ENTERGY

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Grand Gulf Nuclear Station

May 8, 1996

U.S. Nuclear Regulatory Commission
Mail Station P1-37
Washington, D.C. 20555

Attention: Document Control Desk

Subject: Grand Gulf Nuclear Station
Docket No. 50-416
License No. NPF-29
Purge Valve Testing
Proposed Amendment to the Operating License (PCOL-96/07)

GNRO-96/00051

Gentlemen:

Entergy Operations, Inc. is submitting by this letter a proposed amendment to the Grand Gulf Nuclear Station (GGNS) Operating License to put containment purge valves with resilient seals on a performance based leakage testing frequency. Currently these valves are tested every 184 days and once within 92 days after opening a valve. The proposed change would test these valves in accordance with our Appendix J testing program. The proposed change affects Operating License Surveillance Requirement (SR) 3.6.1.3.5.

During initial licensing of GGNS there was little available data on the reliability of large containment isolation valves with resilient seals. As a consequence, we agreed to more frequent testing of these valves than for other containment isolation valves. Since that time the valves have been routinely tested on an augmented testing frequency with no indication of seal degradation. We therefore believe that the augmented testing requirement imposes an undue burden without a commensurate safety benefit.

We also believe that GGNS is in a unique position to be able to implement this change. We have demonstrated our understanding of the containment leakage factors important to safety through your approval of an Appendix J exemption implementing a performance-based testing program prior to rulemaking.

The cost savings over the assumed life of the plant are expected to be on the order of $588,000. This savings meets the criteria for consideration under the Cost Beneficial Licensing Actions program. We request that this revision be approved by August 1, 1996.

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Attachment 1 is the oath and affirmation required by 10 CFR 50.30. Attachment 2 provides justification for the change and contains the no significant hazards considerations. Attachment 3 contains actual leakage data for the containment purge supply & exhaust isolation valves. Attachment 4 is a copy of the marked-up GGNS Operating License.

Yours truly,

CRH/WBB/ams
attachments:

1. Affirmation per 10 CFR 50.30
2. Justification for Removal of Leakage Rate Testing of Containment Purge Supply & Exhaust Isolation Valves from Plant Specific Technical Specification
3. Actual Leakage Data for Containment Purge Supply & Exhaust Isolation Valves
4. Marked-up Pages To The GGNS Operating License

cc: Mr. J. Tedrow (w/a)
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Attachment 1 To GNRO-96/00051

Affirmation per 10 CFR 50.30

BEFORE THE

UNITED STATES NUCLEAR REGULATORY COMMISSION

LICENSE NO. NPF-29

DOCKET NO. 50-416

IN THE MATTER OF

MISSISSIPPI POWER & LIGHT COMPANY
and
SYSTEM ENERGY RESOURCES, INC.
and
SOUTH MISSISSIPPI ELECTRIC POWER ASSOCIATION
and
ENTERGY OPERATIONS, INC.

AFFIRMATION

I, C. R. Hutchinson, being duly sworn, state that I am Vice President, Operations GGNS of Entergy Operations, Inc.; that on behalf of Entergy Operations, Inc., System Energy Resources, Inc., and South Mississippi Electric Power Association I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, this application for amendment of the Operating License of the Grand Gulf Nuclear Station; that I signed this application as Vice President, Operations GGNS of Entergy Operations, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information and belief.

C. R. Hutchinson

STATE OF MISSISSIPPI
COUNTY OF CLAIBORNE

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the County and State above named, this 8th day of May, 1996.

(SEAL)

Richard R Moore III
Notary Public

My commission expires:

MISSISSIPPI STATEWIDE NOTARY PUBLIC
MY COMMISSION EXPIRES JUNE 5, 1998
BONDED THRU SIEGALL NOTARY SERVICE

Attachment 2 To GNRO-96/00051

Justification for Removal of Leakage Rate Testing of Containment Purge Supply & Exhaust Isolation Valves from Plant Specific Technical Specification

A. Affected Technical Specifications

The following Technical Specification Surveillance Requirement (SR) is affected by the proposed change.

SR 3.6.1.3.5

The proposed Technical Specification change and the associated Technical Specification Bases changes to be implemented following NRC approval of the proposed change are detailed in Attachment 4.

B. Background

As a result of numerous reports of unsatisfactory performance of resilient seats in butterfly-type isolation valves due to seal deterioration (see IE Circular 77-11), the NRC imposed augmented leakage testing requirements (i.e., beyond the minimum Appendix J leak rate requirements) for containment purge/vent line isolation valves that utilize resilient seal materials. These requirements were typically imposed as technical specification surveillance requirements during initial licensing of new plants. Because of this, the actual testing requirements differ on a plant specific basis. While the Staff may have acted in a prudent manner in imposing additional testing until seal degradation rates were determined, we believe it is reasonable to return to the Appendix J testing requirements, since it has been demonstrated that seal degradation does not occur at an accelerated rate.

The NRC has approved similar changes in testing frequencies at the Vogtle Electric Generating Plant. The safety evaluation proffered by the Office of Nuclear Reactor Regulation for the Vogtle Plant further indicates the Staff's intentions with respect to containment purge valves with resilient seals. In the evaluation the Staff states the "(o)perating experience has shown that for well maintained butterfly valves with resilient seals, used at suitable environmental and operating conditions, the 24-month Appendix J leakage rate test interval is sufficiently frequent. Accordingly, the Staff will approve a reduced leakage testing frequency if supported by plant-specific data (i.e., history of test results)." This indicates that the augmented testing program was designed to determine if performance of these valves degraded over time and if increased testing frequencies would be necessary on a permanent basis.

C. Current Technical Specification Requirements

SR 3.6.1.3.5 of the GGNS Technical Specifications requires performance of leakage rate testing for primary containment purge valves with resilient seals every 184 days and once within 92 days after opening the valves.

D. Proposed Technical Specification Change

This change would change the frequency of SR 3.6.1.3.5 to be in accordance with the Appendix J Testing Program.

E. Justification

The containment purge system has a high volume purge (HVP) with 20-inch supply and exhaust valves and a low volume purge (LVP) with 6-inch supply and exhaust valves. Each of these penetrations has two valves in series to provide the redundancy necessary for containment isolation capability. Operation of the purge

system has been analyzed during power operation and the valves are qualified for use in all operational conditions. The valves are normally maintained closed during Modes 1, 2, and 3 to ensure leak tightness. During power operation, the use of the HVP is restricted to containment pressure control; ALARA and air quality considerations for personnel entry due to high explosive gas concentration, low oxygen concentration, high airborne particulate activity, high gaseous radioactivity, smoke or fumes; or for surveillance or special testing on the purge system that requires the isolation valve(s) to be open. In cold shutdown or refueling operating modes, the continuous use of the 20-inch purge system is unrestricted. The use of LVP is unrestricted in all modes of operation. With the exception of the containment isolation function, the system has no safety-related function.

The improved Standard Technical Specifications (STS) specify a leakage testing frequency for these valves of 184 days and within 92 days after opening the valves. These requirements apply to all sizes of containment purge valves with resilient seals (even though early problems associated with resilient seals were apparently limited to specific valves of 36" or 42" diameters from specific vendors), except for valves installed in lines that are isolated by blind flanges during power operation. Given that the problems with resilient seals have not been shown to be generic in nature and since GGNS can produce the plant specific data (i.e., histories of test results) to demonstrate that our valves are not subject to excess degradation, we believe that allowing testing frequencies to revert to those of Appendix J is appropriate and consistent with current NRC policy.

GGNS has compiled over 14 years of historical data that clearly shows there has never been a problem with leakage through containment purge supply or exhaust isolation valves. The attached data (Attachment 3) clearly indicates that extensive testing has not only never identified any propensity for leakage, but that leakage through these valves has never even approached the leakage limits. Even a cursory review of this data indicates that Appendix J testing intervals would be sufficient and appropriate.

We believe that the NRC's Appendix J rulemaking, which allows performance based leakage rate testing, clearly demonstrates the Staff's understanding that component failure probabilities are not a function of testing. Rather, test results can only be used as a check on the reasonableness of the testing frequency. In this case, the current testing frequencies are not reasonable, as demonstrated by the GGNS data. The new rule (Option B) presents a reasonable methodology for determining testing frequencies that is based not only on performance, but also on other relevant factors, such as operating conditions, component application, system function, and risk insights. Under the new rule, the licensee determines what a safe interval is, within the limitations specified by the NRC. We feel that allowing these valves to be controlled by the rules of Appendix J is consistent with the philosophies developed by the Staff as a result of the effort to develop a performance based testing program and that there is no substantiated basis for the continuation of the augmented testing requirements.

F. **Savings Associated with the Requested Change**

The following is an estimate of the cost savings associated with changing the test intervals for these valves. There are four containment purge penetrations with two redundant isolation valves in each penetration. The valves in each individual penetration are tested as a set, and therefore the cost analysis is based on cost per penetration. The analysis assumes four tests per year (every 92 days), because the

valves are required to be exercised every 92 days under the Pump and Valve Inservice Testing Program. Because of good past performance, the analysis assumes no trouble-shooting for excess leakage. The analysis is based on a $40.00 per hour rate for all labor and an assumed thirty year plant life.

Position	Activity	Man Hours Per Penet.	Cost Per Test (Man Hours X $40.00)
Planner	Plan WO Package	1	40
Engineer	Develop data package, test pressure calculations, allowable leakage etc.	1	40
Maint. Coordinator	Schedule testing	0.5	20
Scheduler	Schedule test on weekly schedule	0.25	10
Health Physics	Review work orders and monitor open & closing test valves.	1	40
Operations (2)	Align system for testing	6	240
Shift Supv.	Sign on & review test results	0.5	20
Mechanic (2)	Set-up test equipment & perform test	16	640
Operators (3)	Restore system	6	240
Maint. Supv.	Review test results & sign package ready for retest.	0.5	20
Engineer	Review test results & log leakage into CTMT totals	1	40
Surv. Coor.	Review test & update computer tracking program	0.25	10
Work Close Out.	Review & scan data	1	40
Total	**All labor**	**35**	**$1400**

Current Plan Costs

Total hours per test (35) X total penetrations (4) = 140 hours per test of all penetrations.
Total hours (140) X tests per year (4) = 560 hours per year
Total hours per year (560) X years (30) = 16,800 hours
Total hours (16,800) X labor rate ($40/hr.) = $672,000

Proposed Plan Costs

Total hours per test (35) X average number of tests per year (2) = 70 hours per year
Total hours per year (70) X years (30) = 2,100 hours
Total hours (2,100) X labor rate ($40/hr.) = $84,000

Total Savings

Current Plan	$672,000
Proposed Plan	-$84,000
Savings	$588,000

Even more savings will accrue if the valves are good performers, under Option B of 10 CFR 50, Appendix J, since penetrations could be tested at intervals of up to five years.

G. **No Significant Hazards Consideration**

In accordance with 10 CFR 50.92, Entergy Operations, Inc. has evaluated the proposed change to the Operating License of GGNS and has determined that the operation of the facility in accordance with the proposed amendment would not involve any significant hazards considerations. In accordance with 10 CFR 50.91(a), Entergy Operations, Inc. is providing the following analysis of the proposed amendment against the three standards of 10 CFR 50.92(c):

1) The proposed change does not significantly increase the probability or consequences of an accident previously evaluated.

This change deletes the augmented testing requirement for these containment isolation valves and allows the surveillance intervals to be set in accordance with the Appendix J testing program. This change does not affect the system function or design. The purge valves are not an initiator of any previously analyzed accident. Leakage rates do not affect the probability of the occurrence of any accident. Operating history has demonstrated that these valves do not degrade and cause leakage as previously anticipated. Because these valves have been demonstrated to be reliable, these valves can be expected to perform the containment isolation function as assumed in the accident analyses. Therefore, there is no significant increase in the consequences of any previously evaluated accident.

2) The proposed change would not create the possibility of a new or different kind of accident from any accident previously evaluated.

Extending the test intervals has no influence on, nor does it contribute in any way to, the possibility of a new or different kind of accident or malfunction from those previously analyzed. No change has been made to the design, function or method of performing leakage testing. Leakage acceptance criteria have not changed. No new accident modes are created by extending the testing intervals. No safety-related equipment or safety functions are altered as a result of this change.

3) The proposed change does not involve a significant reduction in a margin of safety

The only margin of safety that has the potential of being impacted by the proposed changes involves the offsite dose consequences of postulated accidents which are directly related to the containment leakage rate. The proposed change does not alter the method of performing the tests nor does it change the leakage acceptance criteria. Sufficient data has been collected to demonstrate that the resilient seals do not degrade at an accelerated rate. Because of this demonstrated reliability, this change will provide sufficient surveillance to determine an increase in the unfiltered leakage prior to the leakage exceeding that assumed in the accident analysis. Therefore, the proposed change does not result in a significant reduction in a margin of safety.

Based on the above evaluation, Entergy Operation, Inc. has concluded that operation in accordance with the proposed amendment involves no significant hazards considerations.

Attachment 3 to GNRO-96/00051

LLRT Leakage Data for Containment Purge Supply & Exhaust Isciation Valves

LLRT Data for Containment Purge Isolation Valves					
(all test leakage rates are in standard cubic centimeters per minute)					
Date	**E61F009 & 10**	**E61F056 & 57**	**M41F011 & 12**	**M41F034 & 35**	**leakage limit**
6/5/81			40		1435
6/23/81				12	1435
11/6/81	350				1435
12/1/81			110	60	1435
12/14/81		30			1435
9/1/82			165	50	1435
11/1/82	70	20			1435
12/6/82			140	40	1435
3/21/83			100		1435
3/23/83				150	1435
6/7/83				300	1435
6/9/83		0	100		1435
9/6/83				200	1435
12/6/83			0	76	1435
12/7/83		40			1435
2/27/84			400	200	1435
2/28/84		130			1435
5/21/84		100	300	200	1435
5/22/84	100				1435
8/18/84		10	50	0	1435
10/11/84	140				1435
11/5/84			250	300	1435
11/8/84		150			1435
1/24/85			0		1435
1/25/85		0		0	1435
2/15/85		60			1435
4/22/85				33.37	1435
4/23/85			146.68		1435
4/26/85		48.98			1435
7/15/85			0		1435
7/16/85				48.9	1435
7/17/85		0			1435
10/10/85		0	98.15	49.08	1435
1/10/86	199	0	99		1435
1/13/86				49	1435
4/2/86			0		1435
4/3/86	68.32			0	1435
4/4/86		0			1435
5/1/86		0			1435
6/23/86				0	1435
6/24/86	28.856		0		1435
6/25/86		0			1435
9/11/86	19.8	0	148.9		1435
9/12/86				39.7	1435
11/12/86			0	0	1435
11/13/86	0	0			1435

LLRT Data for Containment Purge Isolation Valves					
(all test leakage rates are in standard cubic centimeters per minute)					
Date	**E61F009 & 10**	**E61F056 & 57**	**M41F011 & 12**	**M41F034 & 35**	**leakage limit**
12/6/86	39.924				1435
2/3/87			0	0	1435
2/5/87	39.478584	0			1435
4/23/87			0	0	1435
4/24/87	0	0			1435
7/14/87			0	0	1435
7/16/87	0	0			1435
10/6/87			0	0	1435
10/8/87	0	0			1435
12/16/87	0	0	0		1435
12/16/87				60.2	1435
3/12/88	0	0			1435
3/13/88			0	0	1435
6/8/88			0	0	1435
6/9/88	0	0			1435
9/16/88		0			1435
9/27/88			0	0	1435
12/13/88		0			1435
12/21/88			0	0	1435
3/13/89	0	0			1435
3/14/89			0	0	1435
3/23/89			0		1435
3/26/89		0		30	1435
6/13/89	0	0			1435
6/14/89			0	0	1435
6/28/89			0		1435
6/30/89				0	1435
9/11/89	0				1435
9/12/89		0			1435
9/29/89			0	0	1435
12/8/89	44				1435
12/12/89		0			1435
1/8/90			60	0	1435
1/16/90			0		1435
3/8/90	0				1435
3/9/90		0			1435
4/4/90				0	1435
4/5/90			0		1435
6/5/90	0				1435
6/6/90		0			1435
6/26/90			0		1435
6/27/90				0	1435
9/4/90	0				1435
9/11/90		0			1435
9/20/90			0	0	1435
2/26/91	0				1435

LLRT Data for Containment Purge Isolation Valves					
(all test leakage rates are in standard cubic centimeters per minute)					
Date	**E61F009 & 10**	**E61F056 & 57**	**M41F011 & 12**	**M41F034 & 35**	**leakage limit**
2/27/91		0			1435
3/5/91				0	1435
3/6/91			0		1435
5/28/91	0				1435
5/29/91		0			1435
6/4/91				0	1435
6/5/91			0		1435
7/23/91	0				1435
8/22/91		0			1435
8/23/91	0				1435
8/29/91			0		1435
8/30/91				0	1435
11/25/91	0	0			1435
11/26/91			0	0	1435
2/19/92	0				1435
2/20/92		0			1435
2/26/92			0		1435
2/27/92				56	1435
4/1/92		40			1435
4/2/92	0				1435
4/7/92			0	7	1435
7/1/92		0			1435
7/2/92	0				1435
7/7/92			0	0	1435
9/29/92		0			1435
10/6/92			0	0	1435
10/19/92	0				1435
12/29/92		0			1435
1/5/93			0	0	1435
1/18/93	0				1435
3/30/93		0			1435
4/5/93			16		1435
4/6/93				39.627	1435
4/15/93	0				1435
6/29/93		0			1435
7/1/93			0		1435
7/6/93				0	1435
7/12/93	0				1435
10/1/93			0	0	2116
10/12/93	0	0			2116
11/8/93			0		2116
11/15/93			0		2116
12/27/93				37	2116
1/10/94	10	20			2116
2/7/94			0	0	2116
4/5/94				0	2116

LLRT Data for Containment Purge Isolation Valves					
(all test leakage rates are in standard cubic centimeters per minute)					
Date	**E61F009 & 10**	**E61F056 & 57**	**M41F011 & 12**	**M41F034 & 35**	**leakage limit**
4/12/94		0			2116
4/13/94	0				2116
5/11/94			0		2116
7/12/94	0				2116
7/13/94		0			2116
7/23/94				0	2116
8/4/94			0		2116
10/3/94				0	2116
10/11/94	0	0			2116
11/8/94			2.5		2116
1/4/95				32.5	2116
1/10/95	0				2116
1/11/95		0			2116
3/21/95	0				2116
3/22/95				0	2116
3/23/95		0			2116
5/9/95		0			2116
5/9/95	0				2116
5/15/95			40		2116
5/22/95				20	2116
6/1/95				0	2116
8/7/95	0				2116
8/8/95		0			2116
8/16/95			0		2116
9/1/95				0	2116
11/7/95	0				2116
11/8/95		0			2116
11/15/95			0		2116
11/30/95				0	2116
2/7/96	0	0			2116
2/14/96			0		2116