BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Union Electric Company d/b/a AmerenUE's Tariffs to Increase its Annual Revenues for Electric Service	)))	**Case No. ER-2008-0318**
In the Matter of Public Counsel's Petition to Open a Case to Investigate AmerenUE's Plan to Construct and Finance a Second Unit at the Callaway Nuclear Plant Site	))))	**Case No. EO-2009-0126**
In Re: Union Electric Company's 2008 Utility Resource Filing pursuant to 4 CSR 240 - Chapter 22.	)))	**Case No. EO-2007-0409**

NOTICE REGARDING EXTERNAL COMMUNICATIONS

Issue Date: January 20, 2009

On January 19, 2009, I received the attached electronic mail messages from Lawrence S. Criscione.

Dated at Jefferson City, Missouri,
on this 20th day of January, 2009.
Davis, Commissioner

Gregory, Sheryl

From: Davis, Jeff
Sent: Monday, January 19, 2009 9:39 PM
To: Gregory, Sheryl
Subject: FW: Acid Issues at Ameren Power Plants - Tank above Radwaste Control Room
Attachments: Leaking Sulfuric Acid Tank Above Radwaste Control Room - 2004.pdf

Please file as ex-parte in Ameren UE open cases...

From: Lawrence Criscione [lscriscione@hotmail.com]
Sent: Friday, January 16, 2009 5:59 PM
To: Henderson, Wess
Cc: Davis, Jeff; Jeanette Oxford; Will Kraus; Casey Exendine; Gregory, Sheryl; Taylor, Michael; William Jones; Marty Gelfand; Houlihan Bill; Ilona Weiss
Subject: Acid Issues at Ameren Power Plants - Tank above Radwaste Control Room

The attached photos are of the Radwaste Acid Addition Tank. They were taken in October 2004. Nothing was done to neutralize and flush the tank until 6 months later, after leaking acid had eaten its way through a floor penetration and leaked through the ceiling of the Radwaste Control Room.

Larry

Lawrence S. Criscione
(573) 230-3959

From: lscriscione@hotmail.com
To: wess.henderson@psc.mo.gov
CC: jeff.davis@psc.mo.gov; jmo4rep@juno.com; will.kraus@house.mo.gov; casey.exendine@house.mo.gov; sheryl.gregory@psc.mo.gov; michael.taylor@psc.mo.gov; william.jones@nrc.gov; marty.gelfand@mail.house.gov; bill_houlihan@durbin.senate.gov; Ilona_weiss@mccaskill.senate.gov
Subject: FW: Acid Issues at Ameren Power Plants
Date: Fri, 16 Jan 2009 18:15:20 -0500

Mr. Henderson,

Bill Buscher is an environmental scientist in Illinois. The email below just as easily pertains to Ameren power plants in Missouri. Please forward this information to the appropriate people at the Missouri Department of Natural Resources or whatever agency in Missouri regulates contamination of soil and ground water.

Thank you,

Larry

Lawrence S. Criscione
(573) 230-3959

From: lscriscione@hotmail.com
To: billbuscher@sbcglobal.net
Subject: Acid Issues at Ameren Power Plants

Date: Fri, 16 Jan 2009 18:00:59 -0500

Hey Bill,

How was your Christmas? Luke wants to go on the ski trip to Wisconsin in February.

I think I told you about this issue earlier; the attached photo's and documents came from Callaway Plant.

The attached Word document describes some issues that Callaway Plant had with regard to retired-in-place sulfuric acid systems without flushing the residual acid from the piping and tanks. Since coal plants also have similar acid systems, it's possible that Ameren has the same issues with its Illinois plants - particularly, acid being released into the ground water. Since it dilutes out as it leaves the site boundary, its probably not that big of a concern - however it is a pretty pathetic way to operate a business.

The Word document describes the issue and the Adobe documents are supporting material.

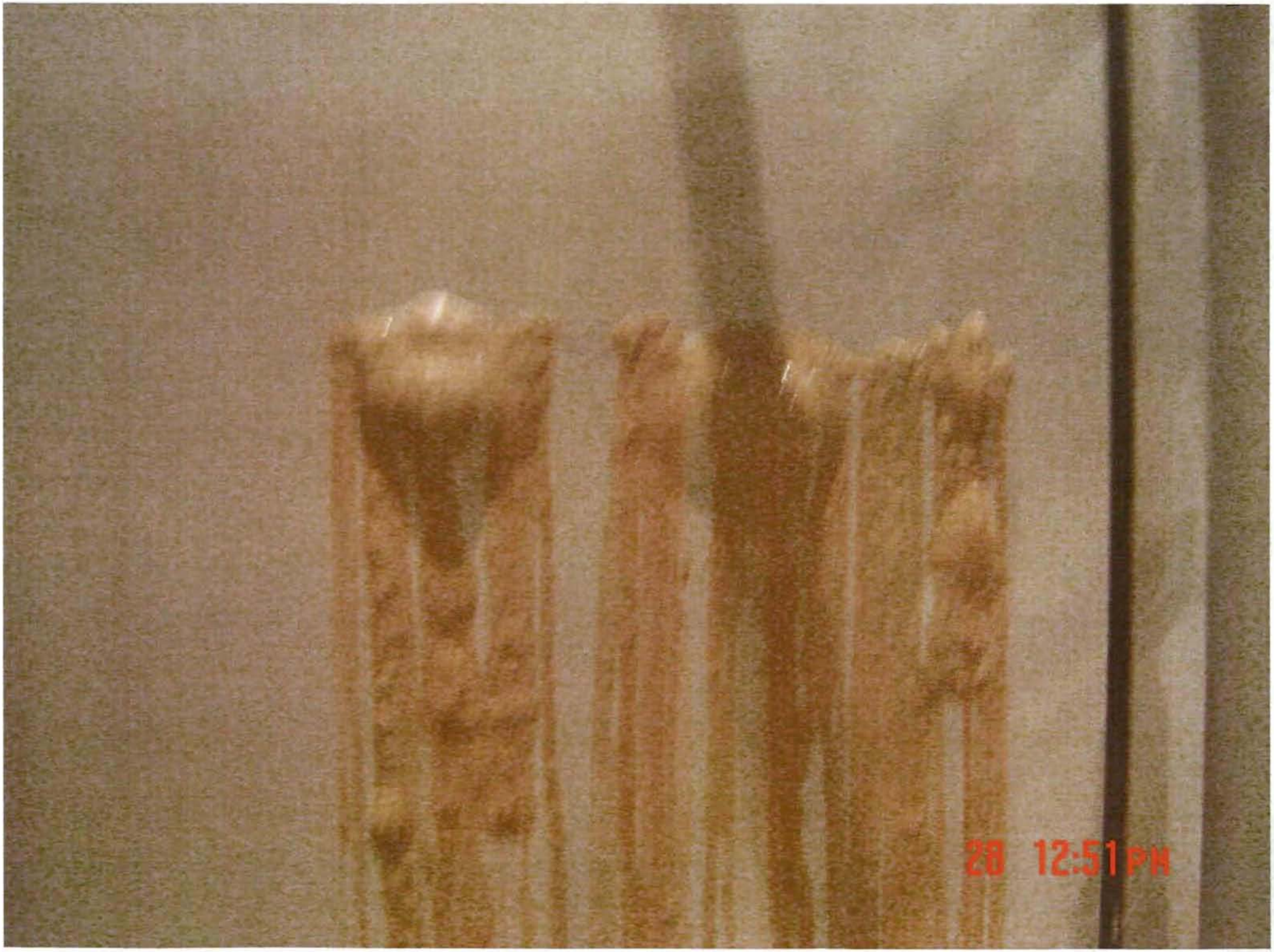
If you know anyone who might be interested in this, please pass it along.

Thanks,

Larry

Lawrence S. Criscione
(573) 230-3959


28 12:51PM


28 12:51PM

28 12:51PM


THC10
RW ACID ADD TANK
28 12:52 PM


SULFURIC ACID 93%
HEALTH HAZARD
FIRE HAZARD
SPECIFIC HAZARD
REACTIVITY
3
0
2
OXY
W
28 12:52 PM

28 12:52 PM


28 12:53PM

Gregory, Sheryl

From: Davis, Jeff
Sent: Monday, January 19, 2009 9:39 PM
To: Gregory, Sheryl
Subject: FW: Acid Issues at Ameren Power Plants
Attachments: CAR_200609328.pdf; Letter to Senator Durbin.PDF; CAR_200609296_-_attachment.pdf; CAR_200609296.pdf; CAR_200406911.pdf; Abandoned Acid Piping at Callaway Plant.doc

Please file as ex-parte in Ameren UE open cases. JND

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Lawrence S. Criscione
(573) 230-3959

Callaway Action Request System

Action Request

Cars Number	Cars Type	Status	Discover Date	Due Date
200609328	Adverse Condition	Closed	11/9/2006	11/27/2006

Originator	Department	Phone
Criscione, Lawrence (14827)	O	66113

Lead	Department	Phone
Belchik, George (433)	O	68205

SS Notified	NMR	ASME	NOW	Safeguards	Per Safety	Ec
True	False	False	False	False	True	Fa

Summary Description

Learn from Internal OE - Do Not Allow RIP Acid System to Run to Fail

Description

On October 28, 2004 Adverse Condition 200408190, "Through-wall corrosion on THC10, RW Acid Add Tank", documented:

> Numerous indications of through-wall corrosion are appearing on THC10, RW ACID ADD TANK, on the 2031 level of the Radwaste Building.

and requested:

> This tank is no longer used but an engineering and safety evaluation is requested to determine if steps to mitigate the corrosion need to be taken ASAP.

Nearly six months later (on March 11, 2005) the status of correcting Adverse Condition 200408190 was:

> Rad waste reported they can not get the tank empty and neutralized due to it being "rocked up".
>
> This condition does not present any plant system health risk, so it will not have any priority for a modification. Evaluating for potential RFR to be put into the backlog of future modification.

There was still no priority for correcting the through wall leak from THC10 when on June 22, 2005 a plant employee complained of a sulfur smell on the 2033' elevation of the Radwaste Building (Adverse Condition 200504414, "Sulfur smell on 2033 radwaste").

Three days later (on June 25, 2006) the Radwaste operator notified the Control Room of acid dripping through the ceiling tile in the Rad Waste Control Room. Adverse Condition 200504427 documented the following:

> Upon arriving at the scene the Field Supervisor found the acid leak was still active, but was being contained in a stainless steel bucket that the Radwaste operator had placed to catch the leakage. Acid had eaten a hole through the ceiling tile and was slowly dripping through. The estimated leak amount was one tablespoon visible on the carpet (more may have soaked into the carpet). There was also a small amount pooled on top of the ceiling tile. The Rad waste operator stated that an unidentified odor had been noted the previous day, but the cause could not be found. Apparently the acid had been leaking onto the ceiling tile and finally had eaten through.

> The source of the acid was from the berm around tank THC10. The tank has significant corrosion and appears to have an active leak in its side. Seepage could be seen through the corrosion, but no active dripping was noted. The quantity of acid in the berm is estimated at 2 gallons. The leakage from the berm is occurring at a floor penetration for instrument tubing at the north end. The acid is seeping through the penetration and running down the tubing until it drips off onto the ceiling tile below. No open Job could be found in EPMRV for the acid leak. The sign on the caution tape around the acid berm indicates the leak has been occurring since 10-28-04. Job 05106265 was written.

Now that the acid leak had progressed to the point of impacting the habitability of the Radwaste Control Room, a job was written to correct the problem. Job 05106265 was requested on 6/25/2005, approved on 6/27/2005 and planned (as task 500) on 6/29/2005. Job 05106265.500 to "Pump out contents of tank" was completed on 7/5/2005.

Although Job 05106265.500 corrected the adverse condition documented in Adverse Condition 200504427, Adverse Condition 200504427 was not closed. This was a good practice on the part of the Lead. An Extent of Condition was still being performed under Action 4:

> The only current safety concern is that we have two other tanks with some level of Sulfuric Acid that have also been abandoned. One is at CWCCS and one at Circulating and Service Water Pump House. These should be inspected to insure that they are not developing the same problem. They are contained in a berm, but nothing is being done to insure the tanks remain moisture free which could accelerate tank degradation.

Unfortunately, this Extent of Condition only focussed on whether or not an immediate problem existed elsewhere in the plant and was closed on August 5, 2005 to:

> The exterior of the referenced tanks, TDD1001 and TDD1101, were visually inspected and no signs similar to the degradation on THC010 were found.

When Action 4 to Adverse Condition 200504427 was closed, there were two Adverse Conditions documenting leaks at either Circ and Service or CWCCS (Adverse Conditions 200406151 and 200406911) and three CARS Actions denoting that the retired in place acid system at Circ and Service was never properly neutralized (Action 5 of Action Notice 200104205, Action 10 of Adverse Condition 200206290 and Action 4 of Adverse Condition 200304038). A proactive approach of addressing these problems was not considered; since neither TDD1001 nor TDD1101 was currently leaking, a reactive approach was not required. Since the closure of Action 4 to Adverse Condition 200504427, two additional leaks have developed from the Circ and Service and CWCCS retired acid systems (see Adverse Conditions 200603972 and 200607972).

CARS 200609296, "Closing CARS Prior to Completion of Work Causes Recurring Acid Leaks", documents the recent history of the old acid system at Circ and Service.

We need to learn from our past Internal OE with THC10 and flush TDD1101 and TDD1001 prior to these tanks failing. Just as with THC10, the retired in place acid systems at Circ and Service and CWCCS will not score high on the Plant Health Committee ratings until they fail to the point of causing an enviromental or safety hazard. C713235 to flush these systems must be owned by Operations and driven to completion by the end of 2006. Operational Focus begins with Operations Leadership.

Request this CARS be assigned to the originator.

Immediate Actions

This is a legacy issue. No immediate actions are required.

Lead Response

Screening Worksheet

Performance Code	*Significance*	***Committee:***	*ORC*	*SAFE*	*PARC*	*CARB*	*MREP*
SI	4		False	False	False	False	False

Evaluations:	*MER*	*MCR*	*9MR*	**Closures:**	*Noted*	*Admin Close*
					False	True

Dispositions:

MR	*MSPI*	*MRA1*	*Repo*	*Trans*	*NMR*	*Oper*	*ASME*	*OOTR*	*PHPE*	*EPE*	*CCE*	*RWRK*	*PROC*
False	False	False	False	False	False	False	False	False					

Keywords

Keyword	*Description*
ACID	ACID - Acid
LEAK	LEAK - To enter or escape through an opening

Systems & Components

System	*Component*	*Component Description*
DD1	TDD1001	TDD1001
DD1	TDD1101	TDD1101
HC	THC10	THC10

Trend Codes

Trend Type	*Trend Code*	*Description*
Event Type	EE001MOD	MODIFICATION IMPLEMENTATION FAILED
Activity	WM006PRP	MODIFICATION PROJECT PLANNING
Cause	ME001ENV	ENVIRONMENTAL EFFECTS ON EQUIPMENT DEGRADATION NOT CONSIDERED IN DESIGN

History

Type	*Description*	*User Pin*
H	Shift Manager changed from to Kochert, Steven (3269) by Criscione, Lawrence (14827) on Nov 9 2006 8:09AM	14827
H	Car Status changed from Initiate to Screening by Criscione, Lawrence (14827) on Nov 9 2006 8:09AM	14827
H	Car Lead changed from to Belchik, George (433) by Krumm, Paula (14585) on Nov 13 2006 11:36AM	14585
H	Car Status changed from Screening to Evaluate by Krumm, Paula (14585) on Nov 13 2006 11:45AM	14585
H	Car Status changed from Evaluate to Closed by Belchik, George (433) on Nov 13 2006 12:47PM	433
H	Car Status changed from Closed to InProcess by Milligan, James (4002) on Dec 5 2006 8:27PM	4002
H	Car Status changed from InProcess to Closed by Milligan, James (4002) on Dec 5 2006 8:28PM	4002

August 15, 2007

1412 Dial Court
Springfield, IL 62704

Richard J. Durbin, United States Senator
525 S. 8th Street
Springfield, IL 62703

Dear Senator Durbin:

I am one of your constituents from Blessed Sacrament parish in Springfield. I am married to the former Miss Lori Becker (daughter of Barry Becker) and the next door neighbor of Ann and Doug Doughtery. I am an ardent supporter of nuclear power, having worked in the commercial nuclear industry in both Missouri and Illinois and having served five years as an officer in our nation's nuclear submarine force.

I am sure you are aware that although nuclear power is for the most part a safe and reliable way to generate electricity, the self sustaining nature of the nuclear reaction and the radioactivity of the fission products create inherent risks. The safe operation of reactor plants in the United States is ensured by a strong commitment to safety by the nuclear industry which is in turn ensured by an aggressive inspection program by the United States Nuclear Regulatory Commission.

Callaway Plant has a culture which discourages disagreement with upper management and which inhibits effective problem identification and resolution. The management of Callaway Plant would prefer not to know about problems and is reluctant to fully investigate them. I have brought this issue to the United States Nuclear Regulatory Commission on two separate occasions (Allegations RIV-2007-A-0028 and RIV-2007-A-0048). I am writing you because I am satisfied with neither the thoroughness of the investigations conducted by the United States Nuclear Regulatory Commission nor the penalties awarded Callaway Plant.

Although Callaway Plant is located in Missouri, this matter is of concern to you because:

1) I am one of your constituents and I do not know where in government to turn to with these issues now that the US NRC has not properly pursued them.
2) My concerns not only concern the performance of the management of Callaway Plant but also concern the performance of the US NRC which is, of course, an agency of our federal government and thereby is a national concern.

3) The poor performance of a nuclear plant anywhere in the country jeopardizes the public confidence in our eleven reactor plants in Illinois.

I have enclosed a computer disk with this letter. On the enclosed disk are the correspondence between me and the US NRC and copies of internal Callaway Action Requests (the process for reporting concerns to company leadership).

I have three concerns which are provided below.

I greatly appreciate your past commitments to public safety concerns and to the safe generation of nuclear power. Please let me know if you or your staff can provide me any assistance in resolving my concerns.

Very respectfully,

Lawrence S. Criscione, PE

Concern 1

On October 21, 2003 the operating crew at Callaway Plant lost control of reactivity and the plant inadvertently shut down. There appears to me to be strong evidence that the Shift Manager (in 2003 the title Shift Supervisor was used) left the control rods withdrawn for 90 minutes to avoid having to admit to upper management that his crew lost control of the reactor. I base this accusation on the following:

1) The crew did not document the inadvertent shutdown in the Operations log.
2) The crew did not document the inadvertent shutdown in the Callaway Action Request System.
3) None of the five current Shift Managers with whom I discussed this issue can give me a reason why the control rods would remain out for 90 minutes following the shut down.
4) The training supervisor who documented the pressurizer level transient from earlier in the shift received negative feedback from the Shift Manager regarding the need to document the transient in the CAR System.

The US NRC has refused to investigate whether or not the leaving of the control rods withdrawn was an intentional attempt to cover up a transient. Their position is that since the Callaway Plant procedure for conducting a reactor shutdown contains no time requirements, there was no misconduct that would warrant an investigation by the Office of Investigations.

I do not agree with their position. I have made an allegation regarding the integrity of individuals who hold US NRC issued Senior Reactor Operator licenses. The Shift Manager involved in the incident was later involved in an inadvertent Safety Injection (February 2004) which led to the failure of safety related relief valves on the Residual Heat Removal system and in a significant plant transient while synchronizing to the electric grid (November 2005) which, although it was clearly cause by operator error, was blamed on newly installed equipment. This same Shift Manager has since been promoted to the Assistant Operations Manager for Performance Improvement. The other Senior Reactor Operators involved in the October 21, 2003 cover up are still active watch standers. My allegation regarding the integrity of these individuals needs to either be substantiated or refuted by the Office of Investigations; it cannot be ignored.

Although the US NRC plans on documenting a finding on the 3rd quarter inspection report for Callaway, this is slight punishment. One's career should be not be forwarded by covering up mistakes; it should be jeopardized. To not properly investigate an allegation of covering up a transient and, if substantiated, to not properly punish such cover-up sends the wrong message to Senior Reactor Operators who are under pressure from the company to operate error free. Error free operation should be accomplished by learning from past mistakes and not by successfully covering up errors.

Concern 2

On February 11, 2004 the operating crew at Callaway Plant drove the plant into a Safety Injection, causing the six safety related injection pumps to start. The resulting injection into the core caused the Reactor Coolant System pressure to increase above the lift set point of the Power Operated Relief Valves (PORVs). The PORVs lifted and reseated about a dozen times over the next quarter hour, until the Safety Injection signal was reset and the injection pumps were secured.

Unbeknownst to the plant staff, the lifting of the PORVs damaged the two suction relief valves of the Residual Heat Removal (RHR) system. These valves are both replaced during even numbered refueling outages (frequency of R2 - every other refueling outage). Since the valves were last replaced during RF12 (November 2002) they were not removed and inspected in the Spring 2004 refueling outage (RF13). The broken valves remained in the system until RF14 (Fall 2005).

In the summer of 2006, the valves were tested and found to be broken. The subsequent root cause investigation determined that the valves were broken during the February 11, 2004 Safety Injection due to an inadequately designed piping arrangement on the Primary Relief Tank (PRT).

The inadequate piping design was first brought to the attention of Callaway Plant

management in September of 2006. Despite urging from me, no effort was made to re-design the piping until December of 2006. Due to low staffing levels and other budgetary issues, adequate resources were not assigned during the winter months of early 2007 to re-design the PRT piping prior to the first opportunity to fix the problem during the Spring 2007 refueling outage (RF15). When I became aware the modification to the PRT piping was removed from RF15, I submitted Allegation RIV-2007-A-0048 to the US NRC.

The US NRC has determined that AmerenUE appropriately deferred the PRT re-design "based on the emergent design issues and deferment risk." As a result, Callaway Plant was allowed to resume power operations following RF15 with a Primary Relief Tank piping arrangement which could cause unpredictable damage to the RHR Suction Relief valves during a designed lifting of the Pressurizer PORVs.

I disagree with the assessment of the US NRC. The assessment of the US NRC is based on Callaway's claim that the design modification could not be ready in time for implementation during RF15. Although this was true, it was wholly due to the procrastination and short staffing of Callaway Plant.

A further issue is that Callaway Plant would prefer not to know about problems with its safety related equipment. During the investigation of the failure of the relief valves, it was suggested that the valves be replaced on a "staggered test basis" which would cause one to be replaced during odd numbered refueling outages and one to be replaced during even numbered refueling outages (currently both valves are replaced during even numbered refueling outages). The advantage of this is that equipment problems could potentially be detected 18 months (one fuel cycle) earlier.

Although the detection of equipment problems 18 months sooner is an advantage to the public, it is not necessarily an advantage to AmerenUE. If one valve is discovered broken, the other valve must be assumed to be broken - which could then necessitate a mid cycle outage to replace the valve. Callaway rejected the suggestion of replacing the valves on a "staggered test basis" because the In-service Test Engineering group would prefer to not know about a failed valve when one potentially failed valve might still be in the system.

In performing its investigation of RIV-2007-A-0048 the US NRC gave a lot of credibility to the documentation of AmerenUE. Why an appropriately staffed and funded facility (which Callaway claims to be) cannot turn around a piping design modification in seven months was not addressed. The reasoning provided by the In-service Test Engineering group for not performing future tests of the failed valves on a "staggered test basis" was also not challenged.

Concern 3

Callaway Action Request 200609296 documented how an acid system at the cooling tower was improperly retired-in-place with residual acid still in the lines. Repeated documentation of problems related to acid corrosion included the following:

1) Repeated leaks from retired-in-place components
2) Equipment Operators refusing to perform tagging operations because of the condition of the system
3) An incident of highly acidic (pH 1) water leaching into the lower levels of a building during hard rains because of extensive acid pollution in the surrounding soil
4) Above ground piping completely corroded away
5) An unisolable leak from the bottom of an acid tank.

Callaway Action Request 200609328 documented a similar issue with regard to an improperly retired-in-place acid tank in the Rad Waste building. The acid tank was not properly neutralized until a leak developed which resulted in acid eating its way through floor conduits and dripping from the ceiling of the Rad Waste Control Room.

These issues were brought to the attention of one of the US NRC resident inspectors at Callaway. Since neither acid system performed a safety related function, the resident inspector believed he was unable to address the issue. The fact that the Corrective Action Process (the same process used for Safety Related and non-Safety Related issues) failed to address the issue was of no regulatory concern to him; my position is it should have been.

It should be noted that similar acid systems exist at Ameren fossil plants. If Ameren does not properly retire equipment at the Callaway Nuclear Plant (arguably the "jewel" in its regulated Missouri market), it is likely neglecting similar equipment at its de-regulated Illinois fossil plants.

(End of Concern 3)

Please call me at (573) 230-3959 if you have any questions regarding these matters.

Thank you,

Lawrence Criscione

Criscione, Larry S.

From: Criscione, Larry S.

Sent: Thursday, November 09, 2006 10:10 AM

To: Barton, Robert G.

Cc: Heflin, Adam C.; Olson, Eric C.; Diya, Fadi M.; Riggs, Charles A.; Milligan, James W.; Rickard, Donald E.

Subject: CARS 200609296

Bob,

Adverse Condition 200609296 went to Jim Milligan at CARS Screening this morning.

It is my goal to get C713235 (the job to neutralize the tank) completed by the end of the year. I would like to meet with you, Fadi and Charlie Riggs today or next week to discuss how to make this happen.

I am also seeking a meeting with Adam to discuss the Performance Improvement issues in this Adverse Condition. The Performance Improvement issues have already been rejected in several earlier CARS and I do not feel there is any value in attempting to address them under Adverse Condition 200609296. However, this is another data point to consider since two of the leaks have occurred since our Corrective Action Process was "fixed" in the spring.

V/r,
Larry Criscione

Callaway Action Request System

Action Request

Cars Number	Cars Type	Status	Discover Date	Due Date
200609296	Adverse Condition	InProcess	11/8/2006	9/28/2007

Originator	Department	Phone
Criscione, Lawrence (14827)	O	66113

Lead	Department	Phone
Czeschin, Jeremy (46258)	O	68158

SS Notified	NMR	ASME	NOW	Safeguards	Per Safety	E
True	False	False	False	False	False	T

Summary Description

Closing CARS Prior to Completion of Work Causes Recurring Acid Leaks

Description

On September 24, 2001 approximately 200 gallons of sulfuric acid spilled at the Circ and Service Pumphouse. This spill required a 4 hour notification to the NRC and is documented in the Sig 1 CARS 200105961. This CARS was closed to MP 98-1007 on January 23, 2002.

CARS 200104205, Action 5, documents "Strategic Objective A3 - Reduction of chemical incidents (PSSP D.2)". During fuel cycle 12, the system engineer tasked with this action recommended:

> the due date be extended to April 30, 2003 to allow time for proper retirement of the system.

The "system" being referred to was the old sulfuric acid system at Circ and Service. The Plant Manager responded to this recommendation as follows:

> I disagree with keeping this open until April. I will extend it to January 14 to allow us to stop using the old system. However, I don't think we need to keep this CARS open waiting for official retirement of the equipment.

With no document tracking it, the old Circ and Service acid system was never "properly" retired. The Design Input Report for MP 98-1007 stated:

> After installation of the new system is complete the old tanks, pumps and piping are to be remediated (flushed and neutralized) and RIP or removed as needed, recommend this remediation be performed within 3 months of implementation.

and

> Prior to retirement of the existing system the piping lines should be adequately flushed.

The majority of MP 98-1007 was implemented as "aux" documents of C615596 between May 1, 2002 and July 11, 2002. A review of EMPRV found no documents with "MP 98-1007" in the description which pertained to either flushing or neutralizing the old lines. Per CARS 200206290, Action 16, the original acid system was "scheduled to be retired per C636153 in May of 2003". C636153 was approved on 4/21/1999, never planned and canceled on 6/23/2003 to "SUFFICIENT DESIGN NOT ISSUED AT THIS TIME".

Action 10 to Sig 1 Adverse Condition 200206290 was assigned on November 1, 2002 to "Determine the current

status of MP 98-1007". The importance of properly retiring the original acid system is acknowledged in the response:

> The status of the original system remains somewhat degraded as it has been for the past several years as shown by numerous leaks in piping and the pumps. More leaks in the original system may develope at any time and therefore the original acid system should be drained, flushed and retired as soon as possible.

There does not appear to be any effort made in CARS 200206290 to track the proper completion of MP 98-1007 with regard to neutralizing the old system.

During the May 25, 2003 WPA audit, a Reactor Operator noted that HO 44704 on the "B" sulfuric acid transfer pump at CWCCS was never signed on. Action 4 of Adverse Condition 200304038 was assigned to "Provide disposition on PDD1001B so that WPA can be cleared." This Action was closed on August 29, 2003 to:

> WR C713235 has been created to flush and neutralize the old acid system piping and pumps. Once this WR is worked there will no longer be any danger of an acid spill from the old system.
>
> Summary: WPA 44704 may be lifted at any time with no anticipated adverse results or WPA 44704 may be tied to C713235 which will remediate the system which will then be RIP.

C713235 was created on August 21, 2003 for "VENDOR TO NEUTRALIZE THE ACID TANKS OF THE ABONDON ACID SYSTEM AT THE CIRC & SERVICE BLDG". C713235 has not yet been planned. On March 12, 2006 (with a Scheduled Start Date of April 20, 2020), a schedule note was added to C713235 stating:

> OPS DEFICIENCY - DO NOT RESCHEDULE WITHOUT WMS CONCURRANCE

C713235 was (thankfully) rescheduled to February 5, 2007 on August 10, 2006. It was moved forward to December 4, 2006 on October 25, 2006. It was moved backward to July 9, 2007 on November 3, 2006. With no owner tracking its completion (i.e. CARS Lead), requiring the WMS concurrence has not ensured completion of C713235 in a timely manner.

On June 26, 2003 an Equipment Operator refused to clear the WPA 44704 on the "B" sulfuric acid transfer pump at CWCCS (exemplary display of a questioning attitude). This was documented in Adverse Condition 200304775 which was closed to C713235 on August 21, 2003.

On July 31, 2004 the Outside Operator reported a small acid lead between VDD1001A & B at CWCCS. The leak was initially observed to be a steady pencil lead sized stream and resulted in apporximately 30 gallons of acid spilled. This was documented in Adverse Condition 200406151, "Acid leak between VDD1001A & B @ CWCCS". No actions were taken for this CARS. When Adverse Condition 200406151 was closed (on August 9, 2004), C 713235 was scheduled for January 1, 2020. The following justification was given:

> This system is in the process of being retired. The bulk acid tank still has residual 93% sulfuric acid. The tank has been drained as low as physically able. Engineering has initiated C713235 for the neutralization of this tank. It currently has no target date as we are waiting to perform the final testing on the new system. This also applies to the day tank TDD1101. It is drained, but has residual acid in it. The work documents are adequate to track correction. An email was sent to operations updating them on the status of the old acid system.

On September 3, 2004, Adverse Condition 200406911, "Acid from ground leaks through pipe penetrations, evaluate", was written to document pH 1 acid leaking through piping penetrations by valve VDD21028 during hard rains. The following corrective actions were to be implemented:

> The following corrective actions will be implemented to resolve this issue.
>
> - To eliminate the abandoned carbon steel line (DD1-103-2") as a source of acid, it will be flushed with water until the flush water pH tests neutral. Job W239435 will be used to implement this corrective action.

- Use a caustic solution to neutralize the back fill in the vicinity of the leaking wall penetrations. A remediation plan can be developed between Engineering and Chemistry during the planning of the work document.
- After the previous two corrective actions are complete, clean the two leaking wall penetrations and replace or supplement the existing wall seals.

The following is more of good practice or preventative measure than a corrective action. However, it is a prudent activity to implement.

- Verify the abandoned Acid Day Tank (TDD1101) is completely drained and neutralized. Job W239435 will be used to implement this corrective action. This will eliminate the potential for any future acid leakage.

With W239435 having already been thrown out of seven work weeks and currently scheduled for June 1, 2006 , CARS 200406911 was closed on December 26, 2005 to the following:

> Work Document W239435 provides the closure document for this CARS by implementing the corrective action documented above. The orginator initiated this CARS to request engineering guidance on the necessary corrective actions to assist in the planning process for the work document. This information has been discussed with the current planner for W239435.
>
> There are no human performance issues preventing closure of this CARS to W239135.

W239435 was written on September 3, 2004 to NEUTRALIZE GORUND WATER, AND RESEAL PIPE PENETRATIONS and originally scheduled for February 21, 2005 as Priority 3 work. With no owner tracking its completion (i.e. CARS Lead), W239435 was removed from 11 different work weeks with due dates of 2/22/2005, 4/25/2005, 5/4/2005, 7/6/2005, 8/22/2005, 1/17/2006, 1/11/2006, 6/1/2006, 4/20/2020, 2/5/2007, 12/4/2006, 6/11/2007 and is currently scheduled for 7/9/2007. It has a scheduler note stating "Job C713235 needs to work before this job. It will neutralize the pipe lines and the acid day tank."

On May 20, 2006 Adverse Condition 200603972 was written documenting the following:

> An acid leak has been identified in the basement of the Circ and Service Water Building coming from a retired section of the old acid feed system located inside the enclosed area where the acid feed pumps are located. A spoolpiece between VDD1264 and VDD1251 has been corroded away and acid is leaking out onto the floor. This is residual acid that has been in the sytem for years. The was a WR tag hanging on VDD1264 but it does not exist in the current EMPRV system. Job # 06116744 was written and the room has been posted with caution tape and a sign warning people of an acid leak.

Adverse Condition 200603972 was closed at Screening to the following:

> The screening committee has reviewed this CAR and concluded that a Job is adequate to correct the adverse condition. No additional actions are needed.

There is no documentation in the Screening Notes that the source of the acid causing the corrosing needed to be corrected. Job 06116744.500 was worked on August 8, 2006 and closed to:

> Removed valve and drain line. Installed blank flanges.

Like the CARS Screening Committee, the Job Screening Committee did not question the source of the acid. Are the blank flanges installed under Job 06116744.500 currently being subjected to corrosion from residual acid? Are there other piping components which are being subjected to corrosion from residual acid? What will be the cost to remove other piping components (on a system which is no longer used) if the residual acid is not removed? The focus of the Job Screening Committee is to get work properly prioritize to correct problems in the

plant. Focussing on fixing an acid leak vice properly dispositioning a "retired in place" system is what should be expected at this meeting. The more in depth questioning and analysis of the problem should occur at the CARS Screening Committee.

On July 20, 2006 Adverse Condition 200605860, "Retired Acid System at Circ / Service presents a concern w/ Acid Leaks", was written containing the following statements concerning the implementation of MP 98-1007:

> During the "retirement" of the old system, it is not clear whether all the acid in the "retired" system has been flushed and removed. It is the perception of the Chemistry Department that system is still full of acid that is awaiting to be flushed and neutralized from the system.
>
> There have been several jobs written in the past few years to clean up small acid spills and leaks from the system as nuisance or housekeeping concerns arise.
>
> CARS#200603972 was written in May of 2006 to document an acid leak in the retired section of the acid feed system, and prompted some concern in the Chemistry Department that the retired section may still contain sufficient amounts of old acid that it:
>
> 1.) presents a safety concern to Chemistry personnel and others in the building
>
> 2.) will continue to manifest as acid leaks within deteriorating components, leading to more maintanence activities to "repair" components until the modification is fully implemented and ALL the piping and components from the retired system are removed (tenatively scheduled for Summer, 2007).
>
> Chemistry is requesting an evaluation of the "as left" status of the retired system to determine if this is a valid concern AND if necessary, an expedited remediation plan if the results warrant it.

Adverse Condition 200605860 stated in the Lead Response that the retirement of the old acid system " delayed due to other plant priorities". The evaluation requested by Chemistry was not performed. With C713235 still not planned, Adverse Condition 200605860 was closed on October 25, 2006 to:

> FCN 3 has been issued and job C713235 has been issued to flush the system. This CAR can be closed and the referenced job will complete all required actions.

On November 7, 2006 the Outside Operator reported a small drip coming from the bottom of the Retired-in-Place Acid Day Tank (TDD1101) at the Circ and Serv Building. The leak was approximately 5-6 drops per minute. This was documented in Adverse Condition 200609278, "Acid leak discovered at Circ and Serv Acid Day Tank (TDD 1101)". At the Screening Committee meeting on November 8, 2006 a recommendation was made to close this CARS at screening to Adverse Condition 200605860, which itself is currently closed. After push back from Operations, a decision was made to leave CARS 200609278 open as a Sig 3. This CARS is still in Evaluate (it is only one day old).

The Performance Improvement department is developing a system to track Jobs which are corrective actions to Adverse Conditions (See CARS 200607972). This seems like an unnecessary administrative burden but should ensure more timely completion of corrective actions. At other utilities the assignment of due dates and owners under the Corrective Action process is used to ensure required work is completed prior to closing the Adverse Condition tracking document. The philosophy is the Adverse Condition still exists until the corrective actions have been taken (i.e. merely planning or scheduling the corrective action does not remove the adverse condition).

Request this CARS be assigned to the Originator so he may ensure (Operational Focus comes from Operations Leadership) C713235 is completed.

Immediate Actions

None required. This is a "Process" issue.

Lead Response

Remedial Actions

A task Team has been established to flush and drain the residual acid from the C&S Acid Day tank, the Bulk Sulfuric Acid storage tank and the CWCCS acid transfer pump enclosure.

Apparent Cause

When the modification was originally being designed, it was decided to split the electrical retirement out. This decision was made due to the quick turn around requested for the new chem add system installation. After the mod was implemented, there were several problems with start up and testing that required design engineer support. Chemistry requested that the old system be left functional until the new system was proven reliable. This delayed the electrical retirement FCN. Other Engineering manpower demands such as the Security Mod delayed work on the Acid system retirement. In the summer 2006, a contract engineer was hired and assigned to complete the Acid System retirement FCN . The electrical retirement FCN was then completed the summer of 2006.

In summary, the FCN was repeatedly rescheduled due to higher priority work in the electrical design group. There was also a lack of understanding of the importance of this FCN to support the complete acid neutralization.

Corrective Action

1. The Acid Response task team will flush and remove the acid from the Bulk acid system at CWCCS, and the Acid Day tank at the C&S building.
2. The Team will identify additional systems or equipment long standing concerns that present safety concerns that need to be addressed.
3. The Acid Response task team will work with the Plant Health Committee and the Unit Reliability Team to ensure the Acid systems are removed and identify the necessary process changes to reduce the potential for the re-occurrence of this situation in the future.

Extent of Cause and Extent of Condition

Engineering is reviewing other retired or unused systems that contain or store hazardous chemical having the potential to create undesirable consequences as identified in this CAR.

Operating Experience (as applicable)

The following CARs will be reviewed as contributors to this event and utilized to identify corrective action to reduce the potential for the occurrence in the future.

CAR 200104205

CAR200206290

CAR 200304038

CAR200406911

CAR200603972

CAR200605860

CAR 200607972

CAR200609278

CAR200609328

CAR 200406911

CAR200406151

CAR200608190

CAR200504427

Justification if no action is to be taken

NA

Closure

1. All accessible areas of the Bulk acid tank (and piping) and the Acid Day tank (and piping) have been flushed, and the residual acid disposed of. This includes the Bulk Acid tank, the Acid Day tank and the line from the Acid transfer pumps to the Acid Day Tank. his was implemented under job C703235.448 thru 550.
2. The team identified the following equipment issues to be addressed:

There are old halon tanks being stored in Stores 2 that are no longer in service. We have saved these if we need to someday use the halon. I am not sure of the quantity of tanks. Vendors have called and want to buy the old halon to reclaim. We should probably go ahead and sell it to them.

There is a tank in the RW building that has yet to be identified, by the system Engineer.

There is a tank at the Old QC building that needs to be evaluated for continued need.

Justification for due date extension from 2006-12-09 to 2007-01-25: This CAR is being extended to allow completion of acid neutralization activities at the Acid Day tank and the Bulk Sulfuric Acid Tank. No other potentially hazardous system conditions have been identified to date, there are no adverse consequences to the plant or personnel from extending this CAR.

Justification for due date extension from 2007-01-25 to 2007-04-26: CAR extended to allow completion of Corrective actions. The Acid cleanup has been completed. No other significant issues have been identified to date The remaining issues are programmatic and will be addressed with the Plant Health Committee and the Unit reliability Team, there is no adverse consequence to the plant by extending th is CAR.

Justification for due date extension from 2007-04-26 to 2007-09-28: Jim Milligan: CAR extended to allow completion of corrective actions. ESW issues and personnel reassignment prevented the development of a retirement plan and process changes to be completed prior to the conclusion of RF15. There are no adverse consequences to the plant or personnel from extending this CAR.

Screening Worksheet

Performance Code	*Significance*	***Committee:***	*ORC*	*SAFE*	*PARC*	*CARB*	*MREP*
SI	3		False	False	False	False	False

Evaluations:	*MFR*	*MCR*	*9MR*	***Closures:***	*Noted*	*Admin Close*
	False	True	False		False	False

Dispositions: *MR MSPI MRA1 Repo Trans NMR Oper ASME OOTR PHPE EPE CCE RWRK PROC*

False False False False False False False False False False False False False False

Keywords

Keyword	*Description*
ACID	ACID - Acid
CA INEFFECTIVE	Corrective Action Ineffective (not CATPR)
CAP	Corrective Action Program
ENVIRONMENTAL	ENVIRONMENTAL - Ecological community / Surrounding climate
LEAK	LEAK - To enter or escape through an opening
MOD	MOD
MODIFICATION	MODIFICATION - The making of a limited change
RF15 RVWD	MODE RESTRAINTE REVIEWED - CAP RESTRICTED USE
RIP	RIP - Retired In Place Program
TANK	TANK - Receptacle for liquids

Systems & Components

System	*Component*	*Component Description*
DD1	DD1	DD1
DD1	TDD1101	TDD1101
HB	THB04	THB04
HB	THB08	THB08
HC	THC10	THC10
HE	THE01	THE01

Trend Codes

Trend Type	*Trend Code*	*Description*
Event Type	EV002PME	NON-SAFETY RELATED MECHANICAL EQUIPMENT EVENT
Activity	WM004CME	CORRECTIVE MAINTENANCE TASK EXECUTION PERFORMANCE
Cause	PL004DLD	CORRECTIVE ACTIONS DELAYED OR CHOSE NOT TO IMPLEMENT
Cause	PL004RES	RESPONSE TO A KNOWN PROBLEM NOT TIMELY TO PREVENT RECURRENCE

History

Type	*Description*	*User Pin*
H	Shift Manager changed from to Covey, Mark (8213) by Criscione, Lawrence (14827) on Nov 8 2006 7:03PM	14827
H	Car Status changed from Initiate to Screening by Criscione, Lawrence (14827) on Nov 8 2006 7:03PM	14827
H	Car Lead changed from to Milligan, James (4002) by Klang, Susan (3230) on Nov 9 2006 10:09AM	3230
H	Car Status changed from Screening to Evaluate by Klang, Susan (3230) on Nov 9 2006 10:10AM	3230
H	Initial Action Release by Belchik, George (433) on Nov 13 2006 12:55PM	433
H	Car Status changed from Evaluate to InProcess by Milligan, James (4002) on Dec 5 2006 8:53PM	4002
H	Car Due Date changed from Dec 9 2006 12:00AM to Jan 25 2007 12:00AM by Milligan, James (4002) on Dec 5 2006 8:57PM	4002
	Car Due Date changed from Jan 25 2007 12:00AM to Apr 26 2007 12:00AM by Milligan, James	

H	(4002) on Jan 23 2007 5:48PM	4002
H	Car Lead changed from Milligan, James (4002) to Czeschin, Jeremy (46258) by Milligan, James (4002) on Apr 21 2007 9:41AM	4002
H	Car Due Date changed from Apr 26 2007 12:00AM to Sep 28 2007 12:00AM by Czeschin, Jeremy (46258) on Apr 21 2007 11:04AM	46258

Actions

1 - Fugate, Thomas (14751) - SA - 90 - - 11/14/2006 - Evaluate any OSHA concerns

2 - Milligan, James (4002) - O - 90 - - 1/25/2007 - Address issue(s) from CAR 200609328

3 - Corder, Bradley (13184) - NESM - 90 - - 2/22/2007 - Identify RW Tank

4 - Lehmann, Justin (18052) - NETP - 90 - - 2/22/2007 - Identify Continued need of Chemical Tank at Old QC Bldg

Callaway Action Request System

Action Request

Cars Number	Cars Type	Status	Discover Date	Due Date		
200406911	Adverse Condition	Closed	09/03/2004	12/28/2005		
Originator	Department	Phone				
Lowe, Goth (16374)	WMP	68730				
Lead	Department	Phone				
Becker, Terry (13433)	EFIN	68620				
SS Notified	NMR	ASME	NOW	Safeguards	Per Safety	Ec
False	False	False	False	False	False	Fa

Summary Description

Acid from ground leaks through pipe penetrations, evaluate.

Description

Acid (PH = 1) from ground leaks through piping penetrations, (this is noted during/after hard rains). The penetration by valve VDD21028 is the location where leakage was noted during the last hard rain, (9-03-04). (Reference W239435)

Engineering to determine where the acid is coming from, evaluate and determine and what actions need to be taken to correct the problem.

Immediate Actions

Lead Response

Remedial Actions

Service Request 200404528 (later voided to 04100877) was initiated to install a temporary monitoring site to determine the ground water conditions outside the building. Service Request 04100877 completed as Action Item 1.

Action Item 2 was assigned to Chemistry to sample the water in the temporary monitoring site. Additional samples were taken as shown below:

6/30/05 Sampled with pH=7

10/29/05 Sampled with pH=7

12/22/05 Sampled with pH = 6-7

On 12/22/05, the inside wall location was sampled at the wall penetration. The wall was dry at that time, so the material was scraped from around the pipe and tested with a pH= 1-2.

Apparent Cause

Background

On 6-8-91, a through wall leak developed in the carbon steel acid feed line (DD1-103-2" and part of DD1-104-2") between the Acid Day Tank (TDD1101) and the Circ & Service Water Pumphouse. This event was documented in CAR 199100850. To address this issue, modification package EMP 91-3018, Revision A was developed and implemented to replace this carbon steel pipe with a CPVC pipe. CPVC was used to increase chemical erosion resistance. Specifically, this modification replaced the carbon steel piping between the Acid Day Tank and valve VDD1104B (in the Circ & Service Water Pumphouse) primarily with CPVC piping. Due to fit up problems at both ends of this CPVC line, FCN 01 (to this modification package) was generated to use stainless steel pipe and fittings at both ends of this CPVC pipe line.

On 9-24-01, an acid leak was discovered between the Circ & Service Water Pumphouse and the pumphouse transformers. This event was documented in CAR 200105961. The CAR investigation indicated that the CPVC acid feed line, discussed above, developed a leak. The CAR disposition identified that ground movement was the probable root cause for this CPVC line failure.

In response to the 9-24-01 event, minor modification RFR 21586A was generated to replace the failed CPVC line with a carbon steel line. This new line was installed closer to the surface (approximately 1 foot below grade) to avoid interference with the underground electrical duct banks. The failed CPVC line was capped using blind flanges and abandoned in place. Work document W218469 was used to implement this minor modification. The abandoned CPVC line was neutralized and flushed per work document W682135.

Evaluation

The pipe penetration for valve VDD2101B is on the plant east side of the Circ. & Service Water Pumphouse on the 832' elevation. The piping at this penetration contains dispersant. This penetration shares the plant south facing wall with five other pipe penetrations. The pipe lines associated with these other wall penetrations contain hypochlorite, Circ. Water return sample fluid and concentrated sulfuric acid (abandoned). The piping and penetration layout for this location is shown on drawings 8600X88785 and 8600X88788.

The Request Description for this CAR indicates that some sort of acid is leaking through the wall penetrations. The only obvious source for acid at this location is the carbon steel sulfuric acid line discussed above or the remnants of the 2001 acid spill. The abandoned CPVC acid feed line was eliminated as a potential acid source since it was neutralized and flushed in 2001.

After the installation of the carbon steel acid feed line, modification package MP 98-1007 was implemented to replace the existing acid feed system with a new sulfuric acid delivery system. This new system eliminated the need for this carbon steel acid feed line. This line and its associated equipment were subsequently isolated and abandoned in place. Since the carbon steel acid feed line is abandoned and the

2001 acid spill was terminated, the source of the acid leak at the wall penetration near valve VDD2102B is either residual acid leaking from the carbon steel pipe or residual acid from the 2001 event. In either case, the source of acid from either of these two sources is finite. Therefore, the problem associated with this CAR can be eliminated by flushing the carbon steel line and neutralizing the back fill near the piping penetrations.

The apparent cause associated with this event is either

- the presence of residual acid in the back fill due to the 2001 acid spill or
- a leak in the abandoned carbon steel acid line at this location. For this cause to be valid, the pipe would have to contain residual acid and a leakage path to the surrounding back fill.

Corrective Action

The following corrective actions will be implemented to resolve this issue.

- To eliminate the abandoned carbon steel line (DD1-103-2") as a source of acid, it will be flushed with water until the flush water pH tests neutral. Job W239435 will be used to implement this corrective action.
- Use a caustic solution to neutralize the back fill in the vicinity of the leaking wall penetrations. A remediation plan can be developed between Engineering and Chemistry during the planning of the work document.
- After the previous two corrective actions are complete, clean the two leaking wall penetrations and replace or supplement the existing wall seals.

The following is more of good practice or preventative measure than a corrective action. However, it is a prudent activity to implement.

- Verify the abandoned Acid Day Tank (TDD1101) is completely drained and neutralized. Job W239435 will be used to implement this corrective action. This will eliminate the potential for any future acid leakage.

Operating Experience

A review of operating experience at Callaway was used to determine the apparent cause for this CARS. The CARS systems has documented the events leading upto this point along with the changes made through the modification process. These documents are included in the references section of this CARS.

A review of additional OE was performed by searching the INPO website. Two events similar events were located from Palo Verde. Plant Event #41268 and OE8828. These two events were reviewed for applicability to Callaway. The typical actions taken are notification and cleanup. No further problems were identified.

Extent of Condition

As noted in CARS 200105961, no other systems use PVC pipe below grade. The only other systems that are similar is the Demin Plant bulk acid and caustic storage tanks. The below grade piping for these systems are stainless steel for the acid and

carbon steel for the caustic, with no problems detected for these pipes.

As for the extent of damage due to the prolonged period of acid exposure outside the Circ and Service Water Pumphouse, a concern exists for the condition of the structural concrete walls. However, due to the difficulty in excavation for inspection of these walls due to the numerous buried utilities, no inspection will be performed at this time unless additional cracking or settling is noticed for the structure. Since the acid lines are no longer in service, the corrective actions noted above, are considered adequate to address the extent of condition concerns.

Closure

Work Document W239435 provides the closure document for this CARS by implementing the corrective action documented above. The orginator initiated this CARS to request engineering guidance on the necessary corrective actions to assist in the planning process for the work document. This information has been discussed with the current planner for W239435.

There are no human performance issues preventing closure of this CARS to W239435. Once appropirate trendcodes are established this cars may be closed. RCW 10/2/05

Justification for due date extension from 2004-11-07 to 2004-12-31: Due Date Extended to allow completion of the Service Request 200404528 for additional ground water monitoring. This extention has no impact on plant operability .

Justification for due date extension from 2004-12-31 to 2005-01-31: Service Request 200404528 was voided prior to completion. New Service request has been generated to complete the work.

Justification for due date extension from 2005-01-31 to 2005-03-31: Due Date extended to allow completion of Service Request 04100877.

Justification for due date extension from 2005-03-31 to 2005-04-29: Due Date extended to allow completion of Service Request. This has been discussed with the plant helper foreman. Equipment has been purchased to perform the work. This extention has no impact on plant operation.

Justification for due date extension from 2005-04-29 to 2005-05-30: Due Date Extended Again to allow completion of Service Request. Action Item assigned to track Service Request. Extention of this CARS Due Date has no impact on plant.

Justification for due date extension from 2005-05-30 to 2005-06-30: Due date extended to allow completion of Action Item 2. Extention of this CARS has no impact on plant operations.

Justification for due date extension from 2005-06-30 to 2005-07-29: Due to the response from Action Item determining the pH of the ground water, further time to determine the corrective action is needed.

Justification for due date extension from 2005-07-29 to 2005-09-29: Further Sampling requirements are being determined. Additional rainfall is needed. Extended drought conditions have made further sampling difficult. Extended due date for changing weather.

Justification for due date extension from 2005-09-29 to 2005-10-28: RF outage duties have taken precedence over tracking activities associated with this issue. The job to fix this problem is scheduled in January, 2006. No other actions are pressing. This CARS may be able to be closed out once appropriate trend codes are inserted. RCW 10/2/05

Justification for due date extension from 2005-10-28 to 2005-12-28: Due Date Extended to Dec 28, 2005.

Additional water sample test has been requested from chemistry. There is no impact on plant operation or reccurance. Additional time needed to develop corrective action plan.

Screening Worksheet

Performance Code	*Significance*	***Committee:***	*ORC*	*SAFE*	*PARC*	*CARB*	*MREP*
SI	3		False	False	False	False	False

Evaluations:	*MER*	*MCR*	*9MR*	***Closures:***	*Noted*	*Admin Close*
					False	False

Dispositions:	*MR*	*MSPI*	*MRA1*	*Repo*	*Trans*	*NMR*	*Oper*	*ASME*	*OOTR*	*PHPE*	*EPE*	*CCE*	*RWRK*	*PROC*
	False	False	False	False	False	False	False	False	False					

Keywords

Keyword	*Description*
ACID	ACID - Acid
GC-OPS	Good Catch - Operations (Discovery/Action above and beyond normal)
LEAK	LEAK - To enter or escape through an opening
MORE INFO SCRN	More Info needed - screening responsible for lacking info.
RF14 RVWD	GL9118 / MODE RESTRAINT REVIEWED - CAP RESTRICTED USE

Systems & Components

System	*Component*	*Component Description*
DD1	TDD1101	TDD1101
DD1	VDD1104A	VDD1104A
DD2	VDD2102B	VDD2102B

Locations

Building	*Room*	*Description*
CS	0	Acid Day Tank Area

Trend Codes

Trend Type	*Trend Code*	*Description*
Event Type	EMCHBK	CONTROL OF BULK CHEMICALS
Activity	OP003EQO	CHEMICAL EQUIPMENT OPERATION AND CONTROL
Cause	JC002CHM	POTENTIAL OR EXPOSURE TO HAZARDOUS CHEMICALS/ MATERIALS

History

Type	*Description*	*User Pin*
H	Car Status changed from Initiate to Screening by Lowe, Goth (16374) on Sep 3 2004 11:41AM	16374
H	Car Lead changed from to Heinlein, David (10857) by Klang, Susan (3230) on Sep 8 2004 10:00AM	3230
H	Car Due Date changed from Sep 13 2004 12:00AM to Nov 7 2004 12:00AM by Klang, Susan (3230) on Sep 8 2004 10:00AM	3230
H	Car Status changed from Screening to Evaluate by Klang, Susan (3230) on Sep 8 2004 10:01AM	3230
H	Car Lead changed from Heinlein, David (10857) to Becker, Terry (13433) by Heinlein, David (10857) on Sep 9 2004 5:01PM	10857

H	Car Status changed from Evaluate to InProcess by Becker, Terry (13433) on Nov 4 2004 10:01AM	13433
H	Car Due Date changed from Nov 7 2004 12:00AM to Dec 31 2004 12:00AM by Becker, Terry (13433) on Nov 4 2004 10:01AM	13433
H	Car Due Date changed from Dec 31 2004 12:00AM to Jan 31 2005 12:00AM by Becker, Terry (13433) on Dec 30 2004 1:48PM	13433
H	Car Due Date changed from Jan 31 2005 12:00AM to Mar 31 2005 12:00AM by Becker, Terry (13433) on Jan 31 2005 7:25AM	13433
H	Car Due Date changed from Mar 31 2005 12:00AM to Apr 29 2005 12:00AM by Becker, Terry (13433) on Mar 30 2005 6:49PM	13433
H	Car Due Date changed from Apr 29 2005 12:00AM to May 30 2005 12:00AM by Becker, Terry (13433) on Apr 28 2005 6:37AM	13433
H	Car Due Date changed from May 30 2005 12:00AM to Jun 30 2005 12:00AM by Becker, Terry (13433) on May 26 2005 2:58PM	13433
H	Car Due Date changed from Jun 30 2005 12:00AM to Jul 29 2005 12:00AM by Becker, Terry (13433) on Jun 30 2005 4:09PM	13433
H	Car Due Date changed from Jul 29 2005 12:00AM to Sep 29 2005 12:00AM by Becker, Terry (13433) on Jul 26 2005 2:54PM	13433
H	Car Due Date changed from Sep 29 2005 12:00AM to Oct 28 2005 12:00AM by Wink, Roger (6381) on Oct 2 2005 2:28AM	6381
H	Car Due Date changed from Oct 28 2005 12:00AM to Dec 28 2005 12:00AM by Becker, Terry (13433) on Oct 29 2005 2:03PM	13433
H	Car Status changed from InProcess to Closed by Becker, Terry (13433) on Dec 26 2005 8:30AM	13433

Actions

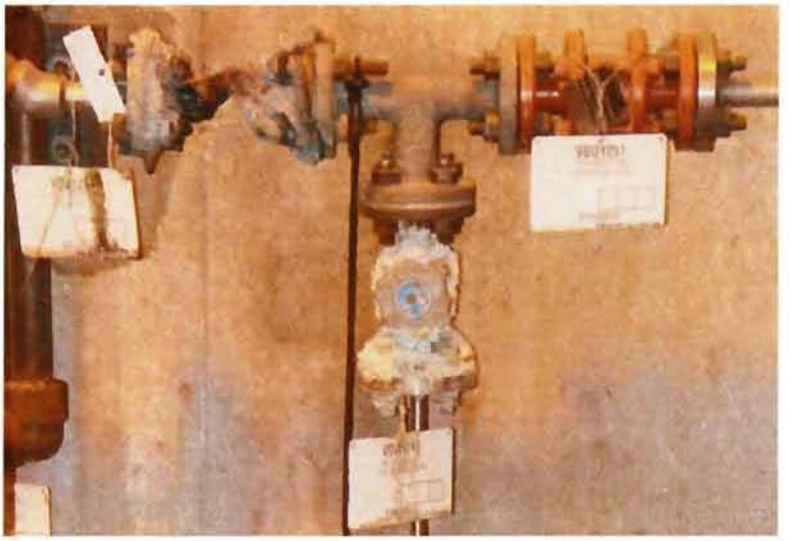
1 - Depriest, Dennis (1517) - MSU - 90 - - 05/27/2005 - Complete Service Request

2 - Boutelle, Ronald (638) - C - 90 - - 06/30/2005 - Take PH Sample of groundwater at monitoring site

Abandoned Acid Piping at Callaway Plant

Ameren's practice of abandoning retired acid piping has resulted in sulfuric acid contamination of the ground water at Callaway Plant and damage to equipment used to process radiological wastes.

In 2002, Callaway Plant retired the original sulfuric acid piping of the Circ Water Chemical Control System. In order to save money, the piping was never flushed. As a result, the piping corroded.



In the picture at right, the salt complex to the left of the piping tee used to be a piece of piping; it corroded due to residual sulfuric acid left in it.

Sulfuric acid was similarly left in the underground piping of the same system. In September 2004, pH 1 acid was discovered leaching into the CWCCS building during hard rains. This was documented in Callaway Action Request 200406911.

In September 2006, the previous five year history of uncorrected problems caused by the retired acid system was documented in Callaway Action Request 200609296 and the issue was brought to the attention of the US Nuclear Regulatory Commission Resident Inspectors at Callaway Plant. The Resident Inspectors refused to

investigate the issue because the CWCCS is not a system required for reactor safety. However, the Resident Inspectors failed to notify OSHA and the EPA of the violations of industrial safety and environmental laws which were occurring at Callaway Plant.

During the same time period, 93% Sulfuric Acid was left in the Radiological Waste Acid Addition tank when it was retired in place. After several years, the concentrated acid ate a hole in the wall of the tank and leaked onto the bermed area at the base of the tank. Despite noticing the leak in October 2004, no action was taken to resolve the problem and by June 2005 the acid had eaten its way through piping penetrations in the floor below the tank. The acid then pooled onto the backside of a ceiling tile in the Radwaste Control room, began dripping through the ceiling tile and was collected in a stainless steel bucket by the Radwaste operators. The Radwaste Control room is the controlling station for the processing of gaseous, liquid and solid radioactive wastes.

The upper picture is of the leaking sulfuric acid tank and the lower picture is of the control air lines for equipment used in the processing of solid radiological waste. The acid entered the ceiling through the penetration for these lines. Although damaged, these lines were not breached. The lower picture was taken in February 2007; twenty months after the acid leak, the acid had still not been cleaned from these lines.

The history of recurring acid problems in the Radwaste Building was documented in Callaway Action Request 200609328. In August 2007, the failure of the US NRC to address Ameren's practice of deferring the retirement of acid systems for financial reasons was brought to the attention of US Senator Durbin.