

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylv 05000387
 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv 05000388
 AUTH: NAME AUTHOR AFFILIATION
 BYRAM, R.G. Pennsylvania Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
 Document Control Branch (Document Control Desk) *See rpt.*

SUBJECT: Forwards proprietary calculation EC-RADN-1028, Rev 0,
 "SSES Design Basis LOCA Dose Consequence Evaluation
 Determining Allowable Containment Bypass Leakage Including
 Effects of Suppression...." Calculation withheld.

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MAR 18 1997

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**SUSQUEHANNA STEAM ELECTRIC STATION
REVISED DESIGN BASIS LOSS OF COOLANT ACCIDENT
RADIOLOGICAL CALCULATION
PLA-4585**

Docket Nos. 50-387
and 50-388

FILE R41-2

- References:
- 1) Letter from C. Poslusny (NRC) to R. G. Byram (PP&L), "Containment Leakage Criteria Change, Susquehanna Steam Electric Station, Units 1 and 2 (TAC Nos. M96641 and M96642)," February 18, 1997.
 - 2) PLA-4274, "Susquehanna Steam Electric Station Main Steam Isolation Valve/Leakage Control System: Response to Request for Additional Information," February 21, 1995.
 - 3) PLA-4228, "Susquehanna Steam Electric Station Proposed Amendment No. 178 to License NPF-14 and No. 132 to License NPF-22," November 21, 1994.
 - 4) Letter from C. Poslusny (NRC) to R. G. Byram, "Susquehanna Steam Electric Station, Units 1 and 2 (TAC NOS. M91013 and M91014)," August 15, 1995.

In the Reference 1 letter, the NRC requested that PP&L provide a copy of the revised design basis loss of coolant accident (LOCA) radiological calculation that was performed to assess the impact of the increase in bypass leakage at Susquehanna SES. This analysis is contained in PP&L calculation EC-RADN-1028, Rev. 0 which has been enclosed with this letter. In addition, Reference 2 provides additional information regarding PP&L's radiological dose calculation approach and input data.

PP&L calculation EC-RADN-1028, Rev. 0 determines the allowable secondary containment bypass leakage while maintaining offsite and control room doses below the values previously approved by the NRC for Susquehanna SES. This analysis takes credit for the effects of suppression pool scrubbing of iodine. At the time the calculation was performed Unit 1 still had an operable Main Steam Isolation Valve Leakage Control System (MSIV-LCS). In Unit 2 the MSIV-LCS was no longer a required system and was disabled (References 3 and 4). The EC RADN-1028, Rev. 0 calculation determines the dose consequences for the two types of MSIV

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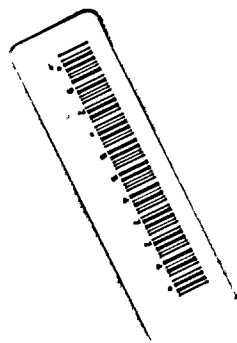
leakage treatment to account for the operable MSIV-LCS in Unit 1 and the disabled MSIV-LCS in Unit 2. Presently, the MSIV-LCS is not a required system for either Susquehanna SES unit and has been disabled in both Susquehanna SES units.

The dose consequences for either MSIV leakage treatment method were calculated employing the same general methodology. First, the dose consequences with no MSIV leakage and including the effects of suppression pool scrubbing of iodine were calculated using the TACT5 computer program to produce the 'base case'. The contribution of MSIV leakage was then added to the base dose to determine the total dose consequence. For conservatism, the dose contribution from MSIV leakage was not adjusted for suppression pool scrubbing effects. These two steps are repeated for various secondary containment bypass leakage (SCBL) volumetric flow rates until a SCBL volumetric flow rate is found in which the offsite and control room doses are below the values previously approved by the NRC (References 3 and 4).

A pictorial representation of the activity flow path model for the "base case" appears in Figure 1 of EC-RADN-1028, Rev. 0. A summary of the TACT5 results for the "base case" appears in Section 4.1.3 for a SCBL volumetric flow rate of 9 SCFH. Note that protected control room doses are shown in Section 4.1.3. Table 2 shows the unprotected control room doses and the protection factors for the "base case" with a SCBL volumetric flow rate of 9 SCFH. Protected control room doses must be determined from the Murphy-Campe methodology (Reference 2) because TACT5 does not supply control room doses which are corrected for shielding or control room filtration. As such, a hand calculation is performed to convert the unprotected control room doses as supplied by TACT5 to protected values which incorporate the control room shielding and filtration features. Control room protection factors for the base case are hand calculated using the Murphy-Campe methodology as explained in Reference 2.

For the case in which the MSIV-LCS is not a required system the dose contribution from MSIV leakage was determined by employing the Isolated Condenser Treatment Method (ICTM) of MSIV leakage treatment. The dose add-on values for the ICTM were determined by GE BWR Owners Group and were supplied to PP&L as discussed in References 2 and 3. The dose add-on values are not corrected for the effects of suppression pool scrubbing. As previously stated, this is a conservative approach. The dose consequences for a SCBL volumetric flow rate of 9 SCFH with suppression pool scrubbing of iodine and the ICTM of MSIV leakage are shown in Table 3 of EC-RADN-1028, Rev. 0. The Table 3 results are now applicable to both Susquehanna SES units because the MSIV-LCS is no longer required nor functional in either unit.

The results for the case in which the MSIV-LCS is operable are provided in Tables 4 and 5 of EC-RADN-1028, Rev. 0. These results are no longer applicable to either Susquehanna unit.



For comparison to the results with the increased bypass leakage (i.e., 9 scfh), Table 1 of EC-RADN-1028, Rev. 0 contains the offsite and control room doses for the DBA-LOCA for MSIV-LCS and ICTM MSIV leakage treatment methods with a bypass leakage of 5 scfh and without the effects of suppression pool scrubbing (i.e., these are the values previously approved by the NRC). Only the results using the ICTM MSIV leakage treatment method are applicable to the current configuration of the Susquehanna units. The applicable results are summarized in Table 1 of this letter.

Please note that the enclosed document contains confidential information. Accordingly, pursuant to 10 CFR 2.790, PP&L requests that the enclosed document (i.e., PP&L Calculation EC-RADN-1028) be exempted from public disclosure in any form, including from Freedom of Information Act requests and not be placed in the NRC's public document room. Please advise us if this request cannot be granted, in which case we request that the material be returned pursuant to 10 CFR 2.790(c).

If you have any questions regarding this application, please contact Mr. A. J. Roscioli at 610-774-4019.

Very truly yours,



R. G. Byram

Enclosures

copy: NRC Region 1

Mr. K. Jenison - NRC Sr. Resident Inspector-SSES

Mr. C. Poslusny, Jr. - NRC Sr. Project Manager - OWFN

J. A. Fitzgerald, Esquire - NRC-OWFN w/o EC-RADN-1028

AFFIDAVIT OF ROBERT G. BYRAM

COMMONWEALTH OF PENNSYLVANIA)

: SS

COUNTY OF LEHIGH)

I, Robert G. Byram, Senior Vice President-Nuclear of Pennsylvania Power & Light Company (PP&L), do hereby affirm and state:

1. I am an officer of PP&L authorized to execute this affidavit on its behalf. I am further authorized to review information submitted to the Nuclear Regulatory Commission and apply for the withholding of information from disclosure.

2. PP&L requests that the documents attached hereto (PP&L Calculation EC-RADN-1028, Revision 0) be withheld from public disclosure under the provisions of 10 C.F.R. 2.790(a)(4).

3. PP&L Calculation EC-RADN-1028, Revision 0 contains information generated by PP&L's engineering personnel that constitute confidential commercial information that should be withheld under 10 C.F.R. 2.790(a). It provides the detailed calculation of the radiological doses resulting from a change to the allowable secondary containment bypass leakage.

4. This information has been held in confidence by PP&L. To the extent that PP&L has shared this information with others, it has done so on a confidential basis.

5. There is a rational basis for holding this information in confidence. Confidential treatment of such information ensures other parties do not copy the analysis methodology or the results to use in an unauthorized manner or to gain a commercial advantage over PP&L.

6. Copies of EC-RADN-1028, Revision 0 with the confidential commercial portions deleted would render them unintelligible and therefore a non-confidential synopsis is provided in the cover letter (PLA-????).

7. This information is being transmitted and received in confidence. It is not available from public sources and could not be gathered readily from other publicly available information.

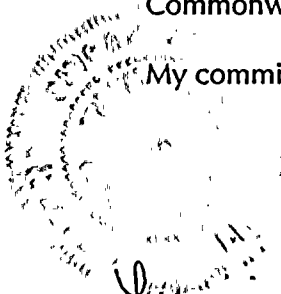
8. Public disclosure of this information would cause substantial harm to the competitive position of PP&L, because such information could be used by others to harm it and thereby gain a competitive advantage over it.



Robert G. Byram
Senior Vice President - Nuclear

SUBSCRIBED AND SWORN before me, a Notary Public in and for the Commonwealth of Pennsylvania this 18th day of March, 1997.

My commission expires: October 29, 1998



Francine A. Greenzweig
Notary Public

NOTARIAL SEAL
FRANCINE A. GREENZWEIG, Notary Public
City of Allentown, Lehigh County, PA
My Commission Expires Oct. 29, 1998

TABLE 1
Summary of Licensing Basis Dose Calculations

	Limits (rem)	Dose Calculation Results (rem)	
		5 scfh No scrubbing*	9 scfh Scrubbing
Thyroid:			
2 hr site boundary	300	125.61	41.44
30 day LPZ	300	41.74	20.59
Whole Body:			
2 hr site boundary	25	2.22	2.18
30 day LPZ	25	0.37	0.36
Control Room:			
Thyroid	30	18.55	8.78
Whole Body	5	0.76	0.74
Skin	75	12.17	11.9

* Results from NRC approved change for removal of the MSIV LCS (Reference: PLA-4228, November 21, 1994).