

**TRENDING CR FOR MAIN STEAM SAFETY VALVE OPENING AFTER REACTOR TRIP AT MILLSTONE UNIT 2.**

Significance: 2                      Process: TRACKING CORRECTIVE ACTIONS  
 Status: OPEN                      Discovered: Wednesday, March 17, 2004  
 CRED Req.: NO                      Initiated: Wednesday, March 17, 2004  
 Reportable: No                      Screened: Wednesday, March 17, 2004  
 Unit: 02                      Processed by CA: Thursday, March 18, 2004  
 CR Owner: MGRNUCFUEL MANAGER NUCLEAR FUEL

**Document Notes**  
 \*\*\* CONDITION DESCRIPTION \*\*\*  
**ISSUE DESCRIPTION:**  
 IT IS EXPECTED THAT THE STEAM DUMP SYSTEM WILL HAVE SUFFICIENT CAPACITY AND RESPONSE TIME SUCH THAT FOR A ROUTINE REACTOR TRIP, THE MAIN STEAM SAFETY VALVES WOULD NOT OPEN. CONTRARY TO THIS EXPECTATION, THE LAST THREE REACTOR TRIPS AT FULL POWER FOR MILLSTONE UNIT 2 HAVE RESULTED IN MOMENTARY OPENING OF AT LEAST ONE MAIN STEAM SAFETY VALVE. WHILE A NUMBER OF EVALUATIONS AND DESIGN CHANGES HAVE BEEN MADE TO REDUCE THE LIKELIHOOD OF SAFETY-VALVE-OPENING, THE RECENT TRIPS HAVE DEMONSTRATED THAT FOR SOME SET OF CONDITIONS, SAFETY VALVE OPENING WILL STILL OCCUR. AT THE REQUEST OF MANAGEMENT, THIS TRENDING CR IS BEING WRITTEN TO INITIATE AN INTEGRATED EVALUATION OF THIS ISSUE TO DETERMINE IF ANY ADDITIONAL CORRECTIVE ACTIONS ARE APPROPRIATE. THE INTEGRATED EVALUATION SHOULD INCLUDE A REVIEW OF DESIGN BASIS AND LICENSING BASIS REQUIREMENTS, OPERATING EXPERIENCE FROM OTHER CE NSSS PLANTS AND THE MP2 PAST HISTORY. THE EVALUATION WILL DETERMINE IF THE OPENING OF THE MAIN STEAM SAFETY VALVES SHOULD BE EXPECTED IN THE PREVIOUS EVENTS AND DETERMINE IF ANY ADDITIONAL CHANGES SHOULD BE INVESTIGATED.  
**IMMEDIATE ACTION(S) TAKEN:**  
 FOR EACH TRIP, THE OPERATORS TOOK THE APPROPRIATE ACTIONS TO ENSURE THE SAFETY OF THE PLANT. AN EVENT EVALUATION TEAM HAS BEEN FORMED TO EVALUATE THE PLANT RESPONSE AND DETERMINE IF ANY CORRECTIVE ACTIONS ARE NEEDED. NO OTHER IMMEDIATE ACTIONS ARE NEEDED.  
**RECOMMENDED ACTION(S):**  
 NUCLEAR FUELS ENGINEERING SHOULD TAKE THE LEAD FOR THE EVALUATION, WITH ASSISTANCE FROM SITE ENGINEERING AND DESIGN ENGINEERING.  
**SCREENING - DOES THE REPORTED ISSUE IMPACT:**  
 PERSONNEL SAFETY => NO  
 PLANT SAFETY => NO  
 SEE 'IMMEDIATE ACTIONS TAKEN' AND 'SCREENER COMMENTS'..  
 AVAILABILITY OF EQUIPMENT FOR PLANT OPERATIONS => NO  
 OPERABILITY => NO  
 REPORTABILITY => NO  
 REACTIVITY MANAGEMENT => NO  
 ENVIRONMENTAL CONTROLS, ETC => NO  
 PLANT OR EQUIPMENT RELIABILITY => YES  
**SCREENER COMMENTS:**  
 CONCUR WITH PRE SCREENING - CR FOR TRENDING ONLY  
 CRED REQUIRED => NO  
 COMPENSATORY ACTIONS => NO  
 ROOT CAUSE/EVENT REVIEW TEAM REQUIRED? NO  
 OPERATING EXPERIENCE => YES  
 SIGNIFICANCE DETERMINATION REQUIRED? NO  
 REWORK => NO  
 CONDITION REVIEW TEAM COMMENTS:  
 SDP. ?MRT?  
 INITIATING PROCESS ALERT GROUP: MGRNUCFUEL

**Document Notes**  
 INITIATOR: MICHAEL KAI, EXT. 0215  
 INITIATOR REQUESTS FOLLOWUP => NO

**Trend Issue 001**

Category	Attr	Description
WHATHAP	CFMT	CONFIGURATION MANAGEMENT DEGRADATION
SELFIDENT	YES	CR WAS SELF IDENTIFIED BY THE PROCESS / TEAM
SAFDEVPRECUR	RVLV	RELIEF VALVE LIFT
INPOPOC	CM.3	DESIGN CHANGE PROCESS
INITIALCODE	ICNF	CONFIGURATION CONTROL (PAPERWORK, DRAWING & DESIGN CONTROL)
HOWDISCOVR	SELF	SELF IDENTIFIED
CATEGORY	ENGR	ENGINEERING ISSUES

**Trend Issue 002**

Category	Attr	Description
RESPDEPT	ENUC	NUCLEAR ENGINEERING
EQCAUDES	EQBX	OTHER
EQCAUCAT	EQA	ENGINEERING/DESIGN
COMPTYPE	RLFV	VALVE RELIEF
CAUSECODES	1304	ORIGINAL PROBLEM NOT RESOLVED BY DESIGN CHANGE
CAUSALFACTOR	CF13	DESIGN CONFIGURATION & ANALYSIS

**Notes**  
 THE ISSUE OF MSSV OPENING FOLLOWING ROUTINE REACTOR TRIPS WAS APPARENTLY CLOSED BASED UPON THE RISKS AND RESOURCES NEEDED FOR TESTING. THE SAFETY SIGNIFICANCE WAS BASED UPON THE IMPACT ON SGTR RATHER THAN THE POTENTIAL IMPACT ON MSSV RELIABILITY AND CONSEQUENTLY AFW RELIABILITY.

**Document References**

Fac.	Type	Sub	Document No.	Sheet	Revision	Ref Type
MP	RPT	ACR	CR-04-02543			
			CR ISSUED FOR TRENDING THE LIFTING OF S/G SAFETY VALVES 2-MS-252 AND 2-MS-242 FOLLOWING U2 REACTOR TRIP ON 3/15/04			
MP	RPT	ACR	CR-04-02760			
			MANUAL REACTOR TRIPPING CAUSES SG SAFETY VALVES TO LIFT			

**CR System References**

Fac	Unit	Sys	Loc	Sys	Description
MP	NA	NA	NA		NO SYSTEM REFERENCE

**Action Request : 04001714**

Type : CAO ( CONDITION ADVERSE TO QUALITY (SIGNIF LVL'S 1 & 2) ).  
 Status : APPROVED  
 Status Date : Thursday, March 18, 2004  
 Due Date : Sunday, August 07, 2005  
 Subject : CR-04-02514 TRENDING CR FOR MAIN STEAM SAFETY VALVE OPENING  
 Owed To : MGRNUCFUEL ( MANAGER NUCLEAR FUEL )

**Description**  
 THIS A/R COORDINATES THE ACTIVITIES ASSOCIATED WITH THE SUBJECT CR.

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**Assignment: 04001714-01**

Type: CATI (CR INVESTIGATION ASSIGNMENT)  
 Due Date: Wednesday, April 07, 2004  
 Status: COMPLETE  
 Resp. Group: MGRNUCFUEL (MANAGER NUCLEAR FUEL)  
 Organization: 85H  
 Status Date: Tuesday, April 06, 2004  
 Subject: CR-04-02514 LEAD: TRENDING CR FOR MAIN STEAM SAFETY VALVE OP  
 Schedule Ref: NA  
 Mode: NA (ASSIGN'MT IS NOT RELATED TO A PLANT MODE CHNG BWR PWR)  
 Affected Unit: 02  
 Affected System: NA (NO SYSTEM REFERENCE)

Assignment Closure Notes

INVESTIGATION COMPLETED : 03/24/2004  
 INVESTGATOR : M. KAI  
 DEPARTMENT : MGRNUCFUEL

PROBLEM STATEMENT

THE STEAM DUMP SYSTEM AND NORMAL OPERATING CONDITIONS HAVE NOT BEEN OPTIMIZED TO PREVENT OPENING MSSVS ON ROUTINE REACTOR TRIPS AT MP2.

EVENT

TREND OBSERVED OF OPENING MSSVS FOLLOWING MP2 REACTOR TRIPS ON 3/7/03, 3/6/04 AND 3/15/04.

INVESTIGATION

THE MSSVS ON MP2 HAVE OPENED FOLLOWING THE LAST THREE REACTOR TRIPS AT MP2. DURING THE REACTOR TRIP ON 3/7/03, THE QUICK OPEN FEATURE OF THE STEAM DUMP SYSTEMS FAILED TO INITIATE. WITH THIS TYPE OF FAILURE, IT IS EXPECTED THAT THE MSSVS WOULD OPEN. FOR REACTOR TRIPS ON 3/6/04 AND 3/15/04, THE QUICK OPEN FEATURE APPARENTLY OPERATED AS REQUIRED. HOWEVER, SAFETY VALVES WERE ACTUATED ON THESE TRIPS AS WELL. AS A RESULT OF THIS TREND, MANAGEMENT HAS REQUESTED THE INITIATION OF CR TO INVESTIGATE THIS TREND AND DETERMINE IF ADDITIONAL CORRECTIVE ACTIONS ARE WARRANTED.

IN MP2 FSAR SECTION 7.4.5.1.1, IT IS STATES: "THE STEAM DUMP TO CONDENSER, STEAM DUMP TO ATMOSPHERE, AND BYPASS SYSTEMS COMBINED PROVIDE A MEANS OF DISSIPATING EXCESS NUCLEAR STEAM SUPPLY SYSTEM (NSSS) STORED ENERGY AND SENSIBLE HEAT FOLLOWING A SIMULTANEOUS REACTOR AND TURBINE TRIP FROM FULL-LOAD WITHOUT LIFTING THE SECONDARY SAFETY VALVES." THIS REQUIREMENT IS AN ORIGINAL DESIGN REQUIREMENT. THIS REQUIREMENT WILL ASSURE THAT THE MSSV RELIABILITY WILL BE MAINTAINED AS DESIGNED.

AS DESCRIBED IN A 1976 REPORT, PROBLEMS WITH THE STEAM DUMP SYSTEM WERE ENCOUNTERED DURING THE INITIAL HOT FUNCTIONAL TESTING. DURING PRE-CORE HOT FUNCTIONAL TESTING UNACCEPTABLE VALVE OSCILLATIONS WERE OBSERVED WHEN THE VALVES WERE USED FOR STEAM FLOW CONTROL. DURING POST CORE HOT FUNCTIONAL TESTING, IT WAS NOTED THAT THE VALVES WOULD NOT OPEN MORE THAN 60% UNDER LOAD. HYDRAULIC DAMPENERS WERE INSTALLED TO SLOW DOWN THE OSCILLATIONS, BUT THE VALVES STILL ONLY OPENED TO 80%. A MODIFICATION TO THE PLUGS WAS MADE TO TRY TO SOLVE THE CAPACITY PROBLEM BUT WAS UNSUCCESSFUL. INSTALLATION OF THE HYDRAULIC DAMPENERS APPARENTLY ALSO RESULTED IN EXTENDING THE QUICK OPENING TIME BEYOND 3 SECONDS CAUSING THE SAFETIES TO LIFT DURING REACTOR TRIPS. THIS WAS CONFIRMED BY TESTING. PROJECTION ASSIGNMENT 76-618 WAS INITIATED TO CORRECT THE EXTENDED DELAY TIME. COPEX-VULCAN MODIFIED THE VALVES SO THAT THE QUICK OPENING WAS RESTORED TO LESS THAN 3 SECONDS. THESE MODIFICATIONS INCLUDED INCREASING THE SIZE OF THE SOLENOID VALVE AND SUPPLY LINE TO THE AIR OPERATORS AND THE USE OF LESS STIFF SPRINGS. COPEX-VULCAN ALSO ADDED MORE RESTRICTIVE VALVE TRIMS TO OBTAIN BETTER FLOW CONTROL CAPABILITY TO THE CONDENSER. THE CAPACITY ISSUE WAS ADDRESSED BY ADDING THE QUICK OPEN FEATURE TO THE ATMOSPHERIC DUMP VALVES (PA 79-2560).

Assignment Attributes

Resp. Individual: BE084CK; MICHAEL KAI

Assignment Text

CR-04-02514, SIGNIFICANCE LEVEL: 2  
 INITIATED BY: MICHAEL KAI, PHONE: 0215  
 INITIATOR FEEDBACK REQUESTED: NO

USE OF THE ELECTRONIC CR INVESTIGATION DATABASE IS REQUIRED TO COMPLETE THIS ASSIGNMENT.

- PROVIDE APPARENT CAUSE DETERMINATION AND PROVIDE A CORRECTIVE ACTION PLAN. --
- INVESTIGATOR MUST BE TRAINED PER REQUIREMENTS OF DMAP 1604. --
- CRT REVIEW DETERMINED THIS EVENT/ISSUE MAY NEED TO BE COMMUNICATED VIA OE. SEE RELATED OE ASSIGNMENT.

CONDITION REVIEW TEAM COMMENTS:  
 SDP. ?MRT?

ISSUE DETAIL:

IT IS EXPECTED THAT THE STEAM DUMP SYSTEM WILL HAVE SUFFICIENT CAPACITY AND RESPONSE TIME SUCH THAT FOR A ROUTINE REACTOR TRIP, THE MAIN STEAM SAFETY VALVES WOULD NOT OPEN. CONTRARY TO THIS EXPECTATION, THE LAST THREE REACTOR TRIPS AT FULL POWER FOR MILLSTONE UNIT 2 HAVE RESULTED IN MOMENTARY OPENING OF AT LEAST ONE MAIN STEAM SAFETY VALVE. WHILE A NUMBER OF EVALUATIONS AND DESIGN CHANGES HAVE BEEN MADE TO REDUCE THE LIKELIHOOD OF SAFETY VALVE OPENING, THE RECENT TRIPS HAVE DEMONSTRATED THAT FOR SOME SET OF CONDITIONS, SAFETY VALVE OPENING WILL STILL OCCUR. AT THE REQUEST OF MANAGEMENT, THIS TRENDING CR IS BEING WRITTEN TO INITIATE AN INTEGRATED EVALUATION OF THIS ISSUE TO DETERMINE IF ANY ADDITIONAL CORRECTIVE ACTIONS ARE APPROPRIATE. THE INTEGRATED EVALUATION SHOULD INCLUDE A REVIEW OF DESIGN BASIS AND LICENSING BASIS REQUIREMENTS, OPERATING EXPERIENCE FROM OTHER CE NSSS PLANTS AND THE MP2 PAST HISTORY. THE EVALUATION WILL DETERMINE IF THE OPENING OF THE MAIN STEAM SAFETY VALVES SHOULD BE EXPECTED IN THE PREVIOUS EVENTS AND DETERMINE IF ANY ADDITIONAL CHANGES SHOULD BE INVESTIGATED.

Assignment System References

Fac	Unit	Sys	Loc Sys	Descriptlon
MP	NA	NA	NA	NO SYSTEM REFERENCE

Assignment Closure Notes

CONDITION REPORT SUMMARY, 04/06/2004 6:30:57 AM

CR NUMBER : CR-04-02514  
 SIGNIFICANCE LEVEL : 2

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Assignment Closure Notes

THE WORK DONE IN 1976 APPEARS TO HAVE RESOLVED THE QUICK OPENING RESPONSE TIME, BUT NOT THE CAPACITY ISSUE. HOWEVER, APPARENTLY THIS WAS SUFFICIENT TO SOLVE THE PROBLEM OF SAFETY VALVES OPENING FOLLOWING REACTOR TRIP.

WHEN MP2 IMPLEMENTED STRETCH POWER, THE ISSUE OF OPENING MSSVS POST TRIP RECURRED. IN JUNE 1982, CE SUBMITTED A PROPOSAL TO PERFORM A STUDY TO DETERMINE THE OPTIMUM CONTROL SYSTEM CHANGES THAT WOULD ELIMINATE THE ACTUATION OF THE MSSVS FOLLOWING ROUTINE REACTOR TRIPS. CE HAD PERFORMED A SIMILAR STUDY FOR THE IMPLEMENTATION OF STRETCH POWER AT ST. LUCIE 1. A LOWER OPERATING SG PRESSURE WAS SELECTED THAT ELIMINATED THE POTENTIAL FOR MSSV ACTUATION FOLLOWING ROUTINE REACTOR TRIPS.

AS A RESULT OF THE PROPOSAL, PROJECT ASSIGNMENT 83-039 WAS INITIATED. THE CE PROPOSAL CONSISTED OF THREE PHASES. THE FIRST PHASE INVOLVED DEVELOPMENT OF A COMPUTER CODE MODEL TO IDENTIFY ANY DEFICIENCIES OR CHANGES NEEDED IN THE CONTROL SYSTEMS. IF CHANGES IN THE SETPOINTS OF THE CONTROL SYSTEMS WERE NOT SUFFICIENT, A SECOND STUDY WOULD BE PERFORMED TO DETERMINE THE OPTIMUM OPERATING CONDITIONS THAT WOULD PREVENT THE SAFETY VALVES FROM ACTUATING FOLLOWING REACTOR TRIP. THIS STUDY IS THE ONE THAT RESULTED IN THE SELECTION OF THE LOWER OPERATING SG PRESSURE FOR ST. LUCIE. THE THIRD PHASE WOULD INVESTIGATE MODIFICATIONS TO THE CONTROL SYSTEM TO ALLOW OPERATION AT A HIGHER STEAM GENERATOR PRESSURE.

INSTEAD OF CONTRACTING WITH CE, IT WAS DECIDED TO DO PHASE 1 IN-HOUSE. THE SAFETY ANALYSIS SECTION USED RETRAN TO MODEL THE CURRENT SITUATION AND EVALUATE POTENTIAL CHANGES. THE RETRAN ANALYSIS STARTING POINT ASSUMED THAT TWO SAFETY VALVES WERE LIFTING FOLLOWING THE REACTOR TRIP. WITH THIS ASSUMPTION, VARIOUS OPTIONS FOR CONTROL SYSTEM CHANGES WERE EVALUATED. BASED ON THE STUDY, IT WAS CONCLUDED THAT A SUBSTANTIAL CHANGE IN SECONDARY SIDE RELIEF RATE WAS NEEDED. INCREASING THE ATMOSPHERIC DUMP VALVE CAPACITY WAS NOT A PRACTICAL SOLUTION. AN ALTERNATIVE SOLUTION PROPOSED WAS TO DELAY TURBINE TRIP BY 3 OR 4 SECONDS. APPARENTLY, THE OPTION OF REDUCING SG PRESSURE WAS NOT EVALUATED.

IN 1984, IT WAS DECIDED THAT CONFIRMATION OF THE SAFETY VALVE LIFT ASSUMPTION IN THE RETRAN STUDY WAS NEEDED BEFORE PROCEEDING WITH ANY DESIGN CHANGES. IT WAS DECIDED THAT A ONE YEAR PERIOD OF DATA COLLECTION WOULD BE ESTABLISHED. IF AT THE END OF THAT ONE YEAR PERIOD, THE DATA COLLECTED WAS NOT ADEQUATE TO CONFIRM THE MODELING, THE PROJECT WOULD BE CLOSED. THE TESTING PLAN WAS REVIEWED AND APPROVED BY PORC.

THE PROJECT WAS CLOSED IN 1987 BASED UPON THE FOLLOWING: THE RISK AND COSTS ASSOCIATED WITH TESTING DID NOT JUSTIFY ADDITIONAL TESTING AND THE LIFTING OF SAFETY VALVES FOLLOWING A SCTR HAD BEEN EVALUATED TO

Assignment Closure Notes

NOT RESULT IN A MAJOR REDUCTION IN THE DEGREE OF PROTECTION PROVIDED TO THE PUBLIC HEALTH AND SAFETY.

AS A RESULT, IT APPEARS THAT THE RISK ASSOCIATED WITH ONE OR TWO SAFETY VALVES OPENING UPON REACTOR TRIP WAS ACCEPTED AND THE POTENTIAL DEGRADATION IN THE DUMP CAPACITY WAS ACCEPTED AS-IS. SINCE THAT TIME, THERE HAVE BEEN RECURRING ISSUES RAISED ABOUT THE PERFORMANCE OF THE STEAM DUMP VALVES AND THE DESIGN BASIS.

THE ISSUE OF THE DISCREPANCY OF THE DUMP CAPACITY WAS RAISED AS AN ISSUE DURING RECOVERY AND DOCUMENTED IN DEDP DISCREPANCY MP2-MS-08. THE PROPOSED RESOLUTION WAS TO REVISE THE FSAR TO REFLECT A LOWER DESIGN CAPACITY.

THERE HAVE BEEN A NUMBER OF CR'S ASSOCIATED WITH THE TURBINE DUMP SYSTEM AND THE QUICK OPEN FEATURE. IN 2002, MMOD M2-99057 A SECOND SOLENOID VALVE IN PARALLEL WITH THE EXISTING SOLENOID VALVE WAS ADDED TO PROVIDE SUFFICIENT AIR SUPPLY TO OPEN THE VALVES IN LESS THAN THREE SECONDS. CR-03-11377 AND CR 03-11482 DOCUMENT SURVEILLANCE FAILURES FOR THE QUICK OPEN RESPONSE TIME. AS A RESULT OF SOER 02-4 RECOMMENDATION 3 ISSUE #57, A REA WAS INITIATED FOR EVALUATION OF THE REPLACEMENT OF THE STEAM DUMP VALVES. CR-03-11804 WAS INITIATED TO RE-OPEN THE ISSUE OF THE POTENTIALLY DEGRADED CAPACITY OF THE STEAM DUMP SYSTEM.

FOLLOWING THE 3/7/03 TRIP, A REVIEW OF THE REACTOR TRIPS DATING BACK TO 1999 WAS PERFORMED. OF THE FOUR TRIPS FROM 100% POWER, THE MSSVS WERE CONFIRMED TO HAVE OPENED FOR TWO OF THE TRIPS (5/25/99 AND 1/27/00). FOR THE 2/11/00 TRIP DUE TO DROPPED CONTROL RODS, THE MSSVS DID NOT OPEN. NOTE THAT IN A DROPPED ROD, THE REACTOR POWER WILL DECREASE SINCE MP2 RUNS WITH THE CONTROL RODS IN MANUAL CONTROL. FOR THE 4/19/02 TRIP, THERE IS NO SEQUENCE OF EVENTS DATA AVAILABLE FROM THE PROCESS COMPUTER. THUS, IT WAS NOT POSSIBLE TO DETERMINE WHETHER THE SAFETY VALVES OPENED FOR THIS TRIP. FOR ALL OF THE TRIPS THAT OCCURRED WHEN POWER WAS LESS THAN 100%, NONE OF THE MSSVS OPENED. THIS INCLUDES TRIPS AT 97% AND 98% POWER.

ON MARCH 20, 2004 CALVERT CLIFFS 1 HAD A REACTOR TRIP THAT WAS DUE TO VERY SIMILAR FEEDWATER PROBLEMS AS THE 3/7/04 AND 3/14/04 TRIPS AT MP2. MIKE GAHAN OF CALVERT CLIFFS CONFIRMED THAT THE MSSVS DID NOT OPEN DURING THIS REACTOR TRIP. HE CONFIRMED THAT FOR CALVERT CLIFFS, THE MSSVS DO NOT ROUTINELY OPEN FOLLOWING REACTOR TRIPS. HE STATED THAT THE NORMAL OPERATING CONDITIONS FOR CALVERT CLIFFS IS 2700 MWT, T-COLD 549 DEGREES F AND SG PRESSURE OF 850 PSIG. THE SG PRESSURE IS APPROXIMATELY 25 TO 30 PSI LOWER THAN THE NORMAL OPERATING PRESSURE FOR MP2. THIS TENDS TO SUPPORT THE ORIGINAL CE PROPOSAL FOR REDUCING SG PRESSURE.

A QUALITATIVE ASSESSMENT OF OPENING SAFETY VALVES

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Assignment Closure Notes	Assignment Closure Notes
<p>FOLLOWING ROUTINE REACTOR TRIPS WAS REQUESTED FROM THE PRA SECTION. STEAM LINE BREAKS ARE A CONTRIBUTOR TO CORE MELT FREQUENCY BECAUSE OF THE IMPACT ON THE RELIABILITY/AVAILABILITY OF THE TURBINE DRIVEN APW PUMP. IF THE MSSVS ARE CHALLENGED DURING ROUTINE REACTOR TRIPS, THERE IS SOME PROBABILITY THAT THEY WOULD FAIL OPEN OR LEAK SIGNIFICANTLY. CURRENTLY THIS IS NOT ASSUMED IN THE PRA MODEL. IF THIS SITUATION WERE MODELED, IT IS JUDGED THAT THERE WILL BE AN INCREASE IN CDF.</p> <p>-</p> <p>-</p> <p>BASED UPON THIS INVESTIGATION , IT IS CONCLUDED THAT IT IS LIKELY THAT THE STEAM DUMP SYSTEM IS OPERATING AT A LOWER CAPACITY THAN ORIGINALLY DESIGNED. IN ADDITION, THE OPTIMUM SOLUTION MAY BE TO REDUCE SG PRESSURE AS WAS APPARENTLY IMPLEMENTED AT ST. LUCIE WHEN THEY IMPLEMENTED STRETCH POWER. A CONTROL SYSTEM STUDY SIMILAR TO WHAT WAS ORIGINALLY PROPOSED BY CE SHOULD BE PERFORMED TO DETERMINE THE OPTIMUM COMBINATION OF CONTROL SYSTEM AND/OR OPERATING CONDITION CHANGES THAT WOULD ELIMINATE THE OPENING OF THE MSSVS FOR ROUTINE</p>	<p>AR-5 CONTACT COPEL VULCAN FOR EXTENT OF CONDITION</p> <p>-</p> <p>-</p> <p>LIST OF AVAILABLE INFORMATION:</p> <p>-</p> <p>1. MEMO FROM M. HESS TO E. FARRELL 'TURBINE BYPASS VALVES', DATED AUGUST 17, 1976</p> <p>-</p> <p>2. CE PROPOSAL NO. N20602-1 'A PROPOSAL TO NORTHEAST UTILITIES SERVICE COMPANY FOR PREVENTION OF SECONDARY SAFETY VALVE ACTUATION FOR MILLSTONE UNIT 2,' DATED JUNE 14, 1982</p> <p>-</p> <p>3. INTEROFFICE MEMO FROM J. CATAUDELLA TO R. PLACE, 'PREVENTION OF SECONDARY SAFETY VALVE ACTUATION', DATED 11/17/82</p> <p>-</p> <p>4. MEMO FROM A. MELE TO J. BLAISDELL 'MILLSTONE UNIT NO. 2 PREVENTION OF SECONDARY SAFETY RELIEF VALVE ACTUATION (PA 83-039)', GMB-83-505, DATED OCTOBER 6, 1983</p>
<p>REACTOR TRIPS.</p> <p>-</p> <p>-</p> <p>INDIVIDUALS CONSULTED IN INVESTIGATION: J. PARILLO, R. BORCHERT, D. BAJUMPA, R. STERNER, A. CHYRA, K. DESLANDES, L. WAGNECZ, J. CRAFTY, M. GAHAN (CALVERT CLIFFS).</p> <p>-</p> <p>-</p> <p>PREVIOUS CRS/ARS</p> <p>-</p> <p>-</p> <p>CR-03-11377 DURING PERFORMANCE OF IC 2425E 2-MS-209 FAILED THE QUICK OPEN STROKE TIME</p> <p>-</p> <p>AR-1 MAINTENANCE RULE FAILURE</p> <p>-</p> <p>-</p> <p>CR-03-11482 DURING PERFORMANCE OF IC 2426E 2-MS-209 FAILED THE QUICK OPEN STROKE TIME</p> <p>-</p> <p>AR-1 MAINTENANCE RULE FAILURE</p> <p>-</p> <p>AR-2 CRED</p> <p>-</p> <p>-</p> <p>CR-03-08002 REA RECOMMENDING REPLACEMENT OF THE MP2 CONDENSER STEAM DUMP VALVES</p> <p>-</p> <p>AR-2 REA VALUE MODEL</p> <p>-</p> <p>-</p> <p>CR-03-11804 CONDENSER DUMP AND TURBINE BYPASS ACTUAL CAPACITY DOES NOT MEET ORIGINAL SPECIFICATION, FSAR OR SFRM</p> <p>-</p> <p>AR-2 REVIEW REA</p> <p>-</p> <p>AR-3 FSAR REVIEW</p> <p>-</p> <p>AR-4 EVALUATE SIMULATOR MODEL</p>	<p>5. MEMO FROM T. HONAN TO A. MELE, 'MILLSTONE UNIT 2 - PREVENTION OF SECONDARY SAFETY VALVE ACTUATION FOLLOWING NORMAL REACTOR TRIP', NE-83-SAB-282, DATED OCTOBER 25, 1983</p> <p>-</p> <p>6. MEMO FROM A. MELE TO R. PLACE, 'MILLSTONE UNIT NO. 2 PREVENTION OF SECONDARY SAFETY VALVE ACTUATION (PA 83-039)', GMB-84-39, DATED JANUARY 19, 1984</p> <p>-</p> <p>7. MEMO FROM T. V. SIMMONDS TO DISTRIBUTION, 'MAIN STEAM SAFETY/RELIEF (MSSR) VALVE TESTING (PROJECT ASSIGNMENT NO. 83-039)', GMB-86-421 DATED JUNE 24, 1986</p> <p>-</p> <p>8. MEMO FROM T. V. SIMMONDS, TO DISTRIBUTION 'ACTUATION OF STEAM GENERATOR SAFETY/RELIEF VALVES (PROJECT ASSIGNMENT NO. 83-039)', GMB-86-409, DATED JUNE 18, 1986</p> <p>-</p> <p>9. MEMO FROM T. V. SIMMONDS TO G. KOMOSKY, 'MILLSTONE UNIT NO. 2 MAIN STEAM SAFETY/RELIEF VALVE ACTUATION PROJECT ASSIGNMENT NO. 83-039 CLOSE OUT', GMB-87-504, DATED AUGUST 18, 1987</p> <p>-</p> <p>10. MILLSTONE UNIT 2 NUCLEAR POWER PLANT DESIGN BASIS DOCUMENTATION PACKAGE MAIN STEAM SYSTEM, REVISION 0, DATED FEBRUARY 1, 1994, PAGES 3.2-86 THROUGH 3.2-91</p> <p>-</p> <p>11. MOD M2-99057 'MODIFICATION OF MAIN CONDENSER STEAM DUMP VALVES, 2-MS-206, 207, 208 AND 209'</p> <p>-</p> <p>-</p> <p>CR INVESTIGATOR: M. KAI (COMPLETED DNA-1604 CAUSE EVALUATION PROGRAM CBT 10/29/03)</p> <p>-</p> <p>CR CHECKLIST:</p> <p>-</p> <p>NOTE, SOME OF THE CHECKLIST ITEMS ARE NOT APPLICABLE TO THIS TRENDING TYPE CR. THESE INCLUDE: ?7?, ?11?, ?EQ2?, ?EQ3?, ?EQ4?, ?EQ6?, ?EQ7?, ?HP1?, ?HP2?</p> <p>-</p> <p>EXTENT OF CONDITION</p> <p>THIS ISSUE APPEARS TO BE SPECIFIC TO THE MP2 AND CE NSSS DESIGN. NEITHER MP3, NORTH ANNA AND SURRY HAVE EXPERIENCED PROBLEMS WITH CHALLENGES TO MSSVS FOLLOWING</p>

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**Assignment Closure Notes**  
 ROUTINE REACTOR TRIPS. IN ADDITION, THE PROBLEM WAS APPARENTLY SOLVED FOR ST. LUCIE AND CALVERT CLIFFS. IT APPEARS THE MP2 IS AN OUTLIER.  
 -  
 INITIATOR FEEDBACK  
 INITIATOR HAS PERFORMED THE INVESTIGATION.  
 -  
 CAUSE #1 - ORIGINAL PROBLEM NOT RESOLVED BY DESIGN CHANGE  
 THE ISSUE OF MSSV OPENING FOLLOWING ROUTINE REACTOR TRIPS WAS APPARENTLY CLOSED BASED UPON THE RISKS AND RESOURCES NEEDED FOR TESTING. THE SAFETY SIGNIFICANCE WAS BASED UPON THE IMPACT ON SCTR RATHER THAN THE POTENTIAL IMPACT ON MSSV RELIABILITY AND CONSEQUENTLY AFW RELIABILITY.  
 -  
 CORRECTIVE ACTIONS FOR CAUSE # 1  
 1. GENERATED ACTION TO: PERFORM A CONTROL SYSTEM STUDY THAT WILL DETERMINE THE OPTIMUM COMBINATION OF STEAM DUMP SYSTEM CHANGES AND CHANGES IN NORMAL OPERATING CONDITIONS THAT WILL ELIMINATE THE POTENTIAL FOR OPENING MSSVS FOLLOWING REACTOR TRIP. THE STUDY SHOULD INCLUDE A SURVEY OF PLANTS SIMILAR TO THE DESIGN OF MP2. THIS ASSIGNMENT HAS BEEN APPROVED BY CLINT GLADDING. ACTION OWNER: MGRDESENG ; DUE DATE: 06/07/2004 ; PRIORITY: PMED ; SCHEDULE REFERENCE: NA ; MODE: NA ; UNIT: 02 ; AND SYSTEM: NA / NA; ASSIGNMENT TYPE: CACA  
 2. GENERATED ACTION TO: INITIATE REA TO IMPLEMENT RECOMMENDED CONTROL SYSTEM AND/OR OPERATING CONDITION CHANGES. THIS ASSIGNMENT HAS BEEN APPROVED BY CLINT GLADDING. ACTION OWNER: MGRDESENG ; DUE DATE: 08/07/2004 ; PRIORITY: PMED ; SCHEDULE REFERENCE: NA ; MODE: NA ; UNIT: 02 ; AND SYSTEM: NA / NA; ASSIGNMENT TYPE: CACA  
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Fac	Unit	Sys	Loc Sys	Description
MP	NA	NA	NA	NO SYSTEM REFERENCE

**Assignment Closure Notes**  
 CR investigation was presented MRT on 3/14/04. MRT approved the investigation and corrective actions with comments. The corrective action A/Rs have been revised to reflect MRT comments. Thus, this assignment is complete.  
 M. Kai Ext. 0215

**Assignment: 04001714-03**

Type: CAOE ( OPERATING EXPERIENCE REVIEW ASSIGNMENT )  
 Due Date: Friday, April 16, 2004  
 Status: COMPLETE  
 Resp. Group: MGRNUCFUEL ( MANAGER NUCLEAR FUEL )  
 Organization: 85H  
 Status Date: Monday, April 12, 2004  
 Subject: CR-04-02514 OE ASSIGNMENT:TRENDING CR FOR MAIN STEAM SAFETY  
 Schedule Ref: NA  
 Mode: NA ( ASSIGN'NT IS NOT RELATED TO A PLANT MODE CHNG BWR PWR )  
 Affected Unit: 02  
 Affected System: NA ( NO SYSTEM REFERENCE )

**Assignment Attributes**  
 Resp. Individual: BE084CK; MICHAEL KAI

**Assignment Text**  
 CR-04-02514, SIGNIFICANCE LEVEL: 2  
 INITIATED BY: MICHAEL KAI, PHONE: 0215  
 CRT REVIEW DETERMINED THIS EVENT/ISSUE MAY NEED TO BE COMMUNICATED VIA OE. ASSESS FOR THE NEED TO SHARE THIS EVENT WITH THE INDUSTRY PER INPO GUIDANCE FOUND ON THE NUCLEAR NETWORK SUBMITTAL DOCUMENT (LOCATED IN MILLSTONE EXPLORER/DOCUMENT EXPLORER/FORMS/MM02/SHARE OE. IF THE EVENT SHOULD BE SHARED, PREPARE NUCLEAR NETWORK DOCUMENT AND PROVIDE TO OE GROUP. IF EVENT IS NOT TO BE SHARED, PROVIDE JUSTIFICATION FOR NOT SHARING IN CLOSURE NOTES. ASSIGNMENTS NEED TO BE COMPLETED WITHIN A THIRTY DAY TIME FRAME TO SUPPORT INPO PERFORMANCE GOALS. OE QUESTIONS SHOULD BE REFERRED TO B. BASTIGLIA X6063.

CONDITION REVIEW TEAM COMMENTS:  
 SDP. ?MRT?

ISSUE DETAIL:  
 IT IS EXPECTED THAT THE STEAM DUMP SYSTEM WILL HAVE SUFFICIENT CAPACITY AND RESPONSE TIME SUCH THAT FOR A ROUTINE REACTOR TRIP, THE MAIN STEAM SAFETY VALVES WOULD NOT OPEN. CONTRARY TO THIS EXPECTATION, THE LAST THREE REACTOR TRIPS AT FULL POWER FOR MILLSTONE UNIT 2 HAVE RESULTED IN MOMENTARY OPENING OF AT LEAST ONE MAIN STEAM SAFETY VALVE. WHILE A NUMBER OF EVALUATIONS AND DESIGN CHANGES HAVE BEEN MADE TO REDUCE THE LIKELIHOOD OF SAFETY VALVE OPENING, THE RECENT TRIPS HAVE DEMONSTRATED THAT FOR SOME SET OF CONDITIONS, SAFETY VALVE OPENING WILL STILL OCCUR. AT THE REQUEST OF MANAGEMENT, THIS TRENDING CR IS BEING WRITTEN TO INITIATE AN INTEGRATED EVALUATION OF THIS ISSUE TO DETERMINE IF ANY ADDITIONAL CORRECTIVE ACTIONS ARE APPROPRIATE. THE INTEGRATED EVALUATION SHOULD INCLUDE A REVIEW OF DESIGN BASIS AND LICENSING BASIS REQUIREMENTS, OPERATING EXPERIENCE FROM OTHER CE NSSS PLANTS AND THE MP2 PAST HISTORY. THE EVALUATION WILL DETERMINE IF THE OPENING OF THE MAIN STEAM SAFETY VALVES SHOULD BE EXPECTED IN THE PREVIOUS EVENTS AND

**Assignment: 04001714-02**

Type: CATT ( CATEGORY T - TRACKING COMMITMENT (NOT C, M, P, S OR X) )  
 Due Date: Wednesday, April 28, 2004  
 Status: COMPLETE  
 Resp. Group: MGRNUCFUEL ( MANAGER NUCLEAR FUEL )  
 Organization: 85H  
 Status Date: Wednesday, April 14, 2004  
 Subject: CR-04-02514 SITE MRT PRESENTATION:TRENDING CR FOR MAIN STEAM  
 Schedule Ref: NA  
 Mode: NA ( ASSIGN'NT IS NOT RELATED TO A PLANT MODE CHNG BWR PWR )  
 Affected Unit: 02  
 Affected System: NA ( NO SYSTEM REFERENCE )

**Assignment Attributes**  
 Resp. Individual: BE084CK; MICHAEL KAI

**Assignment Text**  
 CR-04-02514, SIGNIFICANCE LEVEL: 2  
 INITIATED BY: MICHAEL KAI, PHONE: 0215  
 -PRESENT RESULTS OF INVESTIGATION AND CORRECTIVE ACTION PLAN TO SITE MRT. --  
 -CONTACT MEDORA DALLY, X2454, TO SCHEDULE.  
 CONDITION REVIEW TEAM COMMENTS:  
 SDP. ?MRT?

**Assignment System References**

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# Millstone Condition Report CR-04-02514

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**DETERMINE IF ANY ADDITIONAL CHANGES SHOULD BE INVESTIGATED.**

**Assignment System References**

Fac	Unit	Sys	Loc Sys	Description
MP	NA	NA	NA	NO SYSTEM REFERENCE

**Assignment Closure Notes**

It has been determined that this issue should be shared with the industry. The INPO Nuclear Network Template has been filled out and sent to Mary Lou Calderone of the OE group. Thus, this assignment is complete. M. Kai Ext. 0215

**Assignment: 04001714-04**

Type: CACA (CR CORRECTIVE ACTION ASSIGNMENT)  
 Due Date: Friday, December 31, 2004  
 Status: ACCEPTED  
 Resp. Group: MGRNUCFUEL (MANAGER NUCLEAR FUEL)  
 Organization: 85H  
 Status Date: Friday, August 13, 2004  
 Subject: CR-04-02514: CORRECTIVE ACTION 1 FOR CAUSE 1  
 Schedule Ref: NA  
 Mode: NA (ASSIGN'MT IS NOT RELATED TO A PLANT MODE CHNG BWR PWR)  
 Affected Unit: 02  
 Affected System: NA (NO SYSTEM REFERENCE)

**Assignment Attributes**

Resp. Individual: MPO8DAS; JOHN S. SPAARGAREN

**Assignment Text**

PERFORM A CONTROL SYSTEM STUDY THAT WILL DETERMINE THE OPTIMUM COMBINATION OF STEAM DUMP SYSTEM CHANGES AND CHANGES IN NORMAL OPERATING CONDITIONS THAT WILL ELIMINATE THE POTENTIAL FOR OPENING MSSVS FOLLOWING REACTOR TRIP. THE STUDY SHOULD INCLUDE A SURVEY OF PLANTS SIMILAR TO THE DESIGN OF MP2. THIS ASSIGNMENT HAS BEEN APPROVED BY CLINT GLADDING. PRIORITY CODE IS FOR THIS ASSIGNMENT IS PMED.

4/14/04  
 Based upon input from MRT, the following changes are made to this assignment:  
 1. Input from Operations and Training, as necessary, to reflect MP2 specific experience should be included in the study.  
 2. If, as a result of the study, no additional corrective action is necessary, an FSAR change shall be initiated to reflect the change in performance of the steam dump system.  
 3. The completion of this task is extended to 8/16/04.  
 M. Kai Ext. 0215

8/13/04  
 The decision has been made to perform the control study in-house by Safety Analysis. Therefore the assignment is transferred to MGRNUCFUEL -85H. Also, the study will not be completed until the end of the year. Therefore the due date is being extended to 12/31/04. As this is a PMED assignment Skip Jordan has been informed of this change and has concurred. M. L. Van Haltern x0211

**Assignment System References**

Fac	Unit	Sys	Loc Sys	Description
MP	02	NA	NA	NO SYSTEM REFERENCE

**Assignment: 04001714-05**

Type: CACA (CR CORRECTIVE ACTION ASSIGNMENT)  
 Due Date: Thursday, January 20, 2005  
 Status: ACCEPTED  
 Resp. Group: MGRDESENG (MANAGER DESIGN ENGINEERING)  
 Organization: 82B  
 Status Date: Tuesday, April 06, 2004  
 Subject: CR-04-02514: CORRECTIVE ACTION 2 FOR CAUSE 1  
 Schedule Ref: NA  
 Mode: NA (ASSIGN'MT IS NOT RELATED TO A PLANT MODE CHNG BWR PWR)  
 Affected Unit: 02  
 Affected System: NA (NO SYSTEM REFERENCE)

**Assignment Attributes**

Resp. Individual: CY925AD; MICHAEL F. MARINO

**Assignment Text**

INITIATE REA TO IMPLEMENT RECOMMENDED CONTROL SYSTEM AND/OR OPERATING CONDITION CHANGES. THIS ASSIGNMENT HAS BEEN APPROVED BY CLINT GLADDING. PRIORITY CODE IS FOR THIS ASSIGNMENT IS PMED.

4/14/04  
 Based upon input from MRT, this assignment has been extended to 9/17/04.  
 M. Kai Ext. 0215  
 This assignment was incorrectly sequenced. It must come after assignment 04, which is due 12/31/04. Please extend to 1/20/05: M Marino 0108 9/17/04  
 Note: extension approved by Al Elms for Skip Jordan.  
 ---  
 9/17/04, Due date has been extended to 1/20/05 per above approval. D. Connors

**Assignment System References**

Fac	Unit	Sys	Loc Sys	Description
MP	02	NA	NA	NO SYSTEM REFERENCE