R4ALLEGATION - Issues at the Callaway Nuclear Plant

From: (b)(7)c
To: <Ilona_weiss@mccaskill.senate.gov>
Date: 10/30/2007 5:57:42 PM
Subject: Issues at the Callaway Nuclear Plant
CC: Houlihan Bill <bill_houlihan@durbin.senate.gov>, David Dumbacher <ded@nrc.gov>, Vince Gaddy <vgg@nrc.gov>

Ms. Weiss,

Attached are electronic versions of the documents I delivered to you today. I currently do not have the letter to Senator Durbin available electronically.

Thank you for meeting with me today. If you need to contact me, you can reply to this email or call me at (b)(7)c to leave a voicemail.

During working hours I can usually be reached at (b)(7)c

I have copied Bill Houlihan, Dave Dumbacher and Vince Gaddy on this email. Bill is the Downstate Director for Senator Durbin. Dave is the Nuclear Regulatory Commission Senior Resident Inspector at Callaway Plant. Vince is a contact for issues regarding Callaway Plant at the NRC Region IV headquarters in Texas.

(b)(7)c I do not have a home computer and do not regularly check this email account. If you send me something needing my attention, please call me at (b)(7)c and leave me a message to check my account. My primary email is through my employer.

Information in this record was deleted in accordance with the Freedom of Information Act
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FOIA/PA 2009-0042

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Sent: Friday, October 19, 2007 11:02 AM

Mr. Gaddy,

Attached are the comments I intended to address at the NRC Public Meeting on October 19, 2007. At your request, I am emailing them to you and the other meeting participants. I recognize the difficulty the Nuclear Regulatory Commission and AmerenUE face in attempting to address topics like this in a public meeting forum with little preparation.

Please forward these comments to the appropriate individuals in your organization.

I look forward to your response. I would also appreciate to be included in any distribution of the meeting minutes. If you are unable to reach me via this email when the meeting minutes are distributed, you can contact me at (b)(7)c (b)(7)c

Thank you,

(b)(7)c

The first issue I wish to address is the reason why Callaway was unable to address the known design deficiencies in the Pressurizer Relief Tank during Refueling Outage 15.

On February 11, 2004 the operating crew at Callaway Plant increased the Reactor Coolant System pressure above the Safety Injection Signal block permissive reset point before Steam Header Pressure was above the Steam Line Pressure Safety Injection set point. This caused all six pumps in the Emergency Core Cooling System to start and inject water into the core. As water was injected into the core, the pressure in the Pressurizer rose until it exceeded the lift set point of the Pressurizer Power Operated Relief Valves. Over the next 15 minutes, the Power Operated Relief Valves lifted about a dozen times. With each lift, radioactive steam at greater than 2300 psig and greater than 600°F was evacuated from the Pressurizer into the Common Relief Valve Discharge Header of the Pressurizer Relief Tank.

Because of an, at the time, unknown, inadequate system design, the pressure transient in the header caused by the high enthalpy steam induced a water hammer event which significantly damaged both the 'A' and 'B' train Residual Heat Removal system Suction Relief Valves. The assembly pin of one of the valves was sheared into eight pieces and for the other valve the pin was broken into three pieces. The fact that these valves were severely damaged went unrecognized at the time; the damage was not discovered for more than 31 months. For 20 of the 31 months, the valves remained in the system. A similar event had occurred in 1988 with the damage remaining undetected until one of the valves failed while raising Reactor Coolant System Pressure in 1993.

Because these valves are not tested on a staggered test basis, their inability to perform their design function was not noticed for an entire 18 month fuel cycle. (A staggered test basis means that for components with a certain test frequency, which in this case is 36 months, the testing of the two trains would be staggered such that one train would be tested during the middle of the other train's test frequency. If these valves had been on a staggered test basis, then during Refueling Outage 13 in the Spring of 2004 one valve would have been removed and tested and then 18 months later during Refueling Outage 14 in the Fall of 2005 the opposite train's valve would have been removed and tested. Because a staggered test basis was not in affect at the time, no valves were removed during the Spring of 2004, but instead both valves were removed during the Fall of 2005.)

We unknowingly had two damaged valves in the system during the entire 18 months of fuel cycle 14. In October 2005, both Residual Heat Removal system suction relief valves were removed from the system; this was 20 months after they had been damaged. Because the testing of these valves has been contracted out to an off-site facility, the valves were not tested until August 2006; this was 31 months after they had been damaged. On September 12, 2006 the Root Cause team for CARS (b)(7)c met to determine what caused the valves to be damaged. I was the (b)(7)c During the first week, I proposed that both Residual Heat Removal system suction relief valves may have been damaged due to a back pressure transient on the Pressurizer Relief Tank common relief discharge header during the February 2004 Safety Injection. By the end of the second week the team had enough evidence to prove this proposition. On September 22, 2006 a Night Order was issued to the Operating crews warning them that if a Pressurizer Power Operated Relief Valve were to lift from Normal Operating Pressure, it would be likely that neither Residual Heat Removal system suction relief valves would be capable of performing their function.

During every autumn month in 2006 I personally met with (b)(7)c and with (b)(7)c of the Design Engineering group to emphasize the need to correct the inadequate design of the Pressurizer Relief Tank common relief valve discharge header by the first opportunity; the first opportunity being Refueling Outage 15 during the Spring of 2007. Despite their acknowledgement of the problem, no one was assigned to modify the piping design until December 2006. In late March 2007, more than six months after the inadequate design was noted, the modification package to correct the design deficiencies was removed from Refueling Outage 15.

I have several questions regarding this issue. The first set is with regard to being unable to prepare the modification package to correct the inadequate piping design in a six month time frame:

1. Is the fact that no one was assigned to the task of preparing the modification package during the months of September, October and November an indication that the staffing level of the Design Engineering group is insufficient?

2. Is the fact that a critical design modification could not be performed in six months an indication the experience level of the Design Engineering group is insufficient?

3. Several engineers at Callaway Plant have complained to me in recent weeks regarding statements made by (b)(7)c and (b)(7)c A statement attributed to (b)(7)c was "Engineers come, engineers go." A statement attributed to (b)(7)c was "Engineers are a dime a dozen." Supposedly (b)(7)c recently told an engineer who had been at the plant since construction days that "If you leave, I can have two new engineers for the price of you." In light of these comments, does Callaway Plant value experienced engineers who are capable of properly assessing and addressing nuclear safety concerns?

4. The next question I have is why the Residual Heat Removal system suction relief valves, which were removed from the system in October 2005 were not tested until 10 months later in August 2006. What necessitated the 10 month delay?

5. The next question I have is why the plant rejected the suggestion that the Residual Heat Removal system Suction Relief Valves be tested on a Staggered Test Basis so that instead of doing both valves during even number Refueling Outages, one valve would be done in every Refueling Outage. Had a Staggered Test Basis plan been in affect during Refueling Outage 13, then one of the damaged valves would have been removed an entire fuel cycle earlier and the degraded condition of the other valve (the valve still in the system) would have been known prior to using it for the Cold Overpressure Mitigation System during the first half of Refueling Outage 14. In response to this request, the company has stated the following:

   > *Testing on a staggered schedule is not recommended because if the removed valve has indications of degradation, the same must be assumed of the installed valve which will require immediate replacement because the internal condition of the valve cannot be determined with the valve in service. The current test frequency of both valves every other refueling outage is the preferred method because both valves are tested at the same time and as such a failure of one valve does not question the operability or material condition of the installed certified valves. As such a Tech Spec Action statement entry is not required.*

   The statement just read is interpreted by me to state that Callaway Plant would prefer not to have an indication that a valve installed in the system is degraded because then they could possibly have to take the plant off-line to fix the degraded valve (thereby losing some revenue from electricity generation). In other words, we would rather have two unknown degraded valves for an extra 18 months than one known degraded valve for 18 months because we would have to take action to correct a known degraded valve. If this is not a fair summary of the response, please let me known how I should be interpreting this response.

The next issue I wish to address is adequate staffing of the Fire Brigade.

In January 2004 an unannounced fire drill was conducted at Callaway Plant. In CAR (b)(7)c the Fire Marshall documented in the drill critique comments that due to the length of time it took the Outside Operator to arrive, the crew used the Primary Equipment Operator on a hose team. At the time, the Primary Equipment Operator was credited as the Safe Shutdown Operator required by the Final Safety Analysis Report and was therefore not eligible to be on the Fire Brigade.

On September 18, 2004 there was a small fire on the Communications Corridor roof. An Event Review Team meeting was held on September 20, 2004 to analyze the response of the Fire Brigade to this fire. This meeting was attended by the Equipment Operators who were manning the Fire Brigade on the day of the fire. Twice during the meeting there were discussions which lasted several minutes concerning the use of the Outside Operator in staffing the Fire Brigade. The Leader of the meeting at one point stated that the issue (of using the Outside Operator on the Fire Brigade) should be address in the response to the Callaway Action Request which was tracking the issue. This issue was actually never addressed in the response to either of the two Callaway Action Requests documenting the event (CAR (b)(7)c or CAR (b)(7)c nor did it appear in the meeting minutes from the Event Review Team meeting at which the discussion occurred.

In November 2004 I attended Fire Brigade Training with the crew which fought the Communications Corridor roof fire. Their supervisors were not present at the training and I was the only salaried person from Operations in attendance. The equipment operators expressed a concern that issues brought up during the Event Review Team meeting in September were being covered up by the company. The specific issue was using the Outside Operator for a Fire Brigade assignment. I informed the operators that my experience was the ERT minutes are typically a verbatim transcription of the meeting and I doubted that anything said at the meeting would not appear in the meeting minutes (I was wrong on this issue. ERT minutes are only sometimes verbatim transcriptions and are more often summaries). I took an action from the training session to investigate the matter and if necessary to generate a Callaway Action Request to address the operators' concerns.

I was able to obtain the tape of the September ERT meeting from a clerk in the Performance Improvement department. (b)(7)c CAR (b)(7)c o address the Equipment Operators' concerns and (b)(7)c minutes to that CAR. While (b)(7)c CAR (b)(7)c was challenged by my supervisor that the union operators were merely using the issue of not assigning the Outside Operator to the Fire Brigade in order to force the company to allot more overtime. I (b)(7)c CAR (b)(7)c anyway and when I was finished it my supervisor told me the issue would merely be answered the same way it had been answered in the past.

Despite my request that CAR (b)(7)c be screened as an Adverse Condition, it was assigned to my supervisor by the CAR Screening Committee as an Action Notice. With the exception of one minor side issue (the whereabouts of the Fire Brigade trainers during the September 2004 ERT meeting), CAR (b)(7)c was answered the same day it was screened with no further consideration of the issues in light of the experiences from the September 2004 fire.

In early 2005, the US NRC Senior Resident Inspector at Callaway Plant (Michael Peck) took up the issue of the Outside Operator being credited for the Fire Brigade. That resulted in CAR (b)(7)c being written by the Department Performance Coordinator of Operations. Because of the NRC Resident's attention to the issue, CAR (b)(7)c was screened as an Adverse Condition and ultimately resulted in the discontinuance of assigning the Outside Operator to the Fire Brigade.

Upon learning about CAR (b)(7)c (b)(7)c CAR (b)(7)c concerning how the issue of assigning the Outside Equipment Operator to the Fire Brigade was brought to the attention of Operations Management in both September and November 2004 and could have been addressed

in house, thus avoiding a NRC finding.

CAR (b)(7)c was discussed with the entire "chain of command" of the Performance Improvement department up to and including the Senior Vice President of Nuclear. No changes to the Corrective Action Process were made as a result of CAR (b)(7)c but some of the suggested changes were made late in 2005 due to industry benchmarking.

In October 2006, CAR (b)(7)c was assigned to the same supervisor who had answered CAR (b)(7)c regarding the use of the Outside Operator on the Fire Brigade. CAR (b)(7)c contained the wording of the NRC's violation from the first quarter 2005 concerning inadequate Fire Brigade staffing. The main focus of the violation was that for a significant amount of time during the first quarter of 2005 Callaway Plant failed to maintain the required five Fire Brigade members on site. At the end of the violation, the issue was tied to the "crosscutting" issue of inadequate Problem Identification & Resolution. In the Closure statement of CAR (b)(7)c the supervisor makes an inane argument that the tie to the "crosscutting" issue in PI&R is not valid because CAR (b)(7)c and CAR (b)(7)c were screened as Action Notices (now replaced with "Business Tracking") and were therefore outside the Corrective Action Process.

This argument was inane because I sent CAR (b)(7)c to screening as an Adverse Condition and stated in the Description (with reasons provided) that it was an Adverse Condition; yet, it was screened as an Action Notice anyway. Although it can be argued that the standards were different in 2004, this argument is itself inane since the screening of CAR (b)(7)c (due to NRC attention) as an Adverse Condition proves CAR (b)(7)c was inappropriately screened. Regardless, by October 2006 CAR (b)(7)c and CAR (b)(7)c would have both met the criteria of Adverse Condition and so claiming they were outside the Corrective Action Process is merely unproductive quibbling designed to avoid acceptance of a valid comment from the NRC.

I have several questions regarding the above events:

1. Since the Spring of 2005 Operations has adopted the practice of not assigning the Outside Operator to the Fire Brigade. Currently only one of the six operating crews is able to staff all the required watch stations and Fire Brigade positions without using overtime. Two of the crews one Equipment Operator short. Two of the crews are two Equipment Operators short and one of the crews is short three equipment operators. Is there a reason that after more than two and one half years Operations has not staffed the Equipment Operator ranks to the point that all the crews can support the required watch stations as well as the Fire Brigade?

2. Many Equipment Operators at the plant believe the company attempted to cover up the issue of assigning the Outside Operator to the Fire Brigade during the September 2004 Event Review Team meeting. Can you explain why this issue did not appear in the meeting minutes?

3. CAR (b)(7)c was written to address the concerns of craft personnel whereas CAR (b)(7)c was written concerning the same issue but to address the concerns of the NRC Resident Inspector. CAR (b)(7)c was screened an Action Notice and essentially dismissed in hours whereas CAR (b)(7)c was screened an Adverse Condition and received an Apparent Cause investigation. Does Callaway Plant value the concerns and input of its craft personnel into the Corrective Action Process?

4. CAR (b)(7)c and CAR (b)(7)c would be screened as Adverse Conditions by the current criteria applied at Callaway Plant, yet in recent documents (e.g. CAR (b)(7)c from October 2006) we still discount these documents during our analysis because they were screened as Action Notices at the time. What is being done to ensure important issues brought to our attention in the past but not appropriately addressed due to our low standards at the time are now re-classified and addressed prior to the recurrence of an

adverse condition?

5. As already noted, CAR (b)(7)c had a component to it which concerned the inadequate resolution of an issue when earlier identified in the Corrective Action Process. CAR (b)(7)c was assigned to the individual who failed to properly address the issue the first time, and he successfully (in terms of being allowed to close CAR (b)(7)c) claimed that the issue had been appropriately addressed when it had first appeared due to the way it was inaccurately categorized as not being an Adverse Condition. This appears like the "Fox guarding the hen house." This more recently occurred in an unrelated topic identified in CAR (b)(7)c That CAR, which documented inappropriate control of the qualification process for a Main Control Room watch station, was assigned to the individual who inappropriately managed the process. Again, in another case of the "Fox guarding the hen house" that individual unsurprisingly closed the CAR to no inappropriate activity had occurred. What can we do at Callaway Plant to ensure Adverse Conditions are not assigned to individuals who have a vested interest in not ensuring they are addressed?

The third issue I wish to address involves "cronyism" in the Operations Department at Callaway Plant.

There is a former Shift Manager who last year was promoted to (b)(7)c position at Callaway Plant. This individual was consistently ranked as the top performing Shift Manager despite having been involved in some very significant incidents at Callaway which primarily resulted from a failure in supervisory oversight. In October 2003 his crew inexplicably left the control rods withdrawn following an inadvertent reactor shutdown (CAR (b)(7)c) In February 2004 his crew caused an inadvertent Safety Injection to occur during a plant heat up (CAR (b)(7)c) In November 2005 his crew made several significantly poor decisions while synchronizing the main generator to the Electric Grid, causing a severe temperature and pressure transient in the Reactor Coolant System which resulted in the isolation of the Letdown system on low Pressurizer level (CAR (b)(7)c) However, this same individual has been known to (b)(7)c How does Callaway Plant ensure that critical positions are filled by qualified candidates and not through a system of cronyism?

I have several other issues which I would like to address, however their investigations are still in progress with both the internal Callaway Plant Quality Assurance organization and externally with the Nuclear Regulatory Commission. Although I am not satisfied with the progress of these investigations, since they are not yet closed I do not believe it necessary to address them in this forum at this time. I would like to thank the Nuclear Regulatory Commission and the company for their time and would like to offer that I am available to discuss any of these concerns in further detail. I believe that most concerned parties know how to contact me.

October 30, 2007

(b)(7)c

Claire McCaskill
United States Senator
915 E. Ash St
Columbia, MO 65201

Dear Senator McCaskill,

I grew up in (b)(7)c from your home at the other end of (b)(7)c I attended the grade school at (b)(7)c in the (b)(7)c and used to catch crawdads in the creek where your house now sits. I would like to congratulate you on your successful campaign for the United States Senate.

I am an ardent supporter of nuclear power, having worked in the commercial nuclear industry in both (b)(7)c and (b)(7)c and having served (b)(7)c as an (b)(7)c I currently work as a (b)(7)c at Ameren's nuclear plant in Callaway County.

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.

Enclosed is a letter I wrote to Senator Richard Durbin in August. Since writing this letter, the first two concerns in the letter were re-opened and are still under investigation by the United States Nuclear Regulatory Commission. A member of Senator Durbin's staff (Bill Houlihan) is assisting me in finding the appropriate agency to address the third concern, which deals with the improper retirement of acid systems.

Mr. Houlihan believes that, as one of Senator Durbin's constituents, it is appropriate for Senator Durbin's staff to assist me in addressing concerns I have regarding the United States Nuclear Regulatory Commission. However, for

concerns directly regarding Callaway Plant and Ameren, Mr. Houlihan believes your office should be included since Callaway Plant is located in Missouri.

Also enclosed with this letter are several concerns raised during a public meeting on October 19, 2007 between the United States Nuclear Regulator Commission and Ameren regarding the performance of the Callaway Nuclear Plant. Most of the questions posed in the enclosed documents were directed at the Ameren representatives from that meeting.

Any assistance in obtaining answers from Ameren regarding the concerns raised at the public meeting would be appreciated. Ameren feels no obligation to answer to me, but if you are interested in answers to the issues raised at the October 19 public meeting, they will likely answer to your staff. Although I am not one of your constituents, the concerns I have regarding the Callaway Nuclear Plant concern many of your constituents.

Very respectfully,

(b)(7)c

CARS (b)(7)c Attachment 3

Bravo RHR suction valve damage.

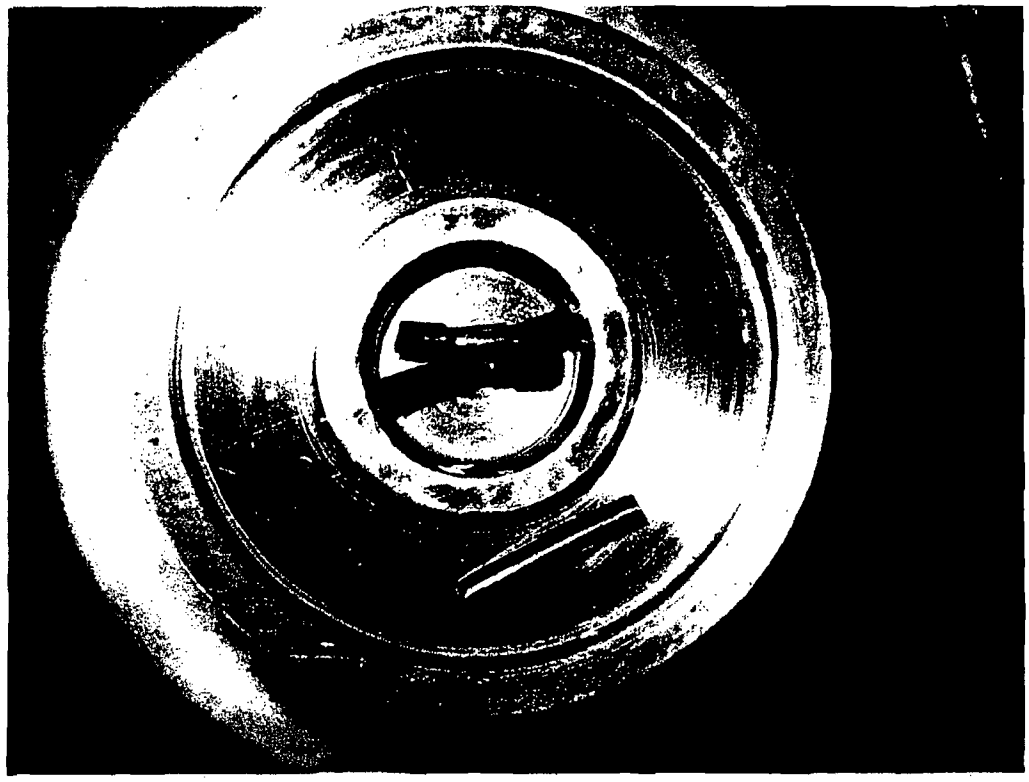
Due to the as found relief pressure being approximately 150 psi high it was decided to disassemble the valve upside down in an attempt to retain the as found disc to bellows orientation. This photo shows the orientation of the bellows assembly. Not only is the disc not parallel to the blow down ring, it is above the blow down ring.

CARS (b)(7)c Attachment 3

This photo shows the proper orientation of the disc to the blow down ring.

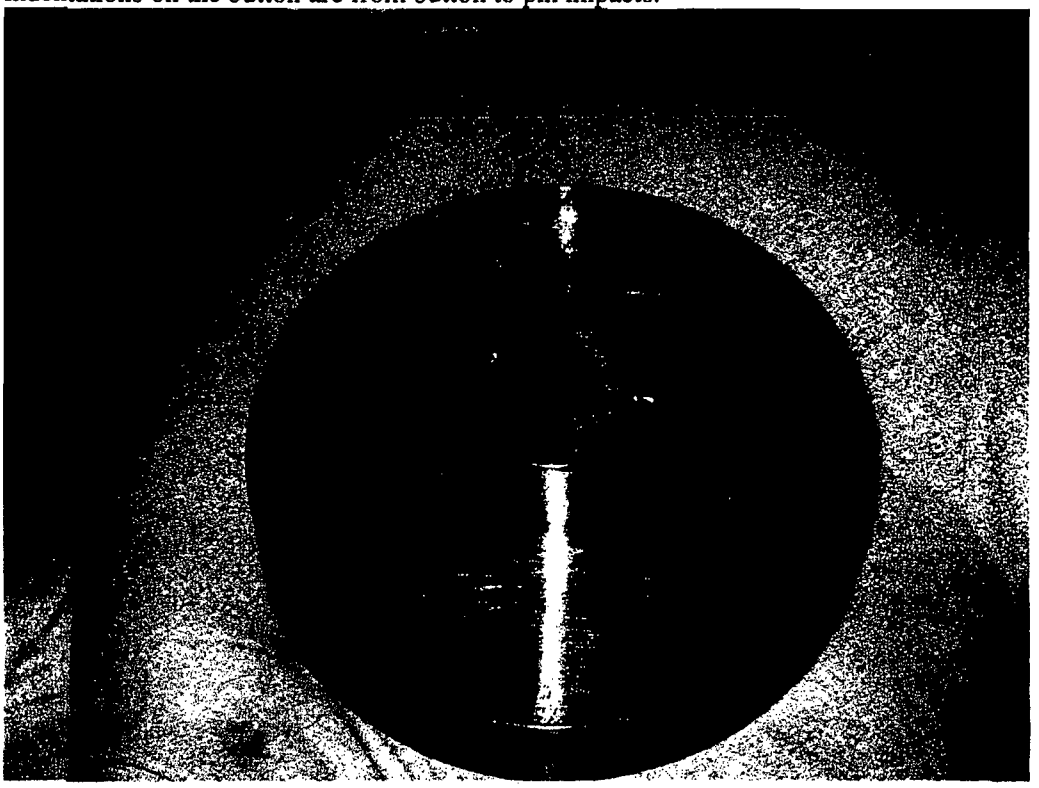
CARS [redacted] Attachment 3

This is a picture of disc holder with the disc removed and the assembly pin in the as found location. The pin section outside of the disc button "pocket" is the center section of the pin which goes through the disc button. The two pin sections in the "pocket" are the two remaining sections of the pin that migrated in when the button was clear of the holder. This picture clearly shows the damage to the pin, but it is the lack of any other degradation that is important to notice. The disc button has not impacted the disc button. The center section of the pin has not been impacted. In addition the side portions of the pin indicate that two to three impacts from the disc button occurred after the pin was sheared.



CARS [(b)(7)c] Attachment 3

This picture is of the underside of the disc. The only degradation is the disc button. The indentations on the button are from button to pin impacts.

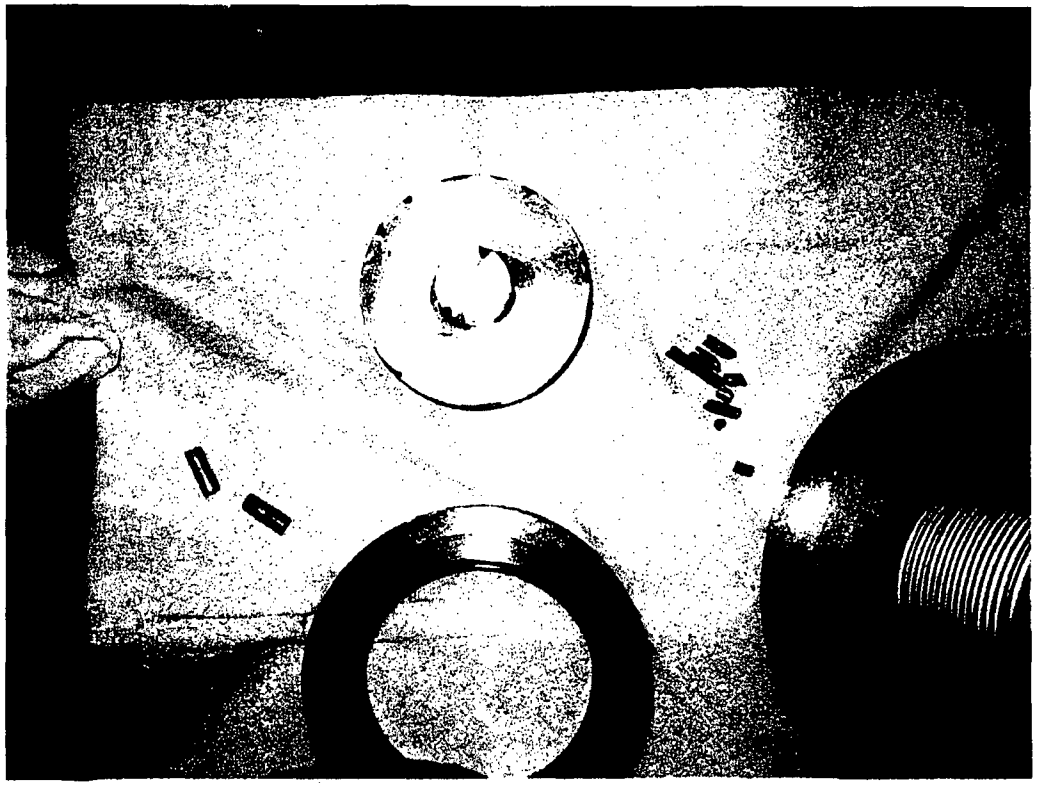


CARS (b)(7)c ATTACHMENT 3

Bellows and Disc Damage
Alpha RHR suction valve

This photo shows the as found condition of the disc, assembly pins, the blow down ring, and the blow down ring pins.

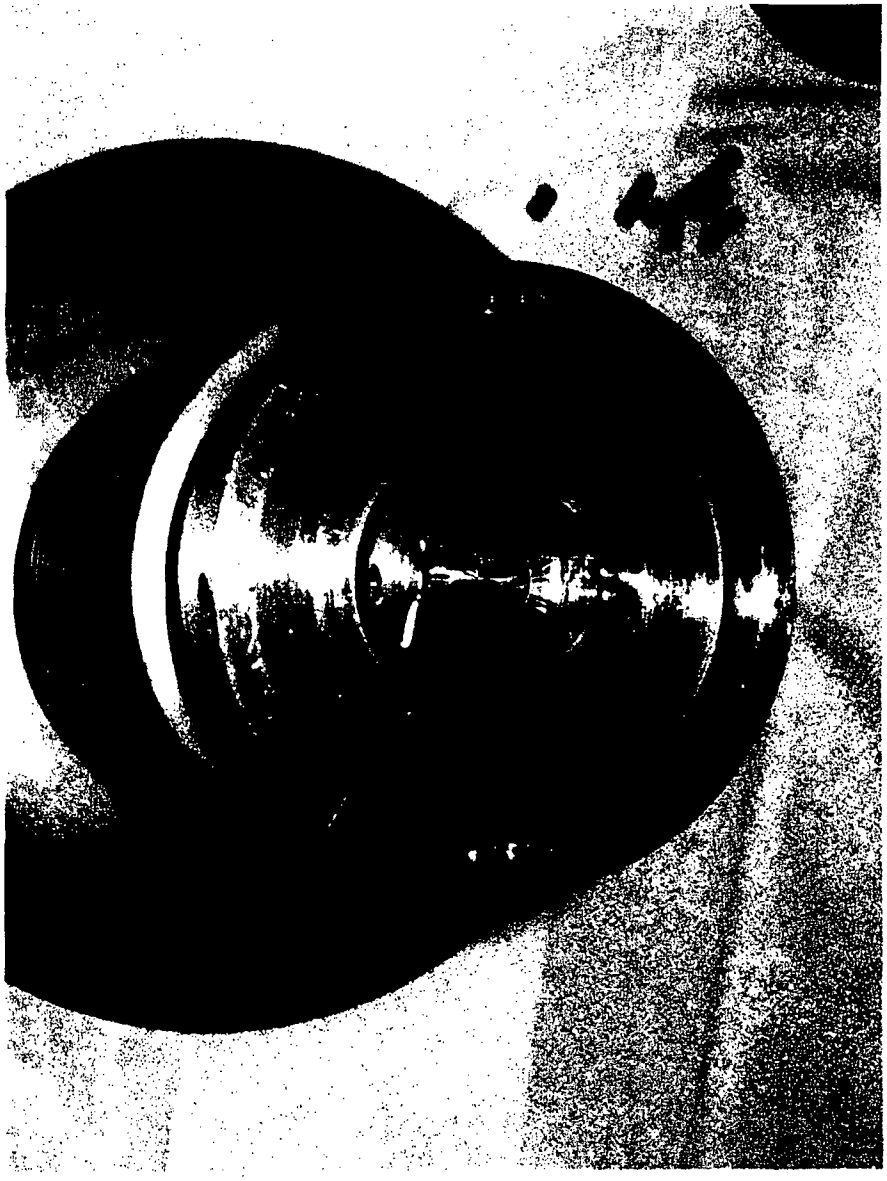
- The largest pin section to the right of the disc is the center section of the pin that passed through the disc button
- The smaller pieces are the sheared sections of the two remaining portions of the pin after the center section of the pin was sheared and the disc was free of the disc holder
- The larger pins on the left are the roll pins, which are used to install the blow down ring to the disc holder.



CARS (b)(7)c ATTACHMENT 3

This photo shows the as found condition of the disc holder.

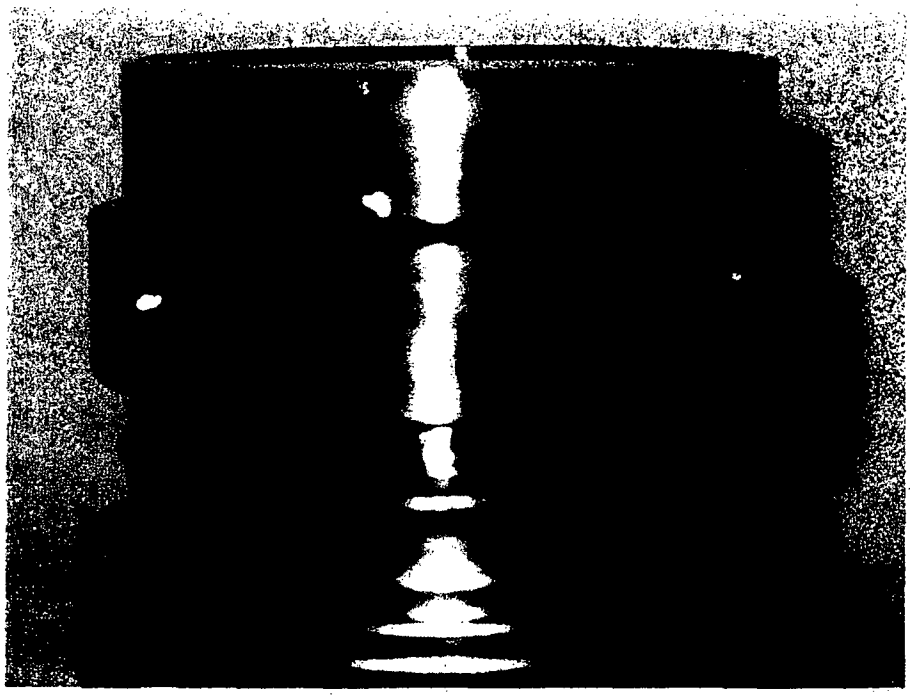
- The impact marks on the outside edge of the disc holder are due to pin impacts.
- The impact marks in the center are a result of disc button impacts and sheared sections of the pin behind the disc button when the holder returned back to the disc.
- Spring closing force is in excess of 2000 pounds

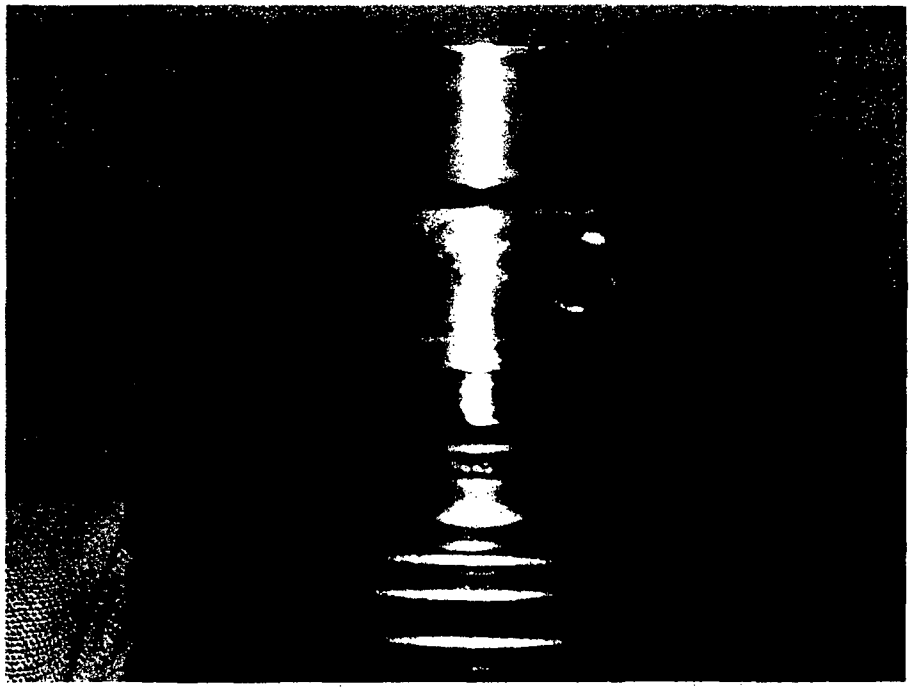


CARS (b)(7)c ATTACHMENT 3

These photos show the pin score marks on the side of the disc.

- The blow down ring has been removed from the disc holder.
- The radial clearance between the blow down ring and the disc is approximately .020"
- For the pin to be trapped between the disc and blow down ring, the pin must first be broken, the broken pieces must move outward from inside the disc holder, and a gap of approximately 1" must exist between the disc and the blow down ring.





CARS (b)(7)c ATTACHMENT 3

These photos show that a section of the damaged pin migrated past the blow down ring to the blow down guide.

- In the upper photo (The bonnet and valve internals have been removed) a sheared section of the pin is laying next to the inlet nozzle in the valve body.
- The lower photo shows that a section of the assembly pin traveled past the disc and the blow down ring to the guide ring and was impacted by the blow down ring. shows the section of the pin that was sheared by the ring between the ring and the guide. The lower photo shows the impact marks.