ARB SUMMARY		Responsible Branch	RPBB	RIV-2007-A-0048
Facility Name	Callaway	ARB Date:	April 17, 2007	
Docket Number	050-483	OI Case No.:		
ARB DECISION				
Purpose of ARB	Initial			
Previous Decisions	N/A			
Today's Decision	RPBB to inspect all 3 concerns.			
Basis for Another ARB				
REFERRAL				
Refer to:		Criteria Reviewed?		
Referral Rationale				
OI INVESTIGATION				
Priority Rationale				
DOL Deferral Rationale				
ARB PARTICIPANTS (* denotes ARB Chairman Approval)				
JWalker	HFreeman	KFuller	DWhite	AHowell*
DChamberlain	MVasquez	VGaddy	MBloodgood	

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CONCERNS LIST				RIV-2007-A-0048
	Concern (Brief Statement)			**Regulatory Requirement**
	Branch	**Action (Inspect, Refer, Investigate, No Action)**	**Planned Completion**	**Significance (High, Normal)**	**OI Priority (H, N, L)**
1	The licensee decided, due to economic reasons, to not correct a long standing design deficiency on the RHR suction relief valves' discharge piping during the spring 2007 refueling outage but wait until the next refueling outage.				10 CFR 50 App. B Criterion XVI Corrective Action
	RPBB	Inspect	5/17/07	Normal	L
2	The licensee changed the RHR suction relief valve surveillance from a staggered test basis to reduce the probability of identifying a failed valve while the valve is in the system. This again was an economic decision.				10 CFR 50 App. B Criterion XI Test Control
	RPBB	Inspect	5/17/07	Normal	L
3	The licensee delayed testing RHR suction relief valve that had been previously removed. A mid-cycle outage would have been required to replace the other valve if the valve had failed its test.				10 CFR 50 App. B Criterion XI
	RPBB	Inspect	5/17/07	Normal	L
4					
5					
6					

Revised 5/22/02

Indirect Charges
A10304 Support for Allegations (Reactors)
A10191 Support for Allegations (Materials)

Direct Inspection Activities
AF Allegation Followup
BJ2 Allegation Prep/Doc
AFT Allegation Travel

ALLEGATION RECEIPT FORM

Received By:	Michael Peck	Receipt Date:	April 6, 2007
Receipt Method (meeting, phone call, letter, etc.)		Plant Mail - Letter	

FACILITY

Facility Name	Callaway Plant
Location	Fulton, Missouri
Docket(s)	50-483

CONCERN

Summary the of Concerns (be brief)

- AmerenUE deferred corrective action for a potentially significant design deficiency from the current refueling outage until the next refueling outage. This design deficiency has been a long standing problem (please see attached letter).
- Delay in testing RHR relief valves (removed October 2005, not tested until August 2006).
- AmerenUE changed RHR relief valve surveillance from a staggered test bases to reduce the probability of identifying a failed valve.

Obtain concern specifics. What is the concern, when did it occur, who was involved, etc. If the concern involves discrimination, fill in the last section of the form.

The Callaway RHR suction relief and PORV discharge are routed through a common discharge line into the PRT. During operating cycle 14, the PORV lifted several times during a plant transient. The PRT pressurized, lifting a column of water up the common discharge line. This water collected on the backside of the RHR relief valve. A subsequent PORV lift caused a significant water hammer against the back side of the RHR relief valve, damaging the valve internals. The licensee's interim corrective action was to declare the RHR relief valves inoperable if the PORV should lift. AmerenUE had scheduled modification to correct the design problem this outage, but deferred the modification until the following refueling outage.

What is the potential safety impact? Is this an ongoing concern?

1. Unavailability of the RHR suction relief valves for cold pressure over protection (Technical Specification 3.4.12).
2. Potential loss of RHR pressure boundary - RWST drains to PRT (loss of both cold leg injection and cold leg recirculation modes of ECCS).

What requirement/regulation governs this concern?

50.50.a, ASME Code (relief valve discharge must have a drain path),
50, App B, Criteria 16, prompt corrective actions

What records should the NRC review?

CARS 200703254, 200609805, 200607188, Mod MP 07-0007, LER 05000483/2006-008-00
NRC Component Design Bases Inspection Report 05000483/2006009

What other individuals could the NRC contact for information?

n/a

How did the individual find out about the concern?

ALLEGATION RECEIPT FORM

Served on as Root Cause Team Member

Was the concern brought to management's attention? If so, what actions have been taken, if not, why not?

Why was the concern brought to the NRC's attention?

ALLEGATION RECEIPT FORM

ALLEGER INFORMATION

Full Name	*[Redacted]*	Employer	AmerenUE
Mailing Address (Home)	*[Redacted]*	Occupation	Engineer
Telephone (Daytime) (Home) (Other)	*[Redacted]*	Relationship to facility	Employee
Preference for method and time of contact	n/a	Was the individual advised of identity protection	no
Referral	Explain that if the concerns are referred to the licensee, that alleger's identity will not be revealed and that the NRC will review and evaluate the thoroughness and adequacy of the licensee's response. If the concerns are an agreement state issue or the jurisdiction of another agency, explain that we will refer the concern to the appropriate agency, and if the alleger agrees, we will provide the alleger's identity for followup.		
Does the individual object to the referral?	n/a	Does the individual object to releasing their identity?	n/a
Regulations prohibit NRC licensees (including contractors and subcontractors) from discriminating against individuals who engage in protected activities (alleging violations of regulatory requirements, refusing to engage in practices made unlawful by statues, etc.).			
Does the concern involve discrimination?	n/a	Was the individual advised of the DOL process?	No

What was the protected activity?

Yes

What adverse actions have been taken? When?

n/a

Why does the individual believe the actions were taken as a result of engaging in a protected activity?

April 5, 2007

[redacted]

Michael Peck
Nuclear Regulatory Commission
Senior Resident Inspector
Callaway Plant

Mr. Peck

The Primary Relief Tank Common Relief Valve Discharge Header at Callaway Plant is not properly designed: the arrangement of the piping permits the RHR Suction Relief Valves to be damaged by a water slug propelled down the pipe when a Pressurizer PORV is actuated at Normal Operating Pressure.

Callaway Plant management has known about this liability since September 22, 2006. The liability was formally documented in the Root Cause Report to CARS 200607188 in October 2006. I was the (b)(7)c (b)(7)c In October 2006 (b)(7)c the Manager of Design Engineering (then Fadi Diya) that the piping arrangement was inadequate and needed to be corrected at the next opportunity (Refueling Outage 15).

After questioning the Root Cause Team's findings for three months, Callaway Plant approved Modification Package MP 07-0007 on January 26, 2007. I learned late in the evening on April 3 that MP 07-0007 has been removed from RF15.

On (b)(7)c the Manager of Design Engineering (now Mark McLachlan) (b)(7)c decision to not modify the PRT Common Relief Valve Discharge Header during RF15 might not be viewed favorably by the NRC. Mr. McLachlan's response was that it was not the NRC's decision as to whether or not we performed the modification. Callaway Plant had evaluated the Operability of the system with an Operability Determination and could decide to defer the modification based on a Probabilistic Risk Assessment. If the NRC disagreed with our decisions, they could challenge our decisions during their routine or special inspections. I was directed to CARS 200609805, Action 13 for the justification.

CARS 200609805, Action 13 states:

> There were no instances where the set pressure of a relief was lowered, so loss of inventory from low pressure actuation is not considered credible.

I am not satisfied that a low pressure actuation is not considered credible. The events of February 11, 2004 caused the assembly pins of these valves to break into many pieces. With assembly pin fragments (FME) present as the bellows assembly is moving up and

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down due to the water hammer transient on the PRT Common Relief Discharge Header, I believe it is credible that an assembly pin fragment might lodge in such a manner that the full spring force is no longer applied to the center of the disk. With metal FME present along with bellows movement, many things are credible.

(b)(7)c concerns were documented in CARS 200703254, Inadequate PI&R Delays Modification to Safety Related System one cycle. CARS 200703254 was screened a Sig 4 (Corrective Action Only) meaning no investigation of the inadequacy of the CARS 200609805, Action 13 response nor any investigation of the inadequacy of our PI&R and modification processes is necessary.

Note that Callaway Plant has had many opportunities to discover and correct the design deficiencies of the PRT Common Relief Valve Discharge Header:

- In 1993, while pressurizing the RCS to start Reactor Coolant Pumps for the RF6 heatup, a RHR Suction Relief Valve lifted at 350 psig (more than 100 psi below its setpoint), causing RCS pressure to blowdown to approximately 100 psig. This valve was installed in the system during the February 13, 1988 Safety Injection and had not passed a surveillance lift since that time (every time it was tested it needed to be adjusted). When the valve was disassembled in 1994, the assembly pin was found broken in five pieces. An inadequate PI&R failed to determine the cause of the valve failure and closed the issue stating: "Based on past history and the design of the valve, this incident is considered an isolated case."
- Contrary to good engineering practice, the RHR Suction Relief valve surveillances are not performed on a staggered test basis. Performing these surveillances on a staggered test basis would have resulted in the removal and testing of one of the valves damaged in the 2004 Safety Injection an entire cycle earlier.
- The valves removed in October 2005 were not tested until August 2006. It is not understood why this 10 month delay was necessary.

Instead of suffering for having an inadequate PI&R process, Callaway Plant benefits from it. Had one of the damaged valves been removed in RF13 and failed its bench test during cycle 14, Callaway Plant may have been forced into a mid-cycle outage to replace the other valve. Had the valves removed in RF14 been bench tested earlier in the cycle, Callaway Plant may have been expected to make more of an effort to correct the design deficiencies of the PRT Common Relief Valve Discharge Header during RF15, incurring unbudgeted expenditures.

It appears Callaway Plant has made a sound business decision. Delaying exit from RF15 potentially costs Ameren $1 million/day in lost generation. Due to our procrastination and inadequate decision making, MP 07-0007 could delay our exit from RF15 were we to attempt to perform it during this outage. We have once again decided that it is worth the regulatory risk to not do the right thing (correct known deficiencies with safety related equipment). This is a sound business decision because if the NRC were to challenge our response to CARS 200609805, Action 13, and if the NRC were to issue a finding and fine

due to inadequate technical rigor in our response, it is extremely unlikely the amount of the fine the NRC could level would be any comparison to the loss generation the company could suffer by delaying its exit from RF15.

Another item of note is the response to CARS 200607188, Action 11.4. This action requested the surveillance frequency for testing the RHR Suction Relief Valves be performed on a staggered test basis. The response clearly indicates the reason the company does not wish to perform the surveillance on a staggered test basis is because we would be better off not knowing of a potential problem with the other train's valve until the valve is no longer in the system and current (vice past) operability is no longer an issue. Again, based on the limited regulatory fallout from having no operable RHR Suction Relief Valves and no operable (for COMS) PORVs for more than an entire fuel cycle, the refusal to perform these surveillances on a staggered test basis appears to be a sound business decision.

I have attempted to address the inadequacy of the PRT Common Relief Valve Discharge Header with my management through several methods: (b)(7)c (b)(7)c for CARS 200607188, (b)(7)c Mr. Diya in October 2006, (b)(7)c Mr. Sutherland (the design engineer for MP 07-0007) throughout the winter months. (b)(7)c (b)(7)c Mr. McLachlan (b)(7)c (b)(7)c (b)(7)c CARS 200703254. Callaway Plant management believes it is doing the right thing in delaying MP 07-0007 until RF16. I would like verification from the NRC that they agree with Callaway's actions. I recognize the NRC has 30 days to respond to me. If possible, I would like an answer before the plant is next in MODE 5 – ascending (currently scheduled for April 20, 2007).

Please contact me at [redacted] if you have any questions regarding this issue.

Thank you,

[redacted]