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TEXAS UTILITIES GENERATING COMPANY

SKYWAY TOWER • 400 NORTH OLIVE STREET, L.B. 81 • DALLAS, TEXAS 75201

July 10, 1985

WILLIAM G. COUNSIL
EXECUTIVE VICE PRESIDENT

Director of Nuclear Reactor Regulation
Attention: Mr. Vincent S. Noonan, Director
Comanche Peak Project
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUBJECT: COMANCHE PEAK STEAM ELECTRIC STATION
DOCKET NOS. 50-445 AND 50-446
REPLACEMENT OF MSIV BYPASS VALVE ACTUATORS

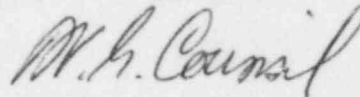
Dear Mr. Noonan:

Texas Utilities letter TXX-4642 dated May 17, 1985 requested a change to the CPSES Technical Specifications to allow the use of manual operators on the Main Steam Isolation Valve (MSIV) bypass valves. In support of this request the letter referenced an evaluation performed to determine the impact of the MSIV bypass valve actuator replacement on plant safety.

Enclosed are copies of analyses performed by Westinghouse and Gibbs & Hill. The conclusions of these analyses indicate no safety impact as a result of this modification.

Should you have questions in this matter, please contact this office.

Sincerely,



W. G. Council

BSD/grr

c - C. Trammell
S. Burwell
A. Vietti

8507240283 850710
PDR ADOCK 05000445
A PDR

Boo 1
11

bcc: M. D. Spence

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R. T. Jenkins

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WPT-77 84

**Westinghouse
Electric Corporation**

Water Reactor Divisions

RECEIVED
APR 25 1985
TUGCO
NUCLEAR ENGINEERING

Box 355
Pittsburgh Pennsylvania 15230-0355

April 19, 1985

NS-OPLS-OPL-85-176
S.O. TBX/TCX-4705

Ref.: WPT-7770

Mr. J. T. Merritt, Jr.
Assistant Project General Manager
Texas Utilities Services, Inc.
P.O. Box 1002
Glen Rose, Texas 76043

TEXAS UTILITIES GENERATING COMPANY
COMANCHE PEAK STEAM ELECTRIC STATION
SAFETY EVALUATION OF MSIV BYPASS VALVE
ACTUATOR REPLACEMENT

Dear Mr. Merritt:

Attached please find the safety evaluation performed for the replacement of the Main Steam Isolation Valve (MSIV) bypass valve automatic hydraulic actuators with manual ones for the Comanche Peak Units. The findings of this safety evaluation indicate that there is no impact on the steamline break core response analysis. The effect on the steamline break mass and energy release is also insignificant but a difference in the reverse flow blowdown resulting from the proposed modified operating procedures should be evaluated by TUGCO and Gibbs & Hill for any effect on the containment analyses.

Should you have any questions, please advise.

Very truly yours,

WESTINGHOUSE ELECTRIC CORPORATION

R. S. Howard, Manager
WRD Comanche Peak Projects

A. M. Sicari/pj
Attachment

cc: J. T. Merritt, Jr., 1L, 1A
R. D. Calder, 1L, 1A
J. W. Beck, 1L, 1A
C. B. Hartong, 1L, 1A
J. C. Kuykendall, 1L, 1A
ARMS 1L, 1A
J. B. George, 1L, 1A
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F. W. Madden, 1L, 1A

[illegible]

SAFETY EVALUATION FOR THE REPLACEMENT OF THE MAIN STEAM ISOLATION VALVE BYPASS VALVE ACTUATORS

Each of the Main Steam Isolation Valves (MSIVs) at Comanche Peak units 1 and 2 are equipped with a four-inch bypass valve. These bypass valves are used to warm up the steam piping and equalize the pressure across the MSIVs so that the MSIVs may be opened. The bypass valve hydraulic actuators have required extensive maintenance and repair work and are being replaced with manual actuators.

The only impact this change has on the safety analysis is on the main steamline break analyses assumptions. Should a main steamline break occur when more than one of the bypass valves are open, the possibility exists that two or more steam generators would have an uncontrolled blowdown. In order to eliminate the potential for the uncontrolled blowdown of two or more steam generators, TUGCO will apply operating procedures to use only one bypass valve during startup. This one bypass valve will be used to equalize the pressure across the corresponding MSIV. The corresponding MSIV will then be opened and the single bypass valve will be closed prior to the opening of the remaining MSIVs.

The Comanche Peak (units 1 and 2) steamline break core response analyses are unaffected by the replacement of the hydraulic actuators with manual ones. The existing analyses assume that only one steam generator entirely depressurizes and the remaining three intact steam generators isolate from the break when steamline isolation occurs by closure of the MSIVs. If one bypass valve and/or the corresponding MSIV are open (with the remaining bypass valves and MSIVs closed), only the faulted steam generator can depressurize. With only one steam generator depressurizing through the break, the primary temperature reduction is less severe than the current FSAR analyses. Therefore, the existing core response analyses remain bounding.

The steamline break mass and energy release analysis has been evaluated to determine the impact of the steamline bypass valve manual actuators. The assumption made in the existing analysis is that all MSIVs are open at the time the postulated break occurs. As for the core analysis, the MSIVs of the intact

loops are assumed to close within the technical specification response time requirements.

For the cases where the faulted loop MSIV is assumed to fail, the main steamline header and unisolated steamlines completely blow down through the break in addition to the reverse blowdown (prior to steamline isolation) from the intact steam generators. Since the new operating procedures require that all of the MSIVs and bypass valves be closed when the one bypass valve is open (this assumes the loop with the break has the bypass and/or MSIV open) the intact steam generators cannot blowdown. The reverse flow out of the break would then be made up of the mass contained only in the unisolated steamlines and the main steamline header. Should a break occur in a loop where the bypass and MSIVs are closed, the mass and energy release would be limited to the one steam generator and the small amount of mass contained between the steam generator and MSIV piping. The proposed operating restrictions would have an insignificant impact on the forward flow mass and energy release from the faulted steam generator. In either case, the existing analysis which assumed a failure of the MSIV remains bounding.

For the cases where all of the MSIVs are assumed to operate properly, the reverse blowdown out of the break location is made up of mass from the unisolated steamline and the intact steam generators. With the new operating procedures, the steamline isolation signal will cause the only open MSIV to automatically close, but the bypass valve will remain open allowing a continuous blowdown of the unisolated steamlines and the main steamline header. However, no blowdown will occur from the intact steam generators. The effect on the forward flow mass and energy release out of the break is again insignificant. To evaluate the impact of this modified reverse flow mass and energy release, TUGCO and Gibbs & Hill should evaluate the containment analyses based on a total reverse flow mass and energy release limited by the amount of mass contained in the unisolated steamlines and main steamline header (no blowdown of the intact steam generators).

In conclusion, the replacement of the hydraulic actuators with manual devices on the steamline bypass valves around the MSIVs has no impact on the steamline break core response analysis and a small effect on the steamline break mass and energy analysis. The consequences of the mass and energy release should be evaluated by TUGCO and Gibbs & Hill.

Gibbs & Hill, Inc.

Interoffice Memorandum

TO: M. S. Kumar
FROM: S. C. Mairal
SUBJECT: Replacement of MSIV Bypass
Valve Actuators

DATE: April 22, 1985
JOB NO: 00-2323-050
REF. NO: _____

Please find attached the safety evaluation report for the proposed replacement of the Main Steam Line Valve (MSIV) bypass valve actuators.

S. C. Mairal

MSC:lc
Attachment

To S. Kumar
cc Fred Madden

COMANCHE PEAK STEAM ELECTRIC STATION
REPLACEMENT OF THE
MSIV BYPASS VALVE ACTUATORS

SAFETY EVALUATION

APRIL 22, 1985
PREPARED BY: S. C. MAIRAL

1.0 OBJECTIVE

To perform a safety evaluation of the proposed replacements of Main Steam Line Valve actuators, following the guidelines of 10 CFR 50.59.

2.0 SCOPE OF PROPOSED CHANGE

The Main Steam Isolation Valves (MSIVs) at Comanche Peak are equipped with four-inch bypass valves and their corresponding actuators. The bypass valves are used to warmup the steam piping and equalize the pressure across the MSIVs during startup. They remain closed during normal power operation.

The installed Unit 1 and Unit 2 MSIV bypass valve actuators require excessive maintenance and repair for reliable operation. Therefore, it is proposed to replace the existing hydraulic actuators for these bypass valves with manual actuators. This operating restriction would involve the following steps:

- a. Open only one MSIV bypass valve and use it to equalize the pressure across the corresponding MSIV.
- b. Open the MSIV associated with the open bypass valve to heat the piping in the remaining lines.
- c. Close the bypass valve which will be kept locked closed during normal plant operation.
- d. Open remaining MSIVs.

3.0 SCOPE OF THE SAFETY EVALUATION

The purpose of this Safety Evaluation is to review the effect of the proposed bypass valve actuator replacement upon the accident analyses performed by Gibbs & Hill.

Specifically, the review assessed whether the scenario resulting from a main steam line break accident during startup when one of the MSIV bypass valves is opened has any adverse safety impact.

Based on 10 CFR 50.59 guidelines, the review evaluated (a) if the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased; or (b) if a possibility for an accident or malfunction of a different type than any evaluated previously in the safety report may be created; or (c) if the margin of safety

*Justin
Kubala*

as defined in the basis for any technical specification is reduced.

The scope of the review was the FSAR and all the accident analysis calculations that are potentially affected by the proposed change and have an impact on (a) containment integrity; and (b) radiological evaluation of environmental consequences. The following calculations were reviewed for possible changes on the assumptions used and the conclusions reached:

- a. Calculation No. NC-AA-01 - Steam Line Break Accident
- b. Calculation No. NC-AA-02 - Steam Generator Tube Rupture Accident
- c. Calculation No. NC-AA-06 - Loss of Coolant Accident
- d. Calculation No. NC-AA-14 - Emergency Planning Dose Calculation
- e. Calculation No. NC-CT-3 - Steam Line Break Analysis for TUSI CPSES FSAR
- f. Calculation No. NC-CT-F - MSLB Reanalysis Due to BIT Removal CPSES/FSAR

4.0 DISCUSSION

4.1 CONTAINMENT INTEGRITY

The analysis and the FSAR description assumed the four MSIVs, or their corresponding valves, would be open at the time of the break thus resulting in a fast decrease of secondary side steam inventory coming from all steam generators until steam line isolation occurs. However, should the main steam line break occur during startup under the operating restriction described in Section 2.0 the potential for the uncontrolled blowdown of two or more steam generators would be eliminated.

Also, should the accident occur during startup, the operating restriction would decrease the rate at which the secondary fluid is lost through the break. This would lead to a lower containment temperature and pressure buildup rate.

4.2 RADIOLOGICAL CONSEQUENCES

The changes introduced by the operating restriction do not affect the analyses as performed. In case of a main steam line break, the only possibility of having a radioactive release to the environment is that the break occurs outside containment between the containment penetration and the MSIV. Doses resulting from this accident were analyzed and found to be below the regulatory limits established in 10 CFR 100.

5.0 CONCLUSION

1. There is no change in the probability of occurrence of any of the accidents already analyzed by Gibbs & Hill.
2. The operating restriction introduced due to the replacement of bypass valve hydraulic operators with manual operators does not bring the possibility for an accident of different type than any evaluated previously. In fact it is not necessary to revise the accident analysis to incorporate the new accident scenario brought up by the replacement. The original main steam line break analysis assumptions are more stringent since in this type of accident the controlling factor is the rate at which energy is released.
3. There is no reduction in safety margins since the assumptions used in previous accident safety analysis are more stringent and therefore the results more conservative.

6.0 REFERENCES

1. TUGCo letter dated March 5, 1985 on "Replacement of Main Steam Isolation Valve (MSIV) Bypass Valve Actuators"
2. 10 CFR 50.59 "Changes Tests and Experiments"
3. CPSES FSAR Section 6.2.1.4 "Mass and Energy Release Analysis for Postulated Secondary System Pipe Rupture"
4. CPSES FSAR Section 15.5.5 "Steam System Piping Failure"
5. CPSES Technical Specifications Section 15.4 "Radiological Consequences of Design Base Accidents"