

Commonwealth Edison Dresden Nuclear Power Station 6500 North Dresden Road Morris, Illinois 60450 Telephone 815/942-2920

June 28, 1994 GFSLTR: 94-0218

Mr. William T. Russell, Director Office of Nuclear Reactor Regulation U. S. Nuclear Regulatory Commission Washington, D.C. 20555

ATTN:

Document Control Desk

Subject: Dresden Station Unit 3 Quad Cities Station Unit 1 Additional Information Pertaining to Core Shroud Cracking Issue <u>NRC Docket Nos. 50-249 and 50-254</u>

Reference: Teleconference between USNRC (J. Stang) and CECo (P. Piet, et al) on June 28, 1994

Dear Mr. Russell:

In the referenced teleconference, the NRC Staff requested additional information pertaining to the Core Shroud Cracking issue at Dresden Station Unit 3 and Quad Cities Station Unit 1. Specifically, the NRC Staff requested a copy of Commonwealth Edison Company's Safety Evaluation (performed in accordance with 10CFR 50.59) for core shroud cracking at the H5 weld location. The requested information is provided as an attachment to this letter.

If there are any further questions or comments, please contact Peter L. Piet at 708-663-7286.

ncerely,

Spedl, Station Manager Gary F Dresden Station

GFS:slb

Attachment: Safety Evaluation of Dresden Unit 3 and Quad Cities Unit 1 Core Shroud Cracking at H5 Weld Location

cc: J. Martin, Regional Administrator - Region III M. Leach, Senior Resident Inspector - Dresden Station C. Miller, Senior Resident Inspector - Quad Cities Station J. Stang, Project Manager - NRR C. Patel, Project Manager - NRR Office of Nuclear Facility Safety - IDNS

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ATTACHMENT

SAFETY EVALUATION OF DRESDEN UNIT 3 AND QUAD CITIES UNIT 1 CORE SHROUD CRACKING AT H5 WELD LOCATION

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DESIGN ISSUES WORKSHEETS ELECTRICAL ISSUES

Mod #H5 Shroud Weld Reactor Vessel

,

<u>No.*</u>	DESIGN ISSUE	KEY WORDS	IS	ISSUE	RELEVANT?	PROVID	E BASIS	FOR CO	NCLUSION
E 1 .	Is Class 1E equipment involved?	safety related electrical I&C system, basis described in design input document	or	NO	This issue does (not involve a	my Class 1E	Equipment.	
****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	****	XXXXXX		*****	****	XXXXXXXXXXXXX		*****
E 2	Is there any potential for control and power circuit interaction?	separation of voltage classes, induction effect on control signals	8	NO	This issue does	not involve a	my electrica	il equipment	
AAAAAAA	******	*****				*****	*****		****
Ε3	Has a sneak circuit analysis been completed?	potential shorts, inadvertent connections, unintended operating		NO	This issue does	not involve a	ny electric	al equipment	· •
*****	*******			****	*****	*****	****	uxxxxxxxxxxx	****
Ε4	Is redundancy of existing systems reduced or compromised?	backup of protection system, fire zone consideration, independer control station, interconnection of redundant system, power supply crossties	it .	NO	This issue does	not involve r	edundancy of	electrical	equipment.
XXXXXXX	******	*****		*****	XXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXXX	****	XXXXXXXXXXXX	XXXXXXXXXXXXXXXXXXXXXXX
E 5	Are safety related circuits isolated and separated from non-safety related circuits?	buffer amplifiers, automatic switchgear, separate cable runs, electrical and physical		NO	This issue does	not involve a	ny electrice	l circuits.	
****		separation XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			****	****	****	*****	****
E 6 XXXXXXX	Is safety related (Class 1E) bus integrity maintained? AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	bus capacity, automatic isolation, load shedding		NO XXXXXXXXXX	This issue does	not interface XXXXXXXXXXXXXX	with any sa	ifety relate	d buses.
E 7	Has diesel generator or battery loading been checked?	overload potential, load sequencing and shedding, uninterruptible power		NO	This issue does or diesel genera	not add any a tors.	dditional lo	eding to th	e station batteries
*****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	******	un en	IAAAAAAAAA	es.«Akkakakakakaka	*****	XXXXXXXXXXXX	XXXXXXXXXXXXX	*****
E 8	Are there adequate fail safe protection features for both components and systems?	automatic transfer, redundant systems, failur mode status	.е	NO	There are no ele this issue.	ctrical fail	safe protect	ion feature	s associated with
*****		******			*****	*****	******	*****	*******

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DESIGN ISSUES WORKSHEETS Mod #H5 Shroud Weld Reactor Vessel ELECTRICAL ISSUES DESIGN ISSUE KEY WORDS **IS ISSUE RELEVANT?** PROVIDE BASIS FOR CONCLUSION No.* E 9 Does the design provide minimize extent of outage. NO There are no fault trip coordination interfaces associated with this fault trip coordination on interaction with load issue. the system and interfacing shedding, operations There are no electrical devices with actuation times associated with E 10 Is actuation time of response time, reactor trip NO protection devices and time, containment this issue. circuitry compatible with all isolation, interaction with requirements? other systems ********** E 11 Are in-service periodic availability for testing, NO There are no electrical in-service tests or inspections associated with testing and inspection of frequency of testing. this issue. system performance potential for undesirable addressed? side effects Does the modification of This issue is associated with the H5 core shroud weld, located in the E 12 control panel layout. NO control canels incorporate control function, separate reactor vessel. There are no human factors requirements associated with human factors objectives? evaluation, control room this issue. (human factors requires a panels and remote panels separate evaluation) E 13 Has bypass and inoperable verification of status, NO There is no Class 1E equipment associated with this issue. status indication of Class 1E technical specification protection equipment been compliance, operational included in the design? requirement E 14 Does the design adequately new off-site sources, new NO This issue does not involve any RFI or EMI concerns. address Radio Frequency electrical or electronic Interference (RFI) and equipment, new on-site Electromagnetic communication devices, Interference (EMI)? hand-held radio signals E 15 Do system logic logic diagram, instrument NO There are no login configuration changes associated with this issue. configuration changes alter loop diagram system design? E 16 Are there any grounding equipment ground, ground This issue does not affect system or equipment grounding. changes or requirements? grid, disconnecting a ground ***************************** List this item on the 10CFR50.59 Safety Evaluation Cover Sheet if the issue changes the normal operation or the failure

modes/effects resulting from the modification.

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			DESIGN I ELEC	SSUES	WORKSHEETS L ISSUES	Mod #1	Mod #H5 Shroud Weld Reactor Vessel			
<u>No.*</u>	DESIGN ISSUE	KEY WORDS	IS	ISSUE	RELEVANT?	PROVIDE	BASIS F	OR CONCLU	SION	
E 17	Have Control Room Panel additions and deletions been revised for seismic qualification impact?	equipment changes on seismic qualif panel, panel requ	s, impact fication of ualification		There are no contr	ol room chang	es associated	with this issu		
E 18	Are there any other Electrical or I&C Issues that should be addressed? If so, list and discuss them here.		.•	NC	None.					
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* List this item on the 10CFR50.59 Safety Evaluation Cover Sheet if the issue changes the normal operation or the failure modes/effects resulting from the modification.

 List this item on the 10CFR50.59 Safety Evaluation Cover Sheet if the issue changes the normal operation or the failure modes/effects resulting from the modification.

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		DESIGN	ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
		FIRE PL	ROTECI	ION ISSUES	Reactor Vessel
No.1	DESIGN ISSUE	KEY WORDS IS	ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
	, •	. · ·			
÷ 1	Have all ignition sources been adequately controlled?	hydrogen in containment arcing contacts, static electric charges, open	NO	There are no ignit this issue.	tion sources or ignition source changes associated wit
(XXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	flames, off-gas control UXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		****	*****
F 2	Do any additional sources of energy cause the capacity to	combustibles, materials	NO	This issue does no	ot add any additional sources of energy.
	a fire zone to be exceeded?	produce combustible gas, Zn or Al in containment			
XXXXX	******	****	XXXXXXXXXXX	uxxxxxxxxxxxxxxxxxxx	LANARARARARARARARARARARARARARARARARARARA
: 3	Are all materials of construction appropriate for fire protection purposes?	excessive propagation rate, controlled materials, radiation effects, potential	ŅO	There are no new a	materials being added as a result of this issue.
XXXXX	****	for failure in a fire (XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	(XXXXXXXX)	CARARARARARARARARARA	
4	Is there additional storage of combustible material or have combustible materials been added as part of modification?	electrical insulation coatings, gas supplies, additional cable trays constitute added fire	NG .	There are no comb issue.	stible materials being added as a result of this
XXXXXX	******	(AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	(XXXXXXXX)	(AAAAAAAAAAAAAAAAAAAAAAA	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
F 5	Are there any new potential paths for fire propagation or crossing of fire zone	holes through fire walls or stops, ducts, damper failure mode	NO	There are no new p	paths being created as a result of this issue.
KXXXX X				uxxxxxxxxxxxxxxxxxx	*****************
6	Have changes compromised testing or inspection of the	thermal insulation or shielding which could	NO	This issue is asso testing or inspect	ociated with shroud weld H5, and does not compromise tion of fire protection systems.
XXXXX	fire protection system? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	block access (XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			****
; 7	Have any changes been made that degrade required fire detection, control or protection?	new failure modes, move or penetrate fire walls, reduce capacity of water supply system, tie-in to fire	NO	This issue is asso required fire dete	ociate with H5. The issue does not degrade action, control, or protection.

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			• •			DESI(FIRI	EN ISSUES E PROTECTI	WORKSHEETS ION ISSUES	Mod #1	H5 Shrou Reactor	Pag d Weld Vessel	e 5 of 19 · ·
<u>No.*</u>	DESIGN	ISSUE		KEY	WORDS	•••	IS ISSUE	RELEVANT?	PROVIDE	BASIS F	OR CONCLUSI	ON
F 8	Are there am Protection Is should be ad list and dis XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	y other Fi ssues that dressed? I cuss here XXXXXXXXX	ire t lf во, XXXXXXX	****		*****						
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		DESIG	N ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
		F	LOODING	ISSUES	Reactor Vessel
<u>No.</u> *	DESIGN ISSUE	KEY WORDS	IS ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
FL 1	Is there any increase in the potential for internal flooding?	circulating water, condenser, D-6 pipe lines, Suppression pool, Fan coolers, Service Water heat exchangers, Drywell chillers, Sprinklers, fail check valves, augumented f protection systems	NO ed ire	The indications id not affect the fun	entified are located within the reactor vessel and does ction of the Vessel Pressure Boundary.
******	*******	******	*****	*****	
FL 2	Are any areas or equipment susceptible to flood damage?	Lower levels, Watertight rooms, Electrical equipment close to floor, Pumps, Motors, Air Compressors, Electrical Buses, Breakers, direct or indirect failure			susceptible to flood damage in the reactor vessel.
FL 3	Are any potential paths for flood propagation created?	Holes through walls, floors, & doors designed to be watertight, floor Drains, Ventilation Ducts, backflow, siphoning, site	NO	There are no addit also FL6.	ional flood paths for flood propagation created. See
XXXXXXX			****	****	**************
FL 4	Is the capability to isolate or cope with flooding reduced?	extended removal or disengagement of valves, pumps alarms, indicators, sampling systems, opening or isolating pipeline, blocking or closing draims	NO	This issue does no	t affect the ability to isolate or cope with flooding.
XXXXXX			UXXXXXXXXXXXXXXXX		
, FL 5	Are there adequate design considerations to mitigate flooding?	leak protection or isolati devices drainage systems, barriers, separation of equipment	ion NO	The shroud is desi mitigation of floo floodablility of t	gn as a floodable region. This issue does not involve ding. This issue does not affect or degrade the the Drywell or Torus.
XXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	AXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	UXXXXXXXXXXXXXXXX		****
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	· · ·		DESIGN ISSUES FLOODING	WORKSHEETS ISSUES	Mod #H5 Shroud Weld Reactor Vessel
<u>No.</u> *	DESIGN ISSUE	KEY WORDS	IS ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
FL 6	Are there any other Flood Protection Issues that should be addressed? If so		YES	During a Recircula floodable region a	ation Line Break, the Reactor Vessel Shroud Provides a which assures 2/3 core coverage can be maintained.
	list and discuss here.	· •		Based upon review an industry accept the indications we structural integr Dresden Quad Cities	of the current crack depth data, and application of ted standard bounding crack growth rate (5E-5 in/hour), ill not exceed the allowable crack depth. Therefore, ity of the core shroud will be maintained. GENE-523-A69-0594, May 1994 GENE-523-A79-0594, May 1994
*****	******	*****	*****	*****	***************************************
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* List this item on the 10CFR50.59 Safety Evaluation Cover Sheet if the issue changes the normal operation or the failure

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		DESIG	N ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
		ME	CHANICAL	ISSUES	Reactor Vessel
N 1					
<u>No. *</u>	DESIGN ISSUE	KEY WORDS	IS ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
		• . • • . •			
M 1 .	Are any high energy lines	Jet impingement, pipe	NO	There are no high	energy lines affected by this issue.
*****			*****	****	
M 2	is the vulnerability to internally generated missiles increased?	new missile source(s), pump rotor breakup, valve stem ejection, pressure	YES	Catastrophic fail the shroud.	are of the H5 weld could allow for potential lifting of
	:	vessel appendages, change in missile protection requirement		Based upon review industry accepted indications will r structural integri	of the current crack depth data, and application of an standard bounding crack growth rate (5E-5 in/hour), the not exceed the allowable crack depth. Therefore, ity of the core shroud will be maintained.
				Dresden (GENE-523-A69-0594, May 1994
******	*****	******	************		12NE-723-A/9-0794, MBY 1994 (***********************************
		······			
M 3	Is the vulnerability to externally generated missiles increased?	tornado driven object, airplane, protection for new facilities, change in missile protection	NO	This issue will no	ot result in any externally generated missles.
*****	****	requirement	****	****	
N 4	Is there a potential for loose	cleanliness requirements,	NO	Based on boat same	ble analysis, there is no potential for portions of the
	particles within piping systems or components? If	heat exchanger plugging, effect on in-line devices		shroud surface to	distodge.
*****	so, how is it addressed? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		****	****	**********
N 5,	Could deformation or catastrophic failure impair	equipment support failure results in degradation of	YES	Catastrophic fails and potentially as	are of the H5 weld could lead to core shroud movement ffect the core spray and control rod drive systems.
	the safety function of the	satety system directly or			of the current creck depth data and application of
	system, components or structures being modified.	pressurization failure.		an industry accept	ted standard bounding crack growth rate (5E-5 in/hour).
	or other surrounding safety	excessive flow forces on		the indications w	ill not exceed the allowable crack depth. Therefore,
	related systems?	valve stem causing		structural integr	ity of the core shroud will be maintained.
		misoperation		Dresden (GENE-523-A07-0594, May 1994 GENE-523-A79-0594 May 1994
*****	*****	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	****		****
M 6	Is the safety classification of modified systems consistent with and	modification of interconnecting systems, change from non-safety	NO	The Reactor Vesse	l Shroud is classified as Safety Related.
	appropriate for the safety	related to safety related	at		
	- classification of existing	containment penetration,			•
	SAR (GIR2 (compatibility of appendage	*		
*****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	UXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	*****	XXXXXXXXXXXXXXXXXXXXXX	KARARARARARARARARARARARARARARARARARARAR
******	*******			•	
* 1 i	et this item on the 1005850.59	Safety Evaluation Cover Shee	t if the issue	changes the normal	l operation or the failure

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<u>No.*</u>	DESIGN ISSUE	KEY WORDS IS I	SSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
M 7	Is double valve isolation used if changes from class 1 to any other class or non-class portions of a system, or when a system is in direct contact with containment atmosphere? Is a single valve isolation used in changes from class 2 to class 3, class 2 to non- class portions of a system?	containment isolation valves, safety classification change within a piping system	NO	There are no pipin	g changes as a result of this issue.
M 8	Does the system have the required fail safe protection? is the safety function of the interfacing safety systems preserved upon failure?	fail open, fail close, or fail as is at both the components	NO .	The fail safe func this issue.	tion of the system is not affected by
XXXXXXX	******	*******	XXXXXXX	*****	***************************************
N 9	Is the redundancy of existing systems reduced by inadequate reliability?	backup system for redundancy, adequate reliability designed in for proper redundancy	YES	A catastrophic fai and potentially af Based upon review an industry accept the indications wi structural integri Dresden G	lure of the H5 weld could allow core shroud movement fect the core spray system. of the current crack depth data, and application of ed standard bounding crack growth rate (5E-5 in/hour), ll not exceed the allowable crack depth. Therefore, ty of the core shroud will be maintained. EME-523-A69-0594, May 1994
*****	*****	******			ENE-525-879-0594, NBY 1994 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
M 10	Is there an environmental qualification requirement? (environmental qualification requires a separate evaluation)	certified to operate in a specified temperature, humidity, and radiation environment; by test, by verification analysis, or a	NO [.]	There are no Envir this issue. Signi Pressure Vessel Bo	onmental Qualification requirements associated with ficant indications have not been identified on the undary.
XXXXXXX	*****	combination KKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKKK		****	*****
M 11	Are there any changes to the environmental profile of an environmental qualification zone?	high energy line routing, changes in process parameters		The indications ar affect the environ	e on the reactor vessel internals and do not mental profile of the area.
		~~~~~~			
* Li	AXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	Safety Evaluation Cover Sheet if the modification.	e issue	changes the normal	operation or the failure

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No. * DESIGN ISSUE         KEY WORDS         IS ISSUE RELEVANT?         PROVIDE BASIS FOR CONCLUSION           # 12         is seisaic qualification required         mintain structural integrity operate dering category i         MO         There are no additional components being added as a result of this integrity operate dering category i           # 13         Have all appropriate design addition to selate i code been identified         MO         There are no additional components being added as a result of this integrity operate dering category i           # 13         Have all appropriate design addition to selate i code been identified         MO         There are no additional components being added as a result of this integrity operate design added as a matter of conservation.           # 13         Have all appropriate design added as a matter of conservation.         Dreade operate 22-040-0564, Mey 1994 audd Citics and the addition of (DBA + DBE issue prohibited materials, prohibited materials, prohibited materials, prohibited materials, prohibited materials, prohibited materials, prohibited materials, prohibited materials, statices/non-tegrity of the are no materials being added as a result of this issue.           # 16         Have changes been mode that could affect the BPSH materials been evaluated?         MO         There are no pump characteristics affected by this issue.           # 15         Nove changes been mode that could affect the BPSH materials been evaluated?         MO         There are no pump characteristics affected by this issue.           # 15         Are there any changes been code				N ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
No. * DESIGN ISSUE     KEY WORDS     IS ISSUE RELEVANT?     PROVIDE BASIS FOR CONCLUSION       112     is seissic quilification required?     meintein structural and after seissic event; and after seissic event;			, PIEV		199069	Reactor Vesser
N12       is selessic qualification       meintein structurel integrity: goprate during after selessic event; category 11 over category 11       N0       Therefore, selssic qualification of components being added as a result of this integrity: goprate during addition to selssic loads         N13       Have all appropriate design icode form and existing in addition to selssic loads been identified?       Mrdrowneel cloads, pips break loads, thermai loads       WE       UEAR Section 3.9.3 cutimes the design loads associated with the result of the selssic loads and the addition of (DA + OBE loading addition to selssic loads) been identified?         N14       Have all appropriate during addition to selssic loads       material considerations, selsmic, coating, insulation, effect of redistion, erosion/corresion resistance, coating, insulation, effect of redistion, erosion/corresion resistance, coating, insulation, effect of redistion, erosion/corresion resistance, coatinge, insulation, effect of redistion, erosion/corresion resistance, coatingent restrictions on sees materials, there are no put characteristics affected by this issue.         N15       Have changes been made that could affect the MPBH       materials being edded on a result of this issue.         N16       Associationshipping, cavitation, for organize on design function       N0       There are no putp characteristics affected by this issue.         N16       Associationshipping, cavitation, for organize on design function       N0       Catactrophic failure of he MS and teoperatures index of the current crack depth there or a failation of atsiting aystem capability, impect on design function       N0 <tr< td=""><td><u>No.*</u></td><td>DESIGN ISSUE</td><td>KEY WORDS</td><td>IS ISSUE</td><td>RELEVANT?</td><td>PROVIDE BASIS FOR CONCLUSION</td></tr<>	<u>No.*</u>	DESIGN ISSUE	KEY WORDS	IS ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
<ul> <li>Have all expropriate design hydroxymatic loads, pipe break loads, thermat loads</li> <li>in addition to seisaic loads break loads, thermat loads</li> <li>in addition to seisaic loads break loads, thermat loads</li> <li>in addition to seisaic loads break loads, thermat loads</li> <li>in the second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second and the addition of CAR and a second second second and the addition of CAR and a second seco</li></ul>	12	Is seismic qualification required?	maintain structural integrity; operate during and after seismic event;	NO .	There are no addi Therefore, seismi	tional components being added as a result of this issu c qualification of components is not required.
<ul> <li>Have all appropriate design loads (new and existing) in addition to selasing loads (new and existing) in addition to selasing loads, thermai loads been identified?</li> <li>TS UFSA Section 3.9.3 outlines the design loads associated with the r vessel internals. These loads and the addition of (DBA + DBE) load inputs to the structural langth assessment. The DBA + DBE loading added as a matter of conservation.</li> <li>Manual Manual Manual</li></ul>				****	****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Dresden GENE -523-A69-0594, Nay 1994 Quad Cities GENE -523-A79-0594, Nay 1994 Quad Cities GENE -523-A79-0594, Nay 1994         N 16 Has the compatibility of materials, sealants, coatings, insulation, erfect of readitions on some materials, stainless/mon-stainless interfaces eisoperation       NO       There are no materials being added as a result of this issue.         N 15 Have changes been mode that could affect the NFSH       excessive pressure loss in that could affect the NFSH       NO       There are no pump characteristics affected by this issue.         N 16 Are there any changes in process parameters?       balance of flows, tube to drage the corp of the core shroud movement in iteriating system capability, impact on design function       NO       Catestrophic failure of he N5 weld could allow core shroud movement potentially affect pressures, flows and temperatures in the core shroud movement initiation of existing system capability, impact on design function       NO         N 16 Are there any changes in process parameters?       balance of flows, tube of flows, tube of the core shroud movement initiation of existing system capability, impact on design function       NO         Catestrophic failure of he N5 weld could allow core shroud movement potentially affect pressures, flows and temperatures in the core shroud movement potentially affect pressures, flows and temperatures in the core shroud init be maintained. Dresde upon review of the current crack depth date, and application on design function         N 16 Are there any changes in process parameters?       balance of flows, tube capability, impact on design function       NO         Catestrophic failure of he N5 weld co	M 13	Have all appropriate design loads (new and existing) in addition to seismic loads been identified?	hydrodynamic loads, pipe break loads, thermal loads	YES	UFSAR Section 3.9 vessel internals. inputs to the str added as a matter	P.3 outlines the design loads associated with the react These loads and the addition of (DBA + DBE) loads we ructural margin assessment. The DBA + DBE loading was of conservatism.
<ul> <li>Has the compatibility of material considerations, prohibited materials, sealants, coatings, insulation, effect of rediction, erosion/corresion resistance, containest inless interfaces i</li></ul>	*****	****	*****	****	Dresden Quad Cities XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	GENE-523-A69-0594, May 1994 GENE-523-A79-0594, May 1994 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
114       Has the compatibility of materials being added as a result of this issue.         prohibited materials, sealants, coatings, insulation, effect of rediation, erosion/corrosion resistence, containment restrictions on some materials, stainless/non-stainless interfaces misoperation         utility       excessive pressure loss in that could affect the MPSH suction pressure change         utility       excessive pressure loss in propersion function on some materials, stainless/non-stainless interfaces misoperation         116       Have changes been made that could affect the MPSH suction piping, cavitation, for any pump?       MO         116       Are there any changes in process parameters?       balance of flows, for any change in temperature, pressure loss in the indication of existing system capability, impact on design function       MO         116       Are there any changes in process parameters?       balance of flows, for any change in temperature, pressure fluintation of existing system capability, impact on design function       MO       Catestrophic failure of he H5 weld could allow core shroud movement potentially affect pressures, flows and temperatures in the core structural integrity of the core shroud will be maintained. Dresden GENE-523-APP-0594, Nay 1994         utility       MO       GENE-523-APP-0594, Nay 1994         utility       Guad Cities       GENE-523-APP-0594, Nay 1994					· ·	
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX		mais the comparishing of materials been evaluated?	prohibited materials, sealants, coatings, insulation, effect of radiation, erosion/corrosio resistance, containment restrictions on some materi stainless/non-stainless interfaces misoperation	n als,	Incre are no male	rtals being added as a result of this issue.
115       Have changes been made that could affect the NPSH for any pump?       excessive pressure loss in suction piping, cavitation, fluid temperature change       NO       There are no pump characteristics affected by this issue.         16       Are there any changes in process parameters?       balance of flows, temperature, pressure imitation of existing system capability, impact on design function       NO       Catastrophic failure of he H5 weld could allow core shroud movement potentially affect pressures, flows and temperatures in the core st region.         8.86.00       Besed upon review of the current crack depth data, and application an industry accepted standard bounding crack growth rate (5E-5 in/the indications will not exceed the allowable crack depth. Therefor structural integrity of the core shroud will be maintained. Dresden         0.00       GENE-523-A69-0594, May 1994         0.01       GENE-523-A69-0594, May 1994         0.02       Gene-523-A69-0594, May 1994	(XXXXX)		******	XXXXXXXXXXXXXXX	*****	***************************************
<ul> <li>M 16 Are there any changes in process parameters?</li> <li>balance of flows, temperature, pressure limitation of existing system capability, impact on design function</li> <li>Based upon review of the current crack depth data, and application an industry accepted standard bounding crack growth rate (SE-5 in/t the indications will not exceed the allowable crack depth. Therefore structural integrity of the core shroud will be maintained. Dresden GENE-523-A59-0594, May 1994</li> <li>Catastrophic failure of he H5 weld could allow core shroud movement potentially affect pressures, flows and temperatures in the core shroud movement on design function</li> </ul>	H 15 Kaaaaaa	Have changes been made that could affect the NPSH for any pump? UNIXINIANAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	excessive pressure loss in suction piping, cavitation, fluid temperature change MAANAANAANAANAANAANAANAANAANAANAANAANAAN	ON XXXXXXXXXXXXXXX	There are no pump	characteristics affected by this issue.
BUTCHERUTER THEORE SUF OF SUF OF SUF OF UNE WITT DE WAITERHEU. Dresden GENE-523-A69-0594, May 1994 Quad Cities GENE-523-A79-0594, Nay 1994 ***********************************	n 16	Are there any changes in process parameters?	balance of flows, temperature, pressure limitation of existing system capability, impact on design function	ON	Catastrophic fail potentially affect region. Based upon review an industry accept the indications to compute the indications to compute the indications to the indications to the indications to the indications to the indication of the indication o	ure of he H5 weld could allow core shroud movement and t pressures, flows and temperatures in the core shrout of the current crack depth data, and application of oted standard bounding crack growth rate (SE-5 in/hour will not exceed the allowable crack depth. Therefore, with of the core chrowt will be existed
	XXXXXX		****		Structural Integr Dresden Quad Cities MAXAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	TTY of the core shroud will be maintained. GENE-523-A69-0594, May 1994 GENE-523-A79-0594, May 1994 MAXAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
		•	· .	•		
				• .		

List this item on the 10CFR50.59 Safety Evaluation Cover Sheet if the issue changes the normal operation or the failure

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		DESIGN	ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
		MECI	HANICAL	ISSUES	Reactor Vessel
<u>No.*</u>	DESIGN ISSUE	KEY WORDS	S ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
N 17 XXXXXXX	Valve Performance as it relates to system function: - can the valve be placed and maintained in the appropriate position for normal system operation, abnormal system operation, and testing mode? - If the valve is a primary containment isolation valve, can it be closed (if necessa during the long term phase of a Design Basis Event (DBE XXXAXXAXAXAXAXAXAXAXAXAXAXAXAXAXAXAXAX	valve, containment isolation valves, valve orientation/configuration, Design Basis Event, valve closure time, isolation logic changes	NO S	There are no valve	e performance issues associated with this issue.
M 18	Have short-term and long-term containment isolation	containment isolation	NO	Containment Isolat	tion requirements are not affected by this issue.
XXXXXXX		****	****	*****	
N 19	Have the rules for single failure criteria been apolied correctly?	single failure criteria	NO	The core shroud is not affected.	an inactive component so single failure criteria is
****	*****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXXXXXXX	****	*****
N 20	Are there any other Mechanical Issues that should be addressed? If so, list and discuss here.	****		None.	*****
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		DESI	GN :	ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
		C	PER	ATIONA	L ISSUES	Reactor Vessel
<u>No.*</u>	DESIGN ISSUE	KEY WORDS	<u>15</u>	ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
OP 1	Will the operating conditions of this or any other system be changed?	temperature, pressure, flow, cooling water supp electrical power interruptions	ly,	YES	Catastrophic fail potentially affect shroud region.	ure of the H5 weld could allow core shroud movement and t temperatures, pressures and flows within the core
	****		*****	****	Based upon review an industry accept the indications with structural integri Dresden Quad Cities	of the current crack depth data, and application of ted standard bounding crack growth rate (5E-5 in/hour), ill not exceed the allowable crack depth. Therefore, ity of the core shroud will be maintained. GENE-523-A69-0594, May 1994 GENE-523-A79-0594, May 1994
OP 2	Will the operation of any other system have any effect on the system being	shared source of power system fluid, interlocks emergency power	•	NO	The operation of ( assessment.	other systems will not impact the structural margin
****	modified? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	priorities XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	****	****	*****
09 3	Will the change have any impact on adjacent systems?	failure modes, reduction availability or reliabil	in ity	YES	Catastrophic fails and potentially at current crack depision standard bounding not exceed the all the core shroud wi failure modes or a Dresden und Cities	ure of the H5 weld could allow for core shroud movement ffect surrounding systems. Based upon review of the th data, and application of an industry accepted crack growth rate (5E-5 in/hour), the indications will lowable crack depth. Therefore, structural integrity of ill be maintained and there will be no affects on a reduction in system availability ar reliability. GENE-523-A69-0594, May 1994 GFWE-523-A79-0594, May 1994
XXXXXX		******	XXXXXX	*****		*****
<b>op 4</b>	Can the change affect the operation of another system indirectly?	shared systems, cascadin effect, ripple effect	g	NO .	This issue does n Based upon review an industry accep the indications w structural integr Dresden	ot affect other systems indirectly. of the current crack depth data, and application of ted standard bounding crack growth rate (5E-5 in/hour), ill not exceed the allowable crack depth. Therefore, ity of the core shroud will be maintained. GENE-523-A69-0594, May 1994
XXXXXX		*****	*****	*****	Quad Citles XXXXXXXXXXXXXXXXXXXXX	GENE-523-879-0594, May 1994 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
OP 5	Has the impact on operability tests been considered?	surveillance, operabilit test, channel check, calibration	y	NO	There are no oper sufficient ligame	ability tests affected by this issue. There will be nt remaining in the H5 weld to prevent bypass flow.
XXXXXXX			*****	*****	****	******
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				DES	OPER	ISSUES ATIONA	WORKSHEET L ISSUES	'S Mod #I	H5 Shrc Reactor	ud Weld Vessel	
<u>No.*</u>	DESIGN IS	SUE	KEY WOR	DS	IS	ISSUE	RELEVANT?	PROVIDE	BASIS	FOR CONC	LUSION
P 6	Are there any o Operational Int Issues that sho addressed? If discuss them he	ther eraction uld be so, list and re.	*****			NO	None.	****	****	****	
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RADIOLOGICAL ISSUES       Reactor Vessel         No.* DESIGN ISSUE       KEY WORDS       IS ISSUE RELEVANT?       PROVIDE BASIS FOR CONCLUSION         &1       Are there any changes that effect the engineered astry contaction, ppeas or       wet NEPA filters, cross- contaction, ppeas or       NO       ESF Ventilation is not affected by this issue.         81       Are there any changes to the controlled leakage eystems (BMR), such as a change in bock preserve?       MO       There are no changes to controlled leakage systems.         82       Are there any changes to the controlled leakage eystems (BMR), such as a change in bock preserve?       high filter preseure drop, intakes, structural Integrity       NO       There are no stores of protective equipment affected by this issue.         83       Are there any effects on controll roop personnel, preserve?       false readings due to placement, uninterded supplies, implified access       NO       There are no atores of protective equipment affected by this issue.         84       Are there any effects on controlling or elama effection and monitoring or elama error by the structural interned or containment isolation eccess, containment sprey system, indifier preserve?       NO       There are no affect on containment isolation, ventilation systems, or the containment isolation eccess, containment sprey system, indifier preserve?         84       Are there any effects on containment isolation systems, ventilation systems or containment isolation eccess, containment sprey system, iodine removal containment ison systems, iodine removal containment clea			DESIGN	ISSUES	WORKSHEETS	Mod #H5 Shroud Weld	•
No.* DESIGN ISSUE       KEY WORDS       IS ISSUE RELEVANT?       PROVIDE BASIS FOR CONCLUSION         81       Are there any changes that affect the engineerd safety feature ventilation system?       wet HEPA filters, cross- concetion, bypass or leakage       NO       ESF Ventilation is not affected by this issue.         82       Are there any changes to the controlied leakage systems (BRR), such as a change in back pressure?       high filter pressure drap, backup through eir intakes, structural integrity       NO       There are no changes to controlied leakage systems.         83       Are stores of parsonnel preserved?       bigh filter pressure drap, backup through eir intakes, structural integrity       NO       There are no stores of protective equipment affected by this issue.         84       Are stores of parsonnel preserved?       mergercy sir supplies for control room personnel, control room personnel, containment folotion and containment folotion and containment folotion systems, indine removal       NO       There are no rediation detection systems affected by this issue.         85       Are there any effects on containment folotion systems, indine removal       NO       There is no affect on Containment loolation, ventilation systems, or the containment clean-up system.         86			RADIO	LOGICAI	LISSUES	Reactor Vessel	
R1       Are there any changes that affect the engineered safety connection, bypass or consection, bypass or consection or consection or consection or consection or consection or c	<u>No.*</u>	DESIGN ISSUE	KEY WORDS IS	ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION	
Annumental intervention rystem       itesses         R 2       Are there any changes to the controlled leakage systems. Intakes, structural integrity       NO       There are no changes to controlled leakage systems. Intakes, structural integrity         R 3       Are stores of personnel protective equipment control roduction systems of protective equipment affected by this issue.       NO       There are no stores of protective equipment affected by this issue.         R 4       Are there any effects on rediation detection and placement spreading, side offects of systems, ventilation systems or containment isolation systems or containment isolation systems, or the containment clean-up system.       NO         R 5       Are there any effects on rediation or pystems isolation systems or containment clean-up system.       NO         R 5       Are there any effects on rediation or pystems isolation systems or containment clean-up system.       NO         R 6       Hes separation or pystems isolation expression isolation systems (RMR) and systems (RMR) and system (RMR) and and system (RMR) and system (RMR) and system (RMR) a	R 1 -	Are there any changes that affect the engineered safety	wet HEPA filters, cross- connection, bypass or	NO	ESF Ventilation is	s not affected by this issue.	
R 2       Are there any changes to the controlled leakage systems (BKR), such as a change in back, pressure?       high filter pressure drop, backup through air intakes, structural integrity       NO       There are no changes to controlled leakage systems.         R 3       Are stores of personnel protective equipment protective equipment       emergency air supplies for control room personnel, emergency breathing air supplies, impered access       NO       There are no stores of protective equipment affected by this issue.         R 4       Are there any effects on redistion detection and monitoring or elarm systems?       false readings due to shielding, side effects of encloures system, lodine removal       NO       There are no radiation detection systems affected by this issue.         R 5       Are there any effects on redistion detection and monitoring or elarm systems?       reliability, operability, system, lodine removal       NO       There is no affect on Containment Isolation, ventilation systems, or the containment folation systems?         R 6       Hes separation or prisary/secondary coolant system?       secondary side detection system, equipment leakage, boundary changes       NO       There is no affect on the separation between primary and secondary containment folation         R 6       Hes separation or prisary/secondary coolant system (WR) or containment for containment for       NO       There is no affect on the separation between primary and secondary containment clean-up system.         R 7       Are there any effects on containment for       Secondary changes       NO </td <td>****</td> <td></td> <td></td> <td>****</td> <td></td> <td>*****</td> <td></td>	****			****		*****	
Multiplication       emergency air supplies for control room personnel, emergency breating air supplies, impaired access       NO       There are no stores of protective equipment affected by this issue.         R 4       Are there any effects on roling or alarm shielding, side effects of enclosures       Files endings due to placement, unitended shielding, side effects of enclosures       NO       There are no radiation detection systems affected by this issue.         R 5       Are there any effects on containment clearup system, iodine removal system, equipment leakage, boundary changes       NO       There is no affect on the separation between primary and secondary containment isolation detection and systems, ventilation effects on containment isolation detection primary and secondary contain the separation or primary secondary contain containment spray and secondary containment spray and secondary contain the separation or containment spray - NO       NO         R 6       Has separation or primary secondary contain containment spray and secondary contain spray and secondary contain the separation primary and secondary containment spray and secondary containment spray - NO       There is no affect on the separation primary and secondary containment spray - NO         R 7       Are there any effects on containment spray - containment spray - containment spray and secondary containment spray - NO       NO <td< td=""><td>R 2</td><td>Are there any changes to the controlled leakage systems (BWR), such as a change in back pressure?</td><td>high filter pressure drop, backup through air intakes, structural integrity</td><td><b>DN</b> .</td><td>There are no chang</td><td>ges to controlled leakage systems.</td><td>ĺ</td></td<>	R 2	Are there any changes to the controlled leakage systems (BWR), such as a change in back pressure?	high filter pressure drop, backup through air intakes, structural integrity	<b>DN</b> .	There are no chang	ges to controlled leakage systems.	ĺ
R 3       Are stores of personnel protective equipment preserved?       emergency sir supplies for control room personnel, emergency breathing sir supplies, impaired access       NO       There are no stores of protective equipment affected by this issue.         R 4       Are there any effects on radiation detection and monitoring or siarm shielding, side effects of erclosures       false readings due to placement, unintended shielding, side effects of erclosures       NO       There are no radiation detection systems affected by this issue.         R 5       Are there any effects on systems, ventilation systems or containment cleanup system?       reliability, operability, access, containment spray system?       NO       There is no affect on Containment Isolation, ventilation systems, or the containment cleanup system?         R 6       Has separation or primary/secondary coolant systems (PWR) or containment drywell (BWR) been maintainf?       secondary changes       NO       There is no affect on the separation between primary and secondary containment.         N0       There are on affect on the separation primary and secondary containment drywell (BWR)       secondary changes       NO         N0       There are on affect on the separation primary and secondary containment drywell (BWR)       secondary changes       NO         N0       There are on affect fission product control.       NO       There is no affect fission product control.	XXXXXX		XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	****	****	*****	
AXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	R 3	Are stores of personnel protective equipment preserved?	emergency air supplies for control room personnel, emergency breathing air supplies, impaired access	NO	There are no store	es of protective equipment affected by this issue.	
R 4       Are there any effects on rediation detection and placement, unintended solitoring or alarm shelding, side effects of enclosures       NO       There are no radiation detection systems affected by this issue.         R 4       Are there any effects on containment isolation and systems affected by this issue.       Placement, unintended solitoring or alarm shelding, side effects of enclosures       NO       There are no radiation detection systems affected by this issue.         R 5       Are there any effects on containment isolation systems system, iodine removal or containment cleanup system, iodine removal or containment cleanup system.       NO       There is no affect on the separation between primary and secondary containment isolation, ventilation system, equipment leakage, boundary changes         R 6       Has separation or primary/secondary coolant system, equipment leakage, boundary changes       NO       There is no affect on the separation between primary and secondary containment.         R 7       Are there ary effects on containment spray - clearup system       NO       There is no affect fission product control.         R 7       Are there ary effects on containment spray - clearup system       Containment system sy	XXXXXXX	****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	****	******	************	
ANALALAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	R 4	Are there any effects on radiation detection and monitoring or alarm	false readings due to placement, unintended shielding, side effects of enclosures	NO	There are no radia	ation detection systems affected by this issue.	
R 5       Are there any effects on containment isolation systems or containment isolation systems or containment cleanup systems       reliability, operability, access, containment spray system, iodine removal       NO       There is no affect on Containment Isolation, ventilation systems, or the containment clean-up system.         xystem?       xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	*****			****	*****	*****	
system? AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	R 5	Are there any effects on containment isolation systems, ventilation systems or containment cleanup	reliability, operability, access, containment spray system, iodine removal	NO	There is no affect containment clean-	t on Containment Isolation, ventilation systems, or the -up system.	
R 6       Has separation or secondary side detection primary/secondary coolant system, equipment leakage, boundary changes       NO       There is no affect on the separation between primary and secondary containment.         systems (PWR) or leakage, boundary changes       Leakage, boundary changes       Containment.         been maintained?       AXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXX	SYStem? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	*****	****	****	***********	(
R 7 Are there any effects on containment spray - NO This issue does not affect fission product control.	R 6 ,	Has separation or primary/secondary coolant systems (PWR) or containment drywell (BWR)	secondary side detection system, equipment leakage, boundary changes	NO	There is no affect containment.	t on the separation between primary and secondary	
R 7 Are there any effects on containment spray - NO This issue does not affect fission product control.	XXXXXXX		AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	*****	****	*****	
incidents/accident or post accident cleanup and monitor points?	<b>R 7</b>	Are there any effects on fission product control for incidents/accident or post accident cleanup and monitor points?	containment spray - cleanup system	NO	This issue does no	ot affect fission product control.	
	XXXXXX		****	*****	****	*****	
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		DESI	GN ISSUES	WORKSHEETS	Mod #H5 Sl	nroud Weld		
		RA	DIOLOGICA	L ISSUES	React	Reactor Vessel		
No.*	DESIGN ISSUE	KEY WORDS	IS ISSUE	<b>RELEVANT?</b>	PROVIDE BAS	IS FOR CONCLUSIC	N	
						· .	_	
R 8	Have adequate provisions been made to control effluent containment levels?	monitoring required, human error protection, potential releases, sump	MO	There are no char issue.	nges to effluent level	s as a result of this		
******	*****	contemination		*****		*****	*****	
******	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	*****	, ; ;		~~~~~			
<b>R9</b>	Is there any potential for additional radiation	decontamination, ALARA, reduction in shielding	NO	There is no addit	tional radiation expos	wre as a result of this in	58 <b>ue.</b>	
*****	EXPOSITE? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	*****			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		XXXXXXXXX	
P 10	And there any other		:	None.				
K IU	Radiological Issues that should be addressed? If so,							
*****	list and discuss here.	****		CETTAKAKAKAKAKAKAKA		****		
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List this item on the 10CFR50.59 Safety Evaluation Cover Sheet if the issue changes the normal operation or the failure modes/effects resulting from the modification. *

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		DES	(GN	ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
	· .	S	[ TE	RELATE	D ISSUES	Reactor Vessel
<u>No.*</u>	DESIGN ISSUE	KEY WORDS	18	S ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
S 1 XXXXXXX	Is there any change in the exclusion area or site boundary conditions which would increase the on-site or off-site dose rates?	Change the fence line, construct a new building containing radioactive materials, relocate activated materials.	XXXXX	NO	There are no chang	ges to the site boundary as a result of this issue.
S 2	Is the site radioactive material inventory control affected?	quantity or composition radioactive materials on site - increased or char	of ged		This issue does n control.	ot affect the site redicactive material inventory
S 3	Are release and dispersion of effluents affected?	stack height change, concentration of radwast or other factors affecti effluent pathways, conta isolation valve leak rat closure times	e, ng inmen es or	NO	There is no affect	t on the release or dispersion of effluents.
XXXXXXX	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	******	XXXXX		(XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	*******
S 4	Are there any changes affecting protection of safety class structures from natural phenomena and meteorological conditions (tornados, rain loads, snow loads)?	failure effects of non- safety related structure system, change to surfac water control structures secondary effects	e •	NO	This issue does no from natural pheno	ot affect the protection of safety related equipment omena.
*****	*****	*****	AAAAA			*****
s 5 	Are there any potential effects on security barriers or controlled access? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	placing equipment in clo proximity to guardhouse or security equipment		ON ;	There is no affect	t on security barriers.
S 6	Are any potential hazards added to the site or exclusion area?	fire source, explosive material, toxic material radwaste material, on-si or off-site, permanent o temporary.	te	NO	There are no poter issue.	ntial hazards added to the site as a result of this
AAAAAA	******	******		******	*****	~~~~~
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		DESI	GN ISSUES	WORKSHEETS	Mod #H5 Shroud	Weld
		SI	te relate	D ISSUES	Reactor Ve	essel
<u>No.*</u>	DESIGN ISSUE	KEY WORDS	IS ISSUE	RELEVANT?	PROVIDE BASIS FOR	R CONCLUSION
S 7	Are there any changes to cooling water supply capacity or characteristics?	quantity, temperature, sediment content, aquatic growth potential, flowrat pump curve changes, etc.	YES co,	There is no affec Based upon review an industry accep the indications w structural integr Dresden Quad Cities	t on cooling water characteria of the current crack depth d ted standard bounding crack g ill not exceed the allowable o ity of the core shroud will b GENE-523-A69-0594, May 1994 GENE-523-A79-0594, May 1994 GARAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	atics. Towth rate (5E-5 in/hour), Crack depth. Therefore, e maintained.
S 8	Is the stability of subsurface materials or foundations for Class 1 structures affected directly or indirectly?	ground water level, soil ph, soil response to excitation, excavating ne existing structures, subsidence	NO Par	There are no subs	urface materials or foundation	ns affected.
******	\AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA			*****	*****	*****
<b>S 9</b>	Is plant access altered or affected?	roadway or railroad changes, GSEP, access gate change, underground	NO	There is no affec	t on plant access.	· ·
XXXXXXX	*****	AXAAXAXAXAXAXAXAXAXAXAXAXAXAXAXAXAX	*****	aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	******
S 10	Will site topography changes increase the potential for external flooding?	excavation, topography	NO	There is no poten	tial affect on site drainage (	as a result of this issue.
S 11	Are there any other Site Related Issues that should be addressed? If so, list and discuss here.		NO	None.		
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		DESIG	N ISSUES	WORKSHEETS	Mod #H5 Shroud Weld
		ST	RUCTURAL	ISSUES	Reactor Vessel
<u>o.*</u>	DESIGN ISSUE	KEY WORDS	IS ISSUE	RELEVANT?	PROVIDE BASIS FOR CONCLUSION
T 1	What is the seismic classification of the structure?	Category I or non-seismic	YES	Category 1. The da Load, DBE (SSE or	esign loadings for the vessel internals are: DBA + Dead DBE) + Dead Load. (UFSAR Section 3.9.3)
*****	****	*****	*****	*****	\\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
it 2	is the response characteristic of the existing structure changed by the endificacien?	subsystem analysis, fundamental frequency, stiffness, coupling, adding	YES	The presence of corresponse of the si	racking below the H5 weld will not affect the dynamic broud because sufficient ligament is maintained.
	by the modification?	or registributing mass		an industry accept the indications w structural integr	of the current crack depth data, and application of ted standard bounding crack growth rate (SE-5 in/hour), ill not exceed the allowable crack depth. Therefore, ity of the core shroud will be maintained.
				Dresden Quad Cities	GENE-523-A69-0594, Nay 1994 GENE-523-A79-0594, Nay 1994
AAAAAA	*****	****	*****	*****	***************************************
it 3	Does the modification degrade the structure integrity of the existing	enlarge openings, create numerous discontinuities, additional loads.	YES	The crack does not internals.	t degrade the structural integrity of the the vessel
	structure?	penetrations, cumulative effects		Based upon review an industry accept the indications wistructural integri Dresden	of the current crack depth data, and application of ted standard bounding crack growth rate (5E-5 in/hour), ill not exceed the allowable crack depth. Therefore, ity of the core shroud will be maintained. SENE-523-A69-0594, May 1994
(XXXXXXX)				Quad Cities XXXXXXXXXXXXXXXXXXXXXXX	GENE-523-A79-0594, Mgy 1994 LAXAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
ST 4	Does the modification create the possibility of failure due to failure of non-seismic equipment affecting nearby seismic category I	Seismic II over I, non- seismic/non-safety structures or equipment	NO	There are no seis	aic II/I concern associated with this issue.
*******	equipment?			****	*****
		~~~~~	~~~~~	*****	~~~
ST 5	Are there any changes that would affect testing and/or in-service inspection of the	obstruct surface, reduce availability for testing, restrict access	NO	There are no chan	ges that will affect testing or in-service inspection.
XXXXXXX	STRUCTURE? XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	****	*****	****	****
ST 6	Has qualification by testing, as opposed to analysis, been considered for seismic	purchase of seismically qualified structures or components, size limit, weight limit	NC	There no new comp	oments being added as a result of this issue.
		NA ATA A BILA A A A A A A A A A A A A A A A A A A		****	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
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modes (offacts resulting from the modification.

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					DESIGN ISSUES STRUCTURAL		WORKSHEETS ISSUES	Mod #H5 Shroud Weld Reactor Vessel			<b></b> .	
<u>No.</u> *	DESIGN	ISSUE	KEY	WORDS	. 1	18	ISSUE	RELEVANT?	PROVIDE	BASIS FOR	CONCLUSION	
ST 7	Are there an structural i be addressed and discuss XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	wy other ssues that should R If so, list here. XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	XXXXXXX	****		AAAA	on Ulakaaaa	None.		****		*****
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### 10CFR50.59 Safety Evaluation Cover Sheet

Station	Quad Citie	es / Dr	esden				
Modifica	tion/Minos	Plant	Change	# H5	Shroud	Weld	
			• .	Rea	actor Ve	essel	

Design Issues Worksheets have been completed prior to Safety Evaluation. The following design issues could impact the Safety Evaluation and should be considered during performance of the Safety Evaluation, particularly during Steps 5 (normal operation) and 6 (failure modes):

FL6, M2, M5, M9, M13, OP1, OP3, S7, ST1, ST2, ST3

- [] This evaluation identified an Unreviewed Safety Question. See Item 14 on the 10CFR50.59 Safety Evaluation form.
- [] A Technical Specification change is required and a Technical Specification Revision Request has been prepared. See Item 14 on the 10CFR50.59 Safety Evaluation form.
- [X] This evaluation did not identify an Unreviewed Safety Question and no Technical Specification change is required. The modification or minor plant change may be installed without prior NRC approval.

 $\Omega$ OMARK Uhrich per telcon DLEGLER 0 Date Cognizant Engineer au

.J. Walsh per teles BMK R Design Superintendent or Supervisor

Date 6-10'

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## Exhibit E 10CFR50.59 SAFETY EVALUATION

List the documents implementing the proposed change.

Evaluation of indications found at the H5 weld location in the<br/>Quad Cities Unit 1 and Dresden Unit 3 core shrouds:DresdenGENE-523-A69-0594Quad CitiesGENE-523-A79-0594

2.

1.

Describe the proposed change and the reason for the change.

As a result of In Vessel Visual Inspections, Quad Cities and Dresden Stations have identified cracking at the shroud H5 weld location. Subsequent UT Investigation has identified the crack depth to be no deeper than 1.24 in. This Safety Evaluation was performed to evaluate operation of Quad Cities Unit 1 and Dresden Unit 3 for at least one cycle.

### 3. Is the change:

[] Permanent

[X] Temporary -

Expected	duration	Quad	Citi	les,	18	Mor	nths	or	
					Q1F	14			
		Dresc	len,	24	Mont	hs	or	<b>D3R1</b>	4

AND

Plant Mode(s) restrictions while installed None (NONE if no plant mode restrictions apply)

4. List the SAR sections which describe the affected systems, structures, or components (SSCs) or activities. Also list the SAR accident analysis sections which discuss the affected SSCs or their operation. List any other controlling documents such as SERs, previous modifications or Safety Evaluations, etc.

UFSAR 3.9.3, 3.9.5.3, 15.6

5. Describe how the change will affect plant operation when the changed SSCs function as intended (i.e., focus on system operation/interactions in the absence of equipment failures). Consider all applicable operating modes. Include a discussion of any changed interactions with other SSCs.

Based upon the structural margin identified (see references listed in #1, above), the cracking identified at the H5 weld will not grow enough to prevent the shroud from performing its design functions. Therefore, there is no affect plant operation.

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6.

7.

8.

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Describe how the change will affect equipment failures. In particular, describe any new failure modes and their impact during all applicable operating modes.

Based upon the structural margin identified, the cracking identified at the H5 weld will not affect the probability or consequences of an equipment failure. Since the shroud functions as designed, there are no new failure modes which result from the identified cracking.

Identify each accident or anticipated transient (i.e., large/small break LOCA, loss of load, turbine missiles, fire, flooding) described in the SAR where any of the following is true:

The change alters the initial conditions used in the SAR analysis
 The changed SSC is explicitly or implicitly assumed to function

- during or after the accident
  - Operation or failure of the changed SSC could lead to the accident

ACCIDENT

SAR SECTION

Main Steam Line	UFSA	R 3.9.5.3,	15.6)
Break (Bounding)			

Recirculation Line Break (Bounding) UFSAR 3.9.5.3, (15.6)

List each Technical Specification (Safety Limit, Limiting Safety System Setting or Limiting Condition for Operation) where the requirement, associated action items, associated surveillances, or bases may be affected. To determine the factors affecting the specification, it is necessary to review the FSAR and SER where the bases section of the Technical Specifications does not explicitely state the basis.

No Technical Specifications were identified where requirements, action items, surveillances or bases were affected.

9. Will the change involve a Technical Specification revision?

[] Yes [X] No

If a Technical Specification revision is involved, the change cannot be implemented until the NRC issues a license amendment. When completing Step 14, indicate that a Technical Specification revision is required.

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### Exhibit E 10CFR50.59 SAFETY EVALUATION

10.

To determine if the probability or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the SAR may be increased, use one copy of this page to answer the following questions for each accident listed in Step 7. Provide the rationale for all NO answers.

Affected accident Main Steam Line Break

SAR Section:

UFSAR 3.9.5.3, (15.6)

May the probability of the accident be increased? [] Yes [X] No

The existence of the identified cracks does not increase the probability of a Main Steam Line Break because the core shroud is internal to the reactor vessel.

May the consequences of the accident (off-site dose) [] Yes [X] No be increased?

Based upon review of the crack depths, and the application of an industry accepted bounding crack growth rate (5E-5 in/hours), the indication will not exceed the allowable crack depth. (Dresden GENE-523-A69-0594, Quad Cities GENE-523-A79-0594). Since the crack depths do not exceed the allowable crack depth, the core shroud will function as designed. Therefore, the consequences of an accident have not increased as a result of the cracks identified at the H5 weld.

May the probability of a malfunction of equipment [] Yes [X] No important to safety increase?

The amount of actual weld ligament is significantly larger than the required ligament. The structural margin assessment uses an industry accepted bounding crack growth rate (5E-5 in/hour) even though calculated plant specific crack growth rates are significantly less than the industry rate (based upon operational parameters). A conservative load combination of a design basis accident plus a design basis earthquake was assumed in the structural margin assessment (the design loadings for the vessel internals are DBA + Dead Load, and DBE (SSE or OBE) + Dead Load). While the cracking does represent a reduction in shroud

ligament, structural margins have been preserved and the performance of the shroud or any interfacing safety systems will not be affected. Therefore, the probability of a malfunction of equipment is not increased.

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May the consequences of a malfunction of equipment [] Yes [X] No important to safety increase?

Since the actual ligament is significantly larger than the required ligament, a core shroud failure is not postulated, therefore, the consequences of a core shroud failure remain the same.

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If any answer to guestion 10 is YES, then an Unreviewed Safety Question exists.

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### Exhibit E 10CFR50.59 SAFETT EVALUATION

Affected accident <u>Recirculation line</u> break

SAR Section: UFSAR 3.9.5.3, (15.6)

May the probability of the accident be increased? [] Yes [X] No

The existence of the identified cracks does not increase the probability of a Recirculation Line Break because the core shroud is internal to the reactor vessel.

May the consequences of the accident (off-site dose) [] Yes [X] No be increased?

Based upon review of the crack depths, and the application of an industry accepted bounding crack growth rate (5E-5 in/hours), the indication will not exceed the allowable crack depth. (Dresden GENE-523-A69-0594, Quad Cities GENE-523-A79-0594). Since the crack depths do not exceed the allowable crack depth, the core shroud will function as designed. Therefore, the consequences of an accident have not increased as a result of the cracks identified at the H5 weld.

May the probability of a malfunction of equipment [] Yes [X] No important to safety increase?

The amount of actual weld ligament is significantly larger than the required ligament. The structural margin assessment uses an industry accepted bounding crack growth rate (5E-5 in/hour) even though calculated plant specific crack growth rates are significantly less than the industry rate (based upon operational parameters). A conservative load combination of a design basis accident plus a design basis earthquake was assumed in the structural margin assessment (the design loadings for the vessel internals are DBA + Dead Load, and DBE (SSE or OBE) + Dead Load).

While the cracking does represent a reduction in shroud ligament, structural margins have been preserved and the performance of the shroud or any interfacing safety systems will not be affected. Therefore, the probability of a malfunction of equipment is not increased.

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May the consequences of a malfunction of equipment [] Yes [X] No important to safety increase?

Since the actual ligament is significantly larger than the required ligament, a core shroud failure is not postulated, therefore, the consequences of a core shroud failure remain the same.

If any answer to Question 10 is YES, then an Unreviewed Safety Question exists.

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### Exhibit E 10CFR50.59 SAFETY EVALUATION

11.

Based on your answers to Questions 5 and 6, does the change adversely impact systems or functions so as to create the possibility of an accident or malfunction of a type different from those evaluated in the SAR?

[]Yes [X] No

Describe the rationale for your answer.

The actual ligament is significantly larger than the required ligament for the loading combinations specified in the design basis, even conservatively considering a load combination of design basis accident plus design basis earthquake. The design basis performance of the shroud is not degraded as a result of the identified cracks at the H5 weld. Because the identified ligament is sufficiently larger than the required ligament, the accident scenerios described in the UFSAR do not change as a result of this issue. There are no new accidents created not previously evaluated in the UFSAR.

If the answer to Question 11 is Yes, then an Unreviewed Safety Question exists.

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### Exhibit E 10CFR50.59 SAFETY EVALUATION

12.

Determine if parameters used to establish the Technical Specification limits are changed. Use one copy of this page to answer the following questions for each Technical Specification listed in Step 8. List the Technical Specification, Technical Specification Bases, SAR and SER Sections reviewed for this evaluation. N/A

Evaluation of Technical Specification (Enter N/A if none are affected and check last option.)

N/A

(Check appropriate condition):

- [] All changes to the parameters or conditions used to establish the Technical Specification requirements are in a conservative direction. Therefore, the actual acceptance limit need not be identified to determine that no reduction in margin of safety exists - proceed to Question 13.
- [] The Technical Specification or SAR provides a margin of safety or acceptance limit for the applicable parameter or condition. List the limit(s)/margin(s) and applicable reference for the margin of safety below - proceed to question 13.
- [] The applicable parameter or condition change is in a potentially non-conservative direction and neither the Technical Specification, the SAR, or the SER provides a margin of safety or an acceptance limit. Request Nuclear Licensing assistance to identify the acceptance limit/margin for the Margin of Safety determination by consulting the NRC, SAR, SER's or other appropriate references. List the agreed limit(s)/margin(s) below.
- [X] The change does not affect any parameters upon which Technical Specifications are based; therefore, there is no reduction in the margin of safety. Proceed to question 14.

_____

List Acceptance Limit(s)/Margin(s) of Safety

Tech Spec

SAR Section

SER Section

13. Use the above limits to determine if the margin of safety is reduced (i.e., the new values exceed the acceptance limits). Describe the rationale for your determination. Include a description of compensating factors used to reach that conclusion.

If a Margin of Safety is reduced an Unreviewed Safety Question exists.

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### Exhibit E 10CFR50.59 SAFETY EVALUATION

### 14. Check one of the following:

- [] An Unreviewed Safety Question was identified in Step 10, Step 11, or Step 13. The proposed change MUST NOT be implemented without NRC approval.
- [X] No Unreviewed Safety Question will result (Steps 10, 11, and 13)
   AND no Technical Specification revision will be involved. The change may be implemented in accordance with applicable procedures.
- [] A Technical Specification revision is involved; but no Unreviewed Safety Question will result. The proposed change requires a License Amendment. Notify Station Regulatory Assurance and Nuclear Licensing that a Technical Specification revision is required. Nark below as applicable.
  - [] The change is not a plant modification or minor plant change and will not be implemented under 10CFR50.59. Upon receipt of the approved Technical Specification change from the NRC, the change may be implemented.
  - [] The change is a plant modification or minor plant change. Mark below as applicable.
    - [] A revision to an existing Technical Specification is required. The change MUST NOT be installed until receipt of an approved Technical Specification revision.
    - [] The change will not conflict with any existing Technical Specifications and only new Technical Specifications are required. In these cases, Nuclear Licensing may authorize installation, but not operation, prior to receipt of NRC approval of the License Amendment. If such authorization is granted, the block below should be checked.
      - [] Nuclear Licensing has authorized installation, but not operation, prior to receipt of NRC approval of the License Amendment. The 10CFR50.59 Safety Evaluation indicates that no Unreviewed Safety Question will result and provides authority for installation only.

Partial Modifications and/or separate 10CFR50.59 reviews for Note: portions of the work may be used to facilitate installation. а (2) Mark Uhrich per Preparer tokecon w/ DEAN LEGLER (Cognizant Engineer) 0n 6/10/94

15. The reviewer has determined that the documentation is adequate to support the above conclusion and agrees with the conclusion.

<u>6.10.94</u> Date Reviewer R.J. Walsh per telicon BMKWS (Design Superintendent/Supervisor) QE-06.1 DECA Version 3.0 Test