1 H 1 H 1	Question		
Request:	In continui	ing evaluation of the IWL ir	nspection ar	nd maintenance prog	ıram:			
	SP-182, Rev. 16 (Dated 5/22/09) Reactor Building Structural Integrity Tendon Surveillance Program, Section 3.6 specifies acceptance criteria. Section 3.6.2 states that "abnormal conditions determined as the result of a visual inspection of the exterior concrete surface of the containment shall be recorded and documented, and investigated by Engineering for possible degradation of the structure." Also, "Cracks found in concrete adjacent to the tendons (within 2 feet of the bearing plate) having widths greater than 0.010 inch shall be recorded and reported to Engineering for evaluation and resolution. Any crack widths greater than 0.050 inch shall be cause for investigation by Engineering to determine the cause and if there is any abnormal degradation of the structural integrity of the containment." Photographs VT-07-289-8 and VT-07-289-11, which are associated with VT-1C Report VT-07- 289, appear to show cracks within 2 feet of the bearing plate. Have these been documented and evaluated?							
References:								
Response Ass	igned to:	Don Dyksterhouse		Date Due to Insp	ector:			
Response:								
The SP-182 cri surveillances. recording and a requirements. 256010 for eva	teria speci The report acceptance These part luation.	fied applies to the anchora s discussed are from the A e criteria may differ as the p ticular indications describe	ge and bea SME Sectio performance d on R15 IV	ring plate inspections on XI IWL examination requirements come VL Report VT-07-289	s perform ons perfo from se were in	ned for the tendor rmed. The parate cluded in NCR	n	
Misc Notes:								
Response By:	Rick Port	mann		na una començante e la constructiva da defini na contra de esta da la navera de servicia de servicia de servic	<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>		HART STEEPING ACTOR	
Reviewed By:				Date Response Pro	vided:	11/9/20	009	
Status:	Closed			Date C	losed:			

CONTRACTOR OF STREET

				20-Jan-10 2:10:14 PM					
Request Num	ber:	49							
Individual Cor	ntacted:	Dennis Herrin	Date Contacted	11/3/2009					
Requestor/Ins	pector:	Anthony Masters	Category	Question					
Request:	In continu	ing evaluation of the IWL i	nspection and maintenance pro	gram:					
SP-182, Rev. 16 (Dated 5/22/09) Reactor Building Structural Integrity Tendon Surveillance Program, Section 3.7.1 recommends equipment for implementation of this inspection and 3.7.1.12 lists "optical comparators with 0.005 inch accuracy for measuring crack widths in concrete." Is this being used? VT-07-111 and VT-07-289 do not have it listed in the inspection equipment area on the reports. These reports list a 6"scale and measuring tape. Is 0.005 inch accuracy (or the 0.010 inch as acceptance criteria section 3.6.2 states) possible with these?									
References:				· · · · · · · · · · · · · · · · · · ·					
Response Ass Response:	signed to:	Don Dyksterhouse	Date Due to Ins	pector:					
The inspection are NDEP-062 Tendon examin equipment utilit surveillances c the certification L:\Shared\2009 Portmann\IWL	reports re 0 and NAP nations (no zed for the an be foun hs have be 0 NRC SPR - Tendon S	ferenced were performed a P-02. The SP-182 surveilla at the IWL Examinations). Tendon Examinations. An of on pages 77-78 of the 6 en enclosed in this file. Thi ECIAL INSPECTION TEAM Surveillance History	as part of the IWL Examinations nce procedure referenced is us The accuracy stated comes from n example of the certification re th surveillance report {WR 3416 s report can be found: 1 Q-A\WILLIAMS Q-A\Request	5. The controlling procedures sed in conjunction with the m the PSC Procedures and cord for one of the past 502_6th-Surv.pdf}. Copies of 24, Q18 Response Info-					
Misc Notes:				1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1					
Response By:	Rick Port	mann		and de la companya d					
Reviewed By:			Date Response Pro	ovided: 11/12/2009					
Status:	Closed	•	Date	Closed:					

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Request Num	ber:	50			
Individual Cor	ntacted:	Dennis Herrin	is Herrin Date Contacted:		/3/2009
Requestor/Ins	pector:	Anthony Masters	Category		Question
Request:	In continu SP-182, F Program, gauges, c	ing evaluation of the IWL Rev. 16 (Dated 5/22/09) F Section 3.7.2.11 states a comparators, and all other	inspection and maintenance pro Reactor Building Structural Integr s an prerequisite to "verify that s measuring devices have been o	ogram: ity Tendon tressing jac calibrated p	Surveillance cks, pressure er Step 3.5.3.1…"
References:	Are the m	easuring devices used ca	alibrated per Step. 3.5.3.1?		
Response As	signed to:	Don Dyksterhouse	Date Due to Ins	spector:	· · · · · · · · · · · · · · · · · · ·
Response:					
Measuring dev the past survei This report can L:\Shared\2009 Portmann\IWL	ices are ca llances ca be found: NRC SPI - Tendon	alibrated per Step 3.5.3.1 n be found on pages 58-8 ECIAL INSPECTION TEA Surveillance History	of SP-182. An example of the c 2 in the 6th surveillance report { M Q-A\WILLIAMS Q-A\Request	ertification WR 341602 24, Q18 R	records for one of 2_ 6th-Surv.pdf}. esponse Info-
Misc Notes:				xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	
Response By:	Rick Por	tmann			
Reviewed By:			Date Response Pr	ovided:	11/12/2009
Status:	Closed		Date	Closed:	

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Request Numl	ber:	51					
Individual Cor	ntacted:	Dennis Herrin		Date Contacted:		11/3/2009	
Requestor/Ins	pector:	Anthony Masters		Category:	and a second of a second s	Question	managamana , ar with the
Request:	In continu	uing evaluation of the	e IWL inspection	and maintenance prog	gram:	memory of the second	
	SP-182, I Program, however, are in fac	Rev. 16 (Dated 5/22/ Enclosure 1 lists ter Enclosure 11 indica t the same tendons,	09) Reactor Buil ndons in the 5th a tes that they are but should the n	ding Structural Integrit and 7th surveillance as numbered as 64H21, umbers not be consist	y Tendon s 46H21, 4 64H28, et ent?	Surveilland 16H28, etc. .c I belie	ce ; ve these
References:							
Response Ass Response: These are the s on the containr buttresses 6 ar spreadsheet ha spreadsheet is Enclosed in the Spreadsheet:	signed to same tenc nent buttro nd 4[64Hx as been pr not a con e Request Tendon Id	Don Dyksterhouse lons. The first two d esses it spans (ie. Be x]). Over the years (rovided showing the trolled document, just # 51 folder: entification History (e igits of the horizo etween buttresse CR3 has not bee tendon identifica st an aid for revie #51).xls	Date Due to Insp intal tendon identificati is 4 and 6 [46Hxx] is th n consistent in the use tions used over prior s w of previous surveilla	on refer to ne same a of one ve urveillanc nce docu	o the tendo s between ersus the of es. [Note: t mentation.]	n series ther. A the I
Misc Notes:							
Response By:	Rick Por	tmann		na na manina kang sina kang mang kang na kang n	LL mod and cody é direit a tra daire de	anti atal 2000 kina mbala king mangangan ang	UKMAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
Reviewed By:		· · · · · · · · · · · · · · · · · · ·		Date Response Pro	vided:	11	1/9/2009
Status:	Closed			Date C	losed:		

				2	20-Jan-10	2:10:14 PM
Request Numb	per:	52				
Individual Con	itacted:	Dennis Herrin	Date	Date Contacted:		/2009
Requestor/Ins	pector:	Anthony Masters		Category:		Question
Request: In continuing evaluation of the IWL inspection and maintenance program SP-182, Rev. 16 (Dated 5/22/09) Reactor Building Structural Integrity Te Program, Enclosure 5 is titled "Reduced Force Dome Tendons" and lists meant by this term "reduced force"? When, how, and why did they beco shown on this list and is also listed as tested in the 3rd Surveillance. Ple						urveillance Jons. What is uced? D 125 is rify
References:						
Response Ass	signed to:	Don Dyksterhouse	Dat	e Due to Insp	ector:	
Response:						
Following the ir stressed to pre- lower than the in off, and wire read During the rand or due to interfe substitute tende Although still cl anchorage, free A review of the for D125. Misc Notes:	nvestigatio determined remaining moval test dom select erences ca on located assified as e water and 3rd Surve	n and evaluation of the 197 d values, of which approxin tendons (Approx. 646 KIPS ing. ion process if one of these innot be safely tested per th as close as possible to the s exempt, the original exem d corrosion protection med illance tendon lift-off data s	6 Dome delamina hately every 8th te 5 vs. 1635 KIPS). exempt tendons (ne IWL code) happ exempt tendon ge pt tendon is still su um examination re hows that tendon	tion event the ndon was stree These tendons or in general a bens to be sele ets selected fo ubject to the ex equirements if D123 was test	dome tend ssed at a v s are exem tendon that ected for tea r examination possible. ed. No tes	ons were re- alue much, much pt from tendon lift at is inaccessible sting, then a ion and testing. tendon at data was found
Response By:	Rick Port	mann	na na gong ang aka ng pangang ng manghing kang kang ng manghing kang kang kang kang kang kang kang ka	ann an Anna an Anna an Anna Anna Anna A		
Reviewed By:			Date R	esponse Prov	vided:	11/18/2009
Status:	Closed			Date CI	osed:	······································

				20-Jan-10 2	2:10:14 PM
Request Num	ber:	53			
Individual Co	ntacted:	Dennis Herrin	Date Contacted:	11/4/2009	9
Requestor/Ins	spector:	Anthony Masters	Category:	Ques	stion
Request:	In continu SP-182, I Program, before or	uing evaluation of the IWL in Rev. 16 (Dated 5/22/09) Re Enclosure 11 lists original after the repair?	nspection and maintenance prog eactor Building Structural Integrity lift-off values. Are the values for	ram: 7 Tendon Survei the dome in this	illance s listing
References:					
Response As Response: The values list	signed to ed in SP-1	82, Enclosure <u>11</u> are follow	Date Due to Inspo ving the 1976 delamination event	repair of the Do	ome.
Misc Notes:					
Response By:	Rick Por	tmann		, 20 - 1011111 - 1011111 - 1011111	
Reviewed By:			Date Response Prov	vided:	11/9/2009
Status:	Closed		Date Cl	osed:	

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					20-Jan-10	2:1	0:14 PM
Request Num	ber:	54					
Individual Cor	ntacted:	Dennis Herrin Anthony Masters		Date Contacted:	11/4	11/4/2009	
Requestor/Ins	pector:			Category:	Infori	nation R	lequest
Request:	In continu I have re review so	ing evaluation of the IW viewed some inspection me reports and evaluation	'L inspection an reports for the ons for inspection	d maintenance prog IWL inspections for ons on the dome.	gram: the shell, l	out would	d like to
References:	· · · · ·				., ,	,	• • · • •
Response Ass Response:	signed to:	Don Dyksterhouse		Date Due to Insp	pector:	-	
The last two IW examination of	/L examination the dome.	ation reports for 2001 (R See the Request #24,	R12 and 2007 (F NRC SIT Ques	(15) have been sup tion #18 folder for th	plied and in nese exam	nclude nation re	eports.
Misc Notes:							
Response By:	Rick Por	mann		na an a	a na sana ang mang mang mang mang mang mang ma	2.2.2.11.2.11.2.11.1.1.1.1.1.1.1.1.1.1.	anding of the later and the second
Reviewed By:		· · · · · · · · · · · · · · · · · · ·		ate Response Pro	vided:		11/9/2009
Status:	Closed			Date C	losed:		

			2	2:10:14 PM
Request Num	ber:	55		
Individual Cor	ntacted:	Dennis Herrin	Date Contacted:	11/4/2009
Requestor/Ins	pector:	Anthony Masters	Category:	Question
Request:	In continu	ing evaluation of the IWL insp	ection and maintenance progr	am:
	VT-07-11 the depth	1 and VT-07-289 documents s s obtained for the cracks and	some cracks and spalls and m spalls?	easured depths. How were
References:				
Response Ass	signed to:	Don Dyksterhouse	Date Due to Inspe	ector:
Response:				
Direct Visual E lift (around the or man lift). Using the proce performed and considered are During the VT- characterized t characterized a and 6" scale. A fit. Technique u scale.	xamination equipmen any areas as of distru- 1C, previo o documen and record short lengused with t	n was conducted on RBCN-00 t hatch), and a step ladder (lo criteria provided in the Engine of distress identified were fur ess not previously identified, a usly existing areas of distress nt changes to previous data re ed. In all cases, size and dep of 3/32" bare wire welding he bare wire was to insert into	15 during R15 using the suspe- wer elevations not accessible levering letter as threshold for re- ther evaluated during a VT-1C is well as changes to previous were compared with previous ecorded. Areas of distress not h were dimensioned and recon- rod was used for tight spots we of the opening, and measure mat	ended work platform, a man by suspended work platform cording, the VT-3C was The VT-3C also ly identified areas of distress data and further previously identified were rded with a tape measure here the 6" scale would not aximum depth against the 6"
MISC MOLES.			nakadad Seniyak La Couras Nobiles I de Base de la 2013 de la 2014 de la composi	
Response By:	Rick Por	tmann		
Reviewed By:			Date Response Prov	ided: 11/18/2009
Status:	Closed		Date Clo	osed:

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			20-Ja	n-10 2:10:14 PM
Request Num	ber:	56		
Individual Contacted:		Dennis Herrin	Date Contacted:	11/4/2009
Requestor/Ins	pector:	Anthony Masters	Category:	Question
Request:	In continu VT-07-11 boxes (st	uing evaluation of the IWL ins 1 and 289, Item #11 indicate nown in photographs VT-07-2	spection and maintenance program: that spalls were due to some emb 289-6 and VT-07-289-15). What wer	edded cables near re these cables?
References:				
Response Ass	signed to:	Don Dyksterhouse	Date Due to Inspector	
Response:				
It is believed th original Structu	at these c ral Integri	ables and boxes are abando ty Test in 1976. (stress & stra	ned remnants from the testing equip ain gages etc.)	ment utilized during the
Misc Notes:				
Response By:	Rick Por	tmann		
Reviewed By:	· · · · · · · · · · · · · · · · · · ·		Date Response Provided	: 11/9/2009
Status:	Closed		Date Closed	:

				20-Jan-1	0 2:10:14 PM
Request Num	ber:	57			
Individual Contacted:		Dennis Herrin	Date Contacted:	11	/4/2009
Requestor/Ins	pector:	Anthony Masters	Category:		Question
Request:	In continu	uing evaluation of the IWL ins	spection and maintenance prog	gram:	
	The name	es and dates on theVT-1C anns/reports done on the same	nd VT-3C reports are identical. day by the same staff?	Are both	ן
References:	And the provided and the second				
Response As: Response:	signed to:	Don Dyksterhouse	Date Due to Insp	ector: (
Yes, the VT ex closer VT-1 ex	aminers k amination	now that certain indications f and may elect to perform bo	ound during a VT-3 examination the examinations in series since	on require they are	an additional, already at the area.
Misc Notes:					
Response By:			ning and the second		zana zaran aran gine a san aran aran aran aran aran aran ara
Reviewed By:			Date Response Pro	vided:	
Status:	Closed		Date C	losed:	

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Request Numl	ber:	58						
Individual Cor	tacted:	Dennis Herrin		Date Contacted:	11/	4/2009		
Requestor/Ins	pector:	Anthony Masters		Category:		Question		
Request:	Request: In continuing evaluation of the IWL inspection and maintenance program: FSAR, Section 5.2, Section 5.2.5.2.1.1.h.5 states: 5. The surveillance was performed 1, 3, and 5 years after the initial containment structural integrity test and is performed every 5 years thereafter. A report of each inspection will be recorded and significant deterioration or abnormal behavior reported to the Commission. Are significant deterioration or abnormal behaviors being reported to the Commission?							
References:								
Response Ass	signed to:	Don Dyksterhouse		Date Due to Inspe	ector:			
Response:		*. •.						
Yes - Significar 5.3.2 and 5.3.4 requirements.	nt deteriora) and the I	ation or abnormal behavic mproved Technical Speci	ors are being fications (5	g reported to the Comm 7.2 Special Reports) de	nission. S escribe th	SP-182 (Para's ne reporting		
Misc Notes:								
Response By:	Rick Port	mann			acta genera con e a chanannan e	nama na gina ta ga wanda na mana na ka mana na ka ka ka n		
Reviewed By:				Date Response Prov	ided:	11/12/2009		
Status:	Open			Date Clo	osed:			

				20-Jan-10 2:10:14 PM		
Request Num	ber:	59				
Individual Co	ntacted:	Dennis Herrin	Date Contacted:	11/4/2009		
Requestor/Ins	spector:	Anthony Masters	Category:	Information Request		
Request: In continuing evaluation of the IWL inspection and maintenance program: I would like to review SP-180 and understand the basis surrounding the use and discontinuand for inspections of the dome repairs.						
References:						
Response As	signed to:	Don Dyksterhouse	Date Due to Ins	pector:		
Response:						
A copy of SP-1 document was developed and	180 for insp obtained f implemen	pection of the dome was pro rom microfiche and is not a ted prior to the developmer	ovided to George Thomas on N vailable electronically. Also n at of the IWL program.	ovember 18, 2009. The ote, that the procedure was		
Misc Notes:	· · ·			· · · · · · ·		
Response By:		9999 2777 1999 579 (1997) 1997 1997 1997 1997 1997 1997 1997	ERE MANANA M	and an		
Reviewed By:			Date Response Pro	ovided:		
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and a Paristic section of the same sign period and marked a providence of the section of the sec

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Request Numb	Der:	60		
Individual Con	tacted:	Dennis Herrin	Date Contacted:	11/4/2009
Requestor/Ins	pector:	Louis Lake	Category:	Question
Request: What are the repair options being cor			considered as a fix to the CR3 con	tainment delamination issue
References:	· · · · · · · · · · · · · · · · · · ·			
Response Ass	igned to:	Sammy Radford	Date Due to Insp	ector: 11/6/2009
Response:				
1. Remove the rebar ties. The delaminated do 2. The next op be determined grouting the del some NDT to e problems identi size of some of	delamina wall will be me sectio tion we co and ancho lamination nsure we fied with t the crack	ptions that had being con- ated concrete that is betwee e reformed and replaced to on during construction and considered was to install ar or the delaminated section a using a cementitious gro have filled all the voids be he use of the grout with th areas.	sidered. een is between Buttress #3 and Bu with new concrete. This was the m the method we will be using . nchors into the solid concrete portion and solid section together. Then ut and epoxy grout to bond the two etween the two layers. This option he potential of the debris blocking f	uttress #4 and install addition tethod used to repair the on of the wall on a spacing we will be pressuring o layer. We will be using was eliminated due to flow paths of the grout and
Misc Notes:		•		
Response By:	Sammy I	Radford		
Reviewed By:		· · · · · · · · · · · · · · · · · · ·	Date Response Prov	vided: 11/18/200
Status:	Closed		Date Cl	osed:

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Request Num	per:	61	,		
Individual Con	itacted:	Dennis Herrin	Date Contact	ed: 1	1/4/2009
Requestor/Ins	pector:	Louis Lake	Catego	ory:	Question
Request: What post modification testing of the CR3 containment is being planned to be performed following repair of the delaminated condition in order to demonstrate structural and leak-tig integrity?					
References:			· · · · · · · · · · · · · · · · · · ·		
Response Ass	igned to:	Sammy Radford	Date Due to	Inspector:	11/6/2009
Response:					
We are looking mod testing.	at the req	uirements for post mod tes	ting. At the present time we	plan to use t	the ILRT as the post
Misc Notes:					•
Response By:	Sammy F	Radford	ningan gan alayan da kana kana kana kana kana kana kana	t da ga da ga ang ang ang ang ang ang ang ang ang	na managa ng kang ng ka
Reviewed By:			Date Response	Provided:	11/18/2009
Status:	Open	· · · · · · · · · · · · · · · · · · ·	Dat	te Closed:	

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Request Numb	ber:	62				
Individual Con	tacted:	Charles Williams		Date Contacted:	11/18/2	2009
Requestor/Ins	pector:	George Thomas		Category:	Informa	tion Request
Request:	Provide st	rain gage data and map.				
References:						
Response Ass	igned to:	Paul Fagan		Date Due to Inspe	ector:	11/18/2009
Response:						
Strain gage and SPECIAL INSP	d displacer ECTION T	nent data provided on 11/1 EAM Q-A\FAGAN Q-A\Re	18/09. Electro equest 62 - W	onic copies available orthington - Williams	on L:\Shar	ed\2009 NRC
Misc Notes:						
Response By:	Worthing			ESSANTHE Y & ALLYNDAU ANNAL ANNAL YMWYD ANNAL ANNAL ANNAL ANWRAU ANNAL ANNAL AN		nama ar constant a state de la constant de la const
Reviewed By:	Charles V	Villiams	D	ate Response Prov	ided:	11/18/2009
Status:	Closed	1	+	Date Clo	sed:	

			20)-Jan-10 2:10:14 PM
Request Num	ber:	63		
Individual Contacted:		Garry Miller	Date Contacted:	12/2/2009
Requestor/Ins	pector:	Anthony Masters	Category:	
Request:	Provide s containm	survey data results for the do ent and survey data results f	me [repeated survey surveilance or external buttresses.	test], internal diameter of
References:				
Response Ass Response:	signed to	: Paul Fagan	Date Due to Inspec	ctor:
Misc Notes:				
Paspansa Bur				
Response by:		· · · · · · · · · · · · · · · · · · ·	Dete Beenenge Brow	de al.
Reviewed by:	0		Date Response Provid	Jed:
Status:	Open		Date Clos	sea:

					20-Jan-10	2:10:14	4 PM
Request Numb	er:	64		•			
Individual Con	tacted:	Garry Miller	annan an a	Date Contacted:	12/2	/2009	
Requestor/Insp	pector:	Dan Naus / George T	homas	Category:			
Request: Provide evaluation of crack identified in AR 368389 [core number 54 below the equipment h					hatch].		
References:		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·
Response Ass	igned to:	Paul Fagan	and the definition of the line of the line of the state of the line of	Date Due to Insp	pector:		
Response:							
			·				
Misc Notes:							
Response By:				nan ya kasan ya kasa na	ann ann a Sannainn ann ann ann ann ann ann ann ann		
Reviewed By:				Date Response Pro	vided:	aan aanmahaggu e na arrest totun amazandek musekun	
Status:	Open			Date C	losed:	MANDANANI MINI MINI MINI MINI MINI MINI MINI	

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Request Numb	oer:	65					
Individual Con	tacted:	Garry Miller	Date C	ontacted:	12/2/2009	LA 60 ⁻ 1011 101 101 101	
Requestor/Ins	pector:	Robert Carrian		Category:		- u - <i>u</i> - <i>u</i>	
Request: Provide credentials of MPR Associates and CAE, specifically with regard to concrete containment structural analysis and design for nuclear plants.							
References:							
Response Ass	signed to:	Don Dyksterhouse	Date D	ue to Inspecto	r:		
Response:							
 The following data are excerpts from the MPR Associates response to a request for proposal RFP JO09-011. The responses are listed if the experience involved reinforced concrete analysis at a nuclear power plant if either MPR Associates or CAE were involved in the projects listed. Development of the 3-D model for Three Mile Island nuclear power plant. Original analysis of Crystal River containment dome delamination report. Structural analysis of the reinforced concrete Fuel Handling Building at Salem Nuclear Plant. Development of models for structural analysis of concrete containment buildings at Turkey Point and Oconee nuclear power plant. MPR Associates has supported the nuclear industry since 1964. CAE has supported the nuclear industry since 1993. 							
Response By:			nanya nya kapa si kalanina kalang	nnee naam, all fillen to the an international state of the source of the source of the source of the source of t	an a ann 1986 an Ann 1987 a		
Reviewed By:			Date Res	ponse Provideo	I:		
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Request Num	ber:	66		
Individual Cor	ntacted:	Garry Miller	Date Contacted:	12/2/2009
Requestor/Ins	pector:	George Thomas	Category:	
Request:	Please co repair opt construct detensior the exten redistribu	onfirm that the condition assess ion analysis efforts, currently or ion sequence (initial tendon deto ning, concrete placement, repair t of condition of the affected are tion in the containment wall with	ment, design basis analysis, r ngoing for CR3, account for th ensioning, concrete removal, , tendon retensioning) loading as, and is properly considere in the opening and its adjace	root cause analysis, and le following: SGR additional tendon g and stiffness, based on d to account for the stress nt areas.
References:				
Response As	signed to:	Don Dyksterhouse	Date Due to Inspe	ctor:
Response:	ommungesen untersteldteldbildbilstellt i			
Misc Notes:				
Response By:			n San an an San Anna Anna an Anna Anna A	
Reviewed By:			Date Response Provi	ded:
Status:	Open		Date Clo	sed:

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		nan na haran na haran na harang sa ana ing na dalam na harang kanan na harang sa ang s			20-Jan-10	2:10:14 PM
Request Num	ber:	67				
Individual Cor	ntacted:	Garry Miller		Date Contacted:	12/2	2/2009
Requestor/Ins	pector:	George Thomas		Category:		Annahur i 11
Request:	Refer to S modeled Containm operating However, included Explain a current de How will t	Slide #59 of the 11/20 publ for the Design Basis Analy ent Design Basis docume and accident conditions, a in your current FEA mod as a structural load-carryin nd justify how the way the esign basis? he liner be evaluated agai	lic meeting p vsis. Based nt 1/1, the lir and not as a el developec ng member. liner is mode nst design b	resentation. This is on your current desi her serves as a leak structural element r I for the delaminatio eled in the ANSYS r asis acceptance crit	with regard gn basis in tight memb esisting des n issue, the nodel are co eria?	to how the liner is the FSAR and brane during sign basis loads. liner seems to be onsistent with your
	How will v	ou evaluate the effects or	n the liner du	ring detensioning, re	epair, and re	etensioning?
References:						
Response Ass Response:	signed to:	Don Dyksterhouse		Date Due to Ins	pector:	
Misc Notes:				****		
Response By:	· · · · · · · · · · · · · · · · · · ·					, , , , , , , , , , , , , , , , ,
Reviewed By:				Date Response Pro	ovided:	
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Request Numb	ber:	68				
Individual Con	tacted:	Garry Miller	Date Contacted:	12/	2/2009	
Requestor/Ins	pector:	George Thomas	Category:			
Request:	 Refer to Slide #75 of the 11/20 public meeting presentation. Slide states: "Run comparison to original design building elastic design results." Explain how you plan to evaluate your analysis results for design basis loads and load combinations against acceptance criteria in accordance with the code of record, i.e., ACI 318 in the FSAR. How would you process your analysis results to perform code checks for stress strains, displacements or other applicable design basis acceptance criteria for concrete, reba liner and prestressing tendons? How is reinforcement being accounted for in your design base evaluation? The slide only inidicates evaluation for controlling factored load combinations. Are there not service or other load combinations in the design basis with a different set of acceptance criteria that needs to be documented? How would your calculation document the design basis of the modified containment following repair of the delaminated condition? 					
References:	Design Ba and restor	asis Analysis considering the vario ation SGR construction opening,	us interim configurations a he delaminated condition	and the	ed with the creation associated repair?	
Response Ass Response:	igned to:	Don Dyksterhouse	Date Due to Inspe	ctor:		
Misc Notes:						
Response By:			n an		na aanaa madaan ka sanaa ka sa	
Reviewed By:			Date Response Provi	ided:		
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Request Num	ber:	69						
Individual Cor	ntacted:	Garry M	liller	1713-00-00-00-00-00-00-00-00-00-00-00-00-00	Date Contacted	1	2/2/200	9
Requestor/Ins	pector:	George	Thomas		Category			
Request:	 Refer to Slide #74 - "Planned Analysis Steps" of the 11/20 public meeting presentation. Food (1) against "Delamination states "Analysis will consider time of delamination and specific comproperties." Since the final root cause analysis results will not be known until later, do you plan on runnin different cases with regard to timing of delamination at this time? Specifically, with regard to making a decision on the number of tendons that will be required to be detensioned prior to r and retensioned following repair. Regarding the bullet that states: "SAVE path dependent model for starting point to Run 5 controlling design cases." As you go through the planned analysis steps, explain how your analysis model or ANSYS software is capable of starting the next analysis step using the deformed configuration of the previous step as the initial conditions for the next analysis step. Are you planning to use the same concrete mix design as for the SGR construction opening implementing repair of the delaminated area? How are properties of the new concrete being incorporated into your analysis? 						on. Footnote cific concrete n running two egard to prior to repair w your g the ysis step? opening in ete being	
References:								
Response Ass	signed to:	Don Dy	/ksterhouse	1998	Date Due to Ins	pector:	,	
Response:			·. ·					
Misc Notes:								
Response By:					an a			
Reviewed By:					Date Response Pr	ovided:		
Status:	Open				Date	Closed:		· · · · · · ·

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Request Num	ber:	70					
Individual Cor	ntacted:	Garry Miller	Date Contacted:	12	2/2/2009		
Requestor/Ins	pector:	George Thomas	Category:				
Request: With reference to 11/20 public meeting presentation, Slide 65 - shows approximation in Equipment Hatch modeling; and Slide 34 - shows that the delaminated conditions extends to above the EQ hatch area; slide 35 shows hoop tendons that wrap around EQ hatch. Further, there are also removed vertical tendons that wrap around EQ hatch. If your detensioning/retensioning scheme involves tendon elements that influence forces in the EQ hatch area, how do you plan to address it in your design basis model? Describe any plans to refine your model around the EQ hatch area.							
References:							
Response Ass Response:	signed to:	Don Dyksterhouse	Date Due to Inspe	ector:			
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Misc Notes:							
Response By:				ing an a transformer an an an a training the	na ga ann ann an Stadiochtair an an ann ann an Stadiochtair		
Reviewed By:			Date Response Prov	ided:	······		
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Request Num	ber:	71		
Individual Co	ntacted:	Garry Miller	Date Contacted:	12/2/2009
Requestor/Ins	spector:	George Thomas	Category:	
Request:	a 180 degree symmetric) degree model is extruded t may not be adequately			
	represent	ed in a symmetric model but	may affect the response of the	affected area.
References:				
Response As Response:	signed to:	Don Dyksterhouse	Date Due to Inspe	ector:
Misc Notes:				
Response By:				
Reviewed By:			Date Response Prov	ided:
Status:	Open		Date Clo	osed:

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				20-0411-10 2.10.1411
Request Numb	ber:	72		
Individual Con	tacted:	Garry Miller	Date Contacted:	12/2/2009
Requestor/Ins	pector:	George Thomas	Category:	
Request:	Refer to S analysis s opening; around th below the combinat	Slide 74 (and 76) of the 11 steps are: (i) Dead Load + and (iii) Remove SGR oper e vicinity of the SGR oper ring girder) for each of th on.	1/20 public meeting presentation. - Tendons; (ii) Remove Hoop + Vening. Provide stress and deform ning (between Buttresses 3 & 4 from the Definition of th	The first three planned ertical Tendons in SGR nation plots for the area in and om above the EQ hatch to ead + Prestress load
References:				
Response Ass Response:	igned to:	Don Dyksterhouse	Date Due to Ins	pector:
Misc Notes:				·
Response By:				
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Request Numl	ber:	73				
Individual Cor	ntacted:	Garry Miller	Date Contacted:	12/2/20	009	
Requestor/Ins	pector:	George Thomas	Category:			
Request:	Refer to S	lide 81 of the 11/20 public meeting	presentation with rega	rd to Post Rep	air Testing.	
	Provide the accordance Provide the Second bu pressurization instrument analysis." the post-re- specifically correspond The respond ddress the the contain during/folle 1. The infor Responsite qualification Provide events first parage designated experience 2. There vice events for the involving re- during the Just perfor without performed detaminated	e name and credentials /qualification ce with ASME Section XI, Subsection and structure related to the SGR pro- e date the individual was designated allet on the slide states: "Concrete en- tion and following depressurization tation based on the final repair that For the major containment repair/repair system pressure testing would y provide verification of the contained ding structural behavior as predicted nse is incomplete/inadequate as in these concerns. Also, confirm wheth ment design pressure was affected owing the RF16 Outage. ormation provided with regard to qual be Engineer for the SGR Project, do ons required by IWL-2320 for an individual. was no response provided with reg- ent Delamination Project, the person on. Provide the requested information ent Delamination Project. major repair of the extensively del new design/construction features, the containment pressure test does no ring visual examination of the rep- ent of the quality and adequacy of the end again) nor will it provide a verific	ons of the designated F on IWL, for repair/replace ject and the Containment of as the Responsible F exterior will be visually "Third bullet states: " is implemented, and as eplacement activity involution of meet the requirement ment structural integrity d by the design basis and dicated below. Provide her or not the design basis d by the extended pow alifications and credent bes not indicate nor pro- lividual to be designated information of require X, 2001 Edition with 20 ude a resume with edu ard to the designated F n's qualifications and c on for the designated F aminated condition of the response provided v t meet the requirement aired concrete surfaces urements and additionar repair (i.e. the repaired ation of structural resp	Responsible Er cement of the ent Delamination Evaluating oth s driven by: ro olved at CR3, s of IWL-5000 v under accide analysis. e a complete re asis accident p er uprate bein tials of the des povide evidence ed qualification 03 Addenda) f cational qualification 03 Addenda) f cational qualification 03 Addenda) f cational qualification and cational qualification and cational qualification cational qualificatio	ngineer, in CR3 on project. r to her additional ot cause describe how b, and nt pressure and esponse to oressure and/or g implemented signated IWL e of basic sible Engineer. ns stated in the for the ications and hgineer for the l date of ngineer for the l date of ngineer for the signated IWL-5250. after the test, s, will not has not as expected	
	a previous repaired c	licted by the design basis analysis. Further, there will not be data available to compa us benchmark test (such as original SIT) to fully demonstrate structural integrity of the containment				
References:						

an a	na na mana in fan de sente a construction e a la construction de la construction de la construction de la const Anna a la construction de la constru	20-Jan-1	10 2:10:14 PM				
Response Assigned t	o: Charles Williams	Date Due to Inspector:					
Response:							
(1)Provide the name ar accordance with ASME containment structure r (2)Provide the date the	nd credentials /qualifications of t E Section XI, Subsection IWL, for related to the SGR project and t e individual was designated as th	the designated Responsible Engineer, r repair/replacement of the CR3 he Containment Delamination project. he Responsible Engineer.	in				
Second bullet on the sl pressurization and follo instrumentation based analysis." For the majo the post-repair system specifically provide veri corresponding structura Enclosed in this folder (1) The designated Res response folder is a co (ESG0090N) - CONTA pdf: ESG0076N-Hollida	ide states: "Concrete exterior w wing depressurization." Third b on the final repair that is implem r containment repair/replaceme pressure testing would meet the ification of the containment strue al behavior as predicted by the in response to the above questi sponsible Engineer for the SGR py of John's completed Progres INMENT INSPECTION RESPC ay.pdf]	ill be visually examined prior to ullet states: "Evaluating other addition nented, and as driven by: root cause nt activity involved at CR3, (3)describe e requirements of IWL-5000, and ctural integrity under accident pressure design basis analysis. on: Opening Project is John Holiday. End is Energy COMMON ESP TRAINING OUD	al e how e and closed in this GUIDE DE. [See enclosed				
(2) The effective date c approval 7-14-09. (3) See the excerpt bel attachment Z58R26 for moved from EC 63016 15.0 PRESSURE TES	of John's designation as the SG low from the "Containment IWL r the IWL-5000 Pressure Test in (SG Replacement Opening Pro TING AND PRESERVICE EXAI	R RE was the date on his training guid Repair Plan" contained in the SGR Op formation. It is anticipated that this inf ject) to EC 75221 (Containment Repa MINATION	e completion ening EC 63016, formation will be ir Project) .				
15.1 A reactor building tensioned. The test will applicable requirement (Reference 19.2). The	pressure test will be performed l be conducted as specified in E is of ASME Section XI, Article IV IWL Responsible Engineer will	after de-tensioned and replaced tendo C 63016 (Reference 19.28), which inc VL-5000 authorize performance of the test.	ons have been re- orporates the				
15.2 The pressure test containment DBA press	will be conducted at the design sure), as specified in Reference	basis accident pressure, Pa = 54.2 ps 19.2, prior to returning reactor buildin	sig (calculated peak g to service.				
15.3 The surface of all containment concrete placed during repair/replacement activities will be visually examined n accordance with the requirements developed in EC 63016 (Reference 19.28), which incorporates the equirements of ASME Section XI, Article IWL-5250 (Reference 19.2). The examinations will be done (1) prior to he start of pressurization, (2) at test pressure, and (3) following completion of depressurization. In addition, concrete surrounding the bearing plates of all new and detensioned / re-tensioned tendons will be examined per ASME Section XI, Subsection IWL Section 2524.1(Reference 19.2) following the completion of depressurization. The preservice examination required by IWL-2230 will be conducted in accordance with procedure EGR-NGGC- 0015 (Reference 19.23) following completion of depressurization2							
2 A single examination	can satisfy the requirements of	both IWL-5250 and IWL-2230					
If the results of the pos standards developed b taken as required by IV	t-test and preservice examination y the IWL Responsible Enginee NL-3113 and IWL-5260.	ons do not meet the acceptance r in accordance with IWL-3110, correc	ctive action will be				
Misc Notes:							

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Request Num	oer:	74					
Individual Con	itacted:	Garry Miller		Date Contacted:	1	2/2/2009	
Requestor/Ins	pector:	Anthony Masters		Category:			
Request:	Refer to p	photos on Slide 14	of the 11/20 public	meeting presentation	 Management () and () and () and () 		
	Explain the gap between the liner and the concrete? Have you verified how far it goes? It is our understanding that there is bulging in the containment liner with air voiding betwee and concrete at several locations all around between approximate EL 180 and 225 ft; and was dispositioned as construction/fabrication errors that existed prior to concrete pour. I existed prior to original concrete pour, explain how there is voiding between the liner and concrete. What was the acceptance criteria used to evaluate this? Provide the engineer evaluation for accepting the bulging as-is and explain how this evaluation is consistent w						
References:						an a a fa comunication Comunication Comunication (Comunication Comunication) Bondennique de 1-1 (Comunication) (Comunication)	
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Request Numb	Der:	75			
Individual Con	tacted:	Garry Miller	Date Contacted:	12/2/2009	
Requestor/Ins	pector:	George Thomas	Category:		
Request:	uest: Describe your plans [PII] for finite element simulation of the delamination to confirm the cause(s)?				
References:	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
Response Ass	igned to:	Charles Willaims	Date Due to Inspec	tor:	
Response:					
Multiple finite el computer code D simulations. concrete streng and the NRC S	lement and Merlin to p The mode oth, creep, IT on 1/7/1	alyses are being performed to con perform a 2-D simulation of a verti- ls include the various parameters thermal gradients, and fracture e 10	firm the root cause. These cal cross section of the wall considered in the root caus nergy. This subject was als	include the use of the , and Abaqus to perform e analysis, including to discussed between P	
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Response By:	Craig Mill		ann an Anna ann an Aonaichtean an Aonaichtean Airtean ann ann an Aonaichtean Anna Anna Anna Anna Anna Anna Anna	Haven yang yang menangkan kan dalak menangkan kemangkan kemangkan yang sebanan kemangkan da	
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Request Num	ber:	76			
Individual Cor	ntacted:	Garry Miller	Date Contacted:	12	2/2/2009
Requestor/Ins	pector:	Robert Carrian	Category:		
Request:	Refer to th Pouring." tendon sh What was Was the i	the Refuting evidence for failure m There are photographs of the SG eathing are all not centered on a the design location of the tendon nstallation of the tendon sheathin	ode 2.8 "Inadequate Suppo R opening area that show vertical line. sheathing? g out-of-tolerance in the as	ort of Te that the s-found	endons during as-found hoop condition (Tendon
References:		r specification must have had a to		ing insta	
Response Ass	signed to:	Charles Williams	Date Due to Inspe	ector:	
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Request Numb	per:	77						
Individual Con	tacted:	Garry Miller	Date Co	ontacted:	12/2/20	09		
Requestor/Ins	pector:	George Thomas	C	ategory:	· · · · · · · · · · · · · · · · · · ·			
Request: Confirm whether "the lack of bond between the smooth tendon sheathing and the concrete" included as a possible failure mode in the root cause investigation.						concrete" is		
References:		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · ·		
Response Assigned to: Charles Williams Date Due to Inspector:								
Response:								
The lack of bon mode, but it is i Flexible Sleeve load carrying st	id between ncluded as s". The fin rength at t	the smooth tendon sheath a condition in failure mode ite element analyses also he sleeve-to-concrete inter	ing and the concrete e 6.4, "Added Stress f recognize this condition face.	is not identific from Differenc on, and take r	ed as a spe ces Betwee no credit for	cific failure n Rigid and r any tensile		
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Response By:	Craig Mill	er			and a second	an a chun an		
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Request Num	ber:	78				
Individual Cor	ntacted:	Garry Miller		Date Contacted:	12	2/2/2009
Requestor/Ins	pector:	Anthony Masters		Category:		
Request:	Consideri constructi extended to confirm performed address/r spot or de	ng the delamination and su on, what non-destructive of to the dome during the cur that the 1976 dome repair d on the dome. Also, expla esolve the concerns raised epressed area on the dome	ubsequent r examination rrent investig rs remaind g ain how the b in the prev e.	epair of the CR3 don , core boring and/or gation of the contain good? Provide result results for these exa ious Requests #1 an	ne during other app ment wall ts of the e minations id #40 wit	original propriate testing was delamination issue examinations would help h regard to the low
References:						
Response Ass	signed to:	Paul Fagan		Date Due to Insp	pector:	
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Request Num	ber:	79			
Individual Co	ntacted:	Garry Miller	Date Contacted:	12/2	/2009
Requestor/Ins	spector:	Dan Naus / George Thomas	Category:		
Request:	Explain h testing, c comprehe containm	ow your condition assessment per ore bore sampling, boroscopic exa ensive and accurate determination ent.	formed in accordance with mination etc.) provides a of the extent of delaminat	Procedur easonable ed conditio	e PT-407T (NDE e assurance of a on of the
References:			· • · · ·		
Response As Response:	signed to:	Paul Fagan	Date Due to Inspe	ector:	
Misc Notes:				•	
Response By:					
Reviewed By:			Date Response Prov	ided:	
Status:	Open		Date Clo	osed:	

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Request Numb	ber:	80			
Individual Con	ntacted:	Garry Miller	Date Contacted:	12/2/2009	9
Requestor/Ins	pector:	Dan Naus	Category:		
Request:	Provide ir examinat sent. Hov labs? Ho examinat	Iformation of the total num ion for the containment del w did you determine/ensur w did you establish that a ion?	ber of core samples that were se lamination issue. Indicate the lab e consistency of the examination reasonable number os samples v	nt for petrograph is to which each and results betw were sent for pet	hic sample was ween the trographic
Response Ass	signed to:	Charles Williams	Date Due to Insp	ector:	
Response:					
identification nu 1. Core 5 M 2. Core 5 C 3. Core 6 P 4. Core 7 M 5. Core 18 Pl 6. Core 19 Pl 7. Core 87 M MACTEC and C evaluated similated techniques more hardness example influence how a particular example independent re- results. Note that not all the containment to compare the The number of consistent results.	ACTEC (TL (1/2 of Photometric ACTEC hotometric hotometric hotometric ACTEC CTL perfor ar condition re frequen ninations the a particula ination (i.4 sults; ther Il samples t dome (a aggregate samples to lits obtaine	d test labs are: 1/2 of Core 5 tested at MA Core 5 tested at CTL) cs rmed petrographic examina- ons and attributes as those tly used in material science hat are more thorough. Pri- r test or examination was pri- e., determine age of the bri- refore there was no explicit were examined for fractur- irea repaired in 1976). The e from the dome to the age that received petrographic ed from the various labs ar	CTEC) ations in accordance with ASTM evaluated under the ASTM stan- e, e.g., scanning electron microso ogress Energy did not provide ar performed, other than convey the eak). The purpose of using multi effort to ensure consistency in the e age determination. For example purpose of the petrographic exa- gregate from the wall. examinations is believed to be ac- ad the diversity of the sample local	C 856. Photome dard, but used to cope (SEM) and y directions that main objective iple labs was to the examination t le, Core 87 was amination on this dequate based c ations.	etrics ools and micro- t would of the obtain echniques or taken from s sample was on the
	1100 1112 - 11100. an 1010				
Response By:	Craig Mi	ller		822004204234943494949494848494232945232945232449448389	ngan ang sa
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Request Num	ber:	81							
Individual Cor	ntacted:	Garry M	Ailler			Date Contacte	ed: 1	2/2/2009	
Requestor/Ins	pector:	Dan Na	aus			Catego	ry:		
Request:	According be perfor is no disc observati results ar	g to Mac med on s ussion o ons were nd where	Tec petrog sample 212 f how it wa e reported. is it docun	raphic rep 270A (Core is used. A What exa nented?	ort dated e #2) whi Iso, it do mination	November 11, 20 ch was used as a es not appear that s were performed	009, limited control san t any result on this sar	observatio nple. How s from thes nple, what	ns were to ever, there se were the
References:							1		
Response Ass Response:	signed to:	Charle	s Williams			Date Due to I	nspector:		
Per discussion see anything pa as the "control a fresh fracture was essentially	with the M articularly sample" s surface in unused in	IACTEC useful in ince the n a portion n the exa	petrograph their analy fracture wa on of Core s mination.	her, the lal ysis. It wa as made d 5 instead f	b did do s s original uring the for the "fr	some limited obse ly intended to use core removal prod esh vs. existing" c	rvations on the fractur cess. Howe comparison	Core 2, bu e surface c ever, the la Therefore	at I did not of Core 2 ab created e, Core 2
Misc Notes:									
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Request Num	ber:	82				
Individual Cor	ntacted:	Garry Miller	Date Co	ntacted:	12/2/2009	
Requestor/Ins	pector:	Dan Naus	С	ategory:		
Request:	According sample 2 Novembe examinat documen	g to MacTec petrographic 1270 (Core #2) was sent er 2, 2009 there does not ions performed on this sa ted?	report dated November to CTL for petrographic appear to be any referer imple, and if so, what are	11, 2009 from examination. Ir nce to this samp e the results and	MacTec, on the CTL re ble. Were p d where is i	ie-half of eport dated etrographic t
References:						
Response As	signed to:	Charles Williams	Date Di	ue to Inspector	MANANCHARU 2012 2006 1 2016 1	
Response:						
The MACTEC performed on i taken from an sample.	report doe t. CTL has area that c	s say that half of core #2 s this half of Core #2, but lid not contain delaminati	was sent to CTL, but it on has not done any testing on. There are currently the second	does not specify g on it at this tin no plans to perf	v what tests ne. This sa orm any tes	are to be mple was sts on this
Misc Notes:						
Response By:	Craig Mi	ller				
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Request Num	ber:	83		
Individual Cor	ntacted:	Garry Miller	Date Contacted:	12/2/2009
Requestor/Ins	pector:	Dan Naus / George Thomas	Category:	
Request:	Describe the areas propagat	what confirmatory NDE would that did not show any delamined any further due to additionate	l be performed, after detension nation in order to verify that the al detensioning.	oning of additional tendons, in ne delamination has not
References:				
Response As	signed to	Paul Fagan	Date Due to Insp	pector:
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		"3 ,		
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Request Number: 84 Individual Contacted: Charles Williams Date Contacted: 1/12/2010 Requestor/Inspector: George Thomas Category:					20-Jan-10	2:10:14 PM
Individual Contacted: Charles Williams Date Contacted: 1/12/2010 Requestor/Inspector: George Thomas Category: Request: With reference to the evidence sheets that refuted the root cause failure mode 8.4 - Inadequate Concrete Structure Monitoring/Maintenance (IWL), the SIT has the following observations: 1. The scope and description of this failure mode is unclear and not accurate. The monitoring of the concrete structure under the Containment ISI Program in accordance with ASME Section XI, Subsection IWL, infact includes examination of concrete surfaces and the unbonded post-tensioning system (lendon surveillance) of the Class CC containment. Program referenced does not seem accurate. 2. The inadequacy of a CISI program in accordance with ASME Section XI, Subsection IWL is an issue of regulatory and procedural compliance. It is not by itself a failure mode. The program may help detect early signs of a degradation or potential failure mode and the degradation identified during inservice inspection were not perefy addressed and the degradation progressed into failure. Clarify what failure mode is being addressed by FM 8.4 represent? 3. The "Data to be collected" is incomplete/inadequate since (i) it does not look at past IWL inspection results of the concrete surfaces between buttresses 3 and 4 performed during RF 16 after the delamination or docrete surfaces between buttresses and 4 performed during RF 16 after the delamination as discovered, and not "conducted a few days prior to beginning the SGR hole cut activities (FM 8.4 Exhibit 2) as stated in the evidence sheet. None of the reports from past IWL inspections of the concrete surfaces between buttresses 3 and 4 performed during RF 16 after t	Request Num	ber:	84			
 Requestor/Inspector: George Thomas Category:	Individual Con	ntacted:	Charles Williams	Date Contacted:	1/12/2	010
 Request: With reference to the evidence sheets that refuted the root cause failure mode 8.4 - Inadequate Concrete Structure Monitoring/Maintenance (IWL), the SIT has the following observations: 1. The scope and description of this failure mode is unclear and not accurate. The monitoring of the concrete structure under the Containment ISI Program in accordance with ASME Section XI, Subsection IWL, infact includes examination of concrete surfaces and the unbonded posttensioning system (tendon surveillance) of the Class CC containment. Program referenced does not seem accurate. 2. The inadequacy of a CISI program in accordance with ASME Section XI, Subsection IWL is an issue of regulatory and procedural compliance. It is not by itself a failure mode. The program may help detect early signs of a degradation or potential failure mode or a failure mode after it has occurred. The implemmetaion of the program may be inadequate if early signs of degradation identified during inservice inspection were not perperty addressed and the degradation identified during inservice inspection were not perperty addressed by FM 8.4 represent? 3. The "Data to be collected" is incomplete/inadequate since (i) it does not look at past IWL inspection results of the concrete surfaces; (ii) it does not look at past IWL tendon surveillance resports. Documents referenced are not accurate. 4. The refuting and supporting evidence is incomplete/inadequate because: (i) Exhibit 2 is in fact results of visual examination of concrete surfaces were reviewed as evidence. (ii) The GR beginning the SGR hole cut activities (FM 8.4 Exhibit 2) as stated in the evidence sheet. None of the concrete surfaces were reviewed as evidence. (ii) The CR-3 containment has had a history of a significant numebr of hoop tendons, including some that go through the SGR Openign, not meeting the IWL acceptance by examination criteria during the recent three surveillances (i.e. Surveillances 6, 7 & 8 were accepted by engineerin	Requestor/Ins	pector:	George Thomas	Category:		
	Requestor/Ins Request: References:	 Pector: With refer Concrete 1. The so the concre Subsection tensioning not seem 2. The inalissue of re may help has occur degradati degradati represent 3. The "D inspection resports. 4. The refures results of RF 16 after the SGR free CR-3 con go throug the recen evidence surveillan 5. Further The cause large num acceptand the CR-3 prestress assessme 	rence to the evidence sheets that reference to the evidence sheets that reference and description of this failure more the structure under the Containment on IWL, infact includes examination of g system (tendon surveillance) of the accurate. dequacy of a CISI program in accorded to the implementation of the program of the program in accorded to the implementation of the program in the program in the program in the program of the implementation of the program in the program in the program in the program of the program in the soft the concrete surfaces; (ii) Documents referenced are not accurate. Uting and supporting evidence is incomplete/ination of the concrete surfaces; (iii) Documents referenced are not accurate. The delamination of concrete surfaces; (iii) Documents referenced are not accurate. The delamination of concrete surfaces is incompast IWL inspections of the concrete surfaces; (iii) the SGR Openign, not meeting the three surveillances (I.e. Surveillances for the delamination root cuase. Nore the delamination root cuase. Nore evere reviewed as evidence. The results of tendon surveillances is incompleted as evidence. The program is the program. Is the ing force in several hoop tendons being and and if so, where is it addressed?	Category: uted the root cause fa WL), the SIT has the f ode is unclear and not ISI Program in accord f concrete surfaces ar Class CC containment dance with ASME Sec . It is not by itself a far r potential failure mode am may be inadequa ion were not perperly nat failure mode is bein dequate since (i) it do it does not look at parate. mplete/inadequte beconds ces between buttressed and not "conducted a .) as stated in the evice rete surfaces were rever- ficant numebr of hoop e IWL acceptance by one e of the tendon surver 6, 7 & 8 were accepted predicted forces or board ing extended sampling lequately addressed cause fo the larger th- ing addressed as part	ilure mode 8.4 ollowing obset accurate. The lance with AS not the unbond not. Program mode. The ilure mode. The ilure mode. The e or a failure te if early sign addressed an ng addressed an ng addressed an addressed an es not look at st IWL tendon eause: (i) Exhill es 3 and 4 per few days prio lence sheet. I iewed as evid tendons, inclu- examination c Id provide sup sillance reports d by engineer of the lift-og and eliminated an anticipated of the root ca	 Inadequate rvations: Image: monitoring of ME Section XI, led post-efferenced does Image: mode after it sof d the by FM 8.4 Image: past IWL surveillance Image: past IWL surveillance Image: past IWL surveillance Image: past IWL some of the ence. (ii) The uding some that riteria during porting some that riteria during some some some some some some some some
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Request Num	ber:	85				
Individual Cor	ntacted:	Charles Williams	Da	ate Contacted:	1/12/2	010
Requestor/Ins	pector:	George Thomas		Category:		
Request:	The descr liner. What the root ca	iption and exhibit photogra at is the location and exten ause analysis?	phs indicate pre t of the seconda	esence of a secon ary delamination?	dary delami Is it being ir	nation near the nvestigated in
References:						
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a per Manage ton a man approximate a star particular poly-	Lastitution contraction (1991) - and a statement of the s	· · · · · · · · · · · · · · · · · · ·	Mandalana galan kan i si sa anaga ga ananan i sa sa sa daga ga ga			
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