

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9704220086 DOC. DATE: 97/04/15 NOTARIZED: YES DOCKET #
 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)

SUBJECT: Forwards Rev 51 to SSES FSAR. Amended pages provided to controlled distribution under separate cover.

DISTRIBUTION CODE: A001D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 8
 TITLE: OR Submittal: General Distribution

NOTES: 05000387

| | RECIPIENT | | COPIES | | RECIPIENT | COPIES | |
|-----------|---------------|--|--------|------|-----------------------|---------------|-----|
| | ID CODE/NAME | | LTR | ENCL | | ID CODE/NAME. | LTR |
| | PD1-2 LA | | 1 | 1 | PD1-2 PD | 1 | 1 |
| | POSLUSNY, C | | 1 | 1 | | | |
| INTERNAL: | ACRS | | 1 | 1 | <u>FILE CENTER 01</u> | 1 | 1 |
| | NRR/DE/ECGB/A | | 1 | 1 | NRR/DE/EMCB | 1 | 1 |
| | NRR/DRCH/HICB | | 1 | 1 | NRR/DSSA/SPLB | 1 | 1 |
| | NRR/DSSA/SRXB | | 1 | 1 | NUDOCS-ABSTRACT | 1 | 1 |
| | OGC/HDS2 | | 1 | 0 | | | |
| EXTERNAL: | NOAC | | 1 | 1 | NRC PDR | 1 | 1 |
| NOTES: | | | 1 | 1 | | | |

NOTE TO ALL "RIDS" RECIPIENTS:
 PLEASE HELP US TO REDUCE WASTE. TO HAVE YOUR NAME OR ORGANIZATION REMOVED FROM DISTRIBUTION LISTS OR REDUCE THE NUMBER OF COPIES RECEIVED BY YOU OR YOUR ORGANIZATION, CONTACT THE DOCUMENT CONTROL DESK (DCD) ON EXTENSION 415-2083

TOTAL NUMBER OF COPIES REQUIRED: LTR 15 ENCL 14

C
A
T
E
G
O
R
Y

1

D
O
C
U
M
E
N
T



Pennsylvania Power & Light Company

Two North Ninth Street • Allentown, PA 18101-1179 • 610/774-5151

Robert G. Byram
Senior Vice President
Generation and Chief Nuclear Officer
610/774-7502
Fax: 610/774-5019

APR 15 1997

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop P1-137
Washington D.C. 20555

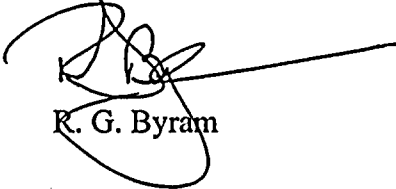
SUSQUEHANNA STEAM ELECTRIC STATION
FINAL SAFETY ANALYSIS REPORT
REVISION 51
PLA-4606 FILES R41-2, A17-1

Docket Nos. 50-387
and 50-388

The purpose of this letter is to transmit Revision 51 to the Susquehanna SES Final Safety Analysis Report (FSAR). The changes made in Revision 51 are described in Attachment I hereto. The amended pages are being provided to the controlled distribution under separate cover.

If you have any questions regarding this submittal, please contact Mr. W. W. Williams at (610) 774-7742.

Very truly yours,



R. G. Byram

Attachment

copy: NRC Region I
Mr. K. Jenison, NRC Sr. Resident Inspector
Mr. C. Poslusny, Jr., NRC Sr. Project Manager

ADD 1/1

9704220086 970415
PDR ADDOCK 05000387
K PDR



10/10/51

| FSAR SECTION | DESCRIPTION |
|---|---|
| 1.1.9 | Deleted text describing exceptions taken to R.G. 1.70. |
| 1.2, 3.1, 3.2, 3.13, 6.0, 6.2, 6.5, 6.7, 7.0, 7.1, 7.3, 7.5, 10.3, 15.6, 15A, 18.0, and 18.1 | Changed to reflect the deletion of the MSIV Leakage Control System. Function now performed by the Isolated Condenser Treatment Method (ICTM). |
| 1.5.2 | Added administrative note. |
| Table 1.6-2 | Corrected typographical error. |
| Table 1.6-3, Section 4.1.5 | Editorially changed to add and/or correct references. |
| 1.6, Table 1.6-3, Section 4.1.5 and Figure 4.1-4 | Added references to Table 1.6-3 to reflect the design and analysis of the U1C9 reload core. Updated Figure 4.1-4 to reflect U1C9 core loading pattern. Updated References in Section 4.1.5 for core loading patterns. |
| 1.6, Table 1.6-3, Section 4.1.5, Figure 4.1-4 | Added Reference 61 and 62 to Table 1.6-3 to reflect the core design and transient analyses for U1C10. Figure 4.1-4 and Reference 4.1-12 were updated to reflect the U1C10 core loading pattern. |
| Table 1.6-3 | Added references 63 and 64 to reflect the use of ANFB Critical Power Correlation to monitor Unit 2 Cycle 8. |
| 1.8.2, Table 1.8-4 | Deleted table 1.8-4 and reference thereto. |
| 1.8.6.4 | Added clarification to description of raceway numbering system. |
| Table 1.8-1 | Revised the definition of "design power" to incorporate power uprate. |
| Section 2.1 Geography and Demography Tables | Updated tables. |
| 2.2.2.3. | Changed to reflect installation of a Grove Flexflo valve in the offsite natural gas pipe line. The change maintains the commitment to restrict flow in the event of a break to 39 cubic meters per second. |
| 2.3.3.1, Table 2.3-73 | Changed the description of the supplemental Meteorological towers. |
| 2.5.5.2.2.1.1 | Changed to reflect currently approved Technical Specification requirements for monitoring ground water levels around the pond. |
| 3.1.1 | Editorial change. Removed information no longer applicable. |
| 3.1.2.1.5 | Changed the ESW, RHRSW and spray pond general descriptions to be consistent with the detailed design descriptions provided in Sections 9.2.5, 9.2.6 and 9.2.7. |
| 3.1.2.4.5 | Revised to indicate a common suction source is used for RHR-SDC off the B Reactor Recirculation System loop. |
| 3.1.2.33, 3.12.3.4.2.1, 3.13.1, 7.1.2a.3.3.1, 7.1.2.5.2, 7.1.2.6.7, 7.1.2.6.17, 8.1.6.1, 8.3.1.2, 8.3.1.11.4, 8.3.2.1.1.1, 8.3.2.2.3, Question 040.24 | Revised to provide a more complete listing of applicable regulatory guidance. |

| FSAR SECTION | DESCRIPTION |
|---|---|
| Table 3.2-1 | Added a note to the table to identify items not required to be maintained in accordance with the ASME Code. Removed the D/G A-D fuel oil coolers from table. Also, added editorial changes to the table. |
| Table 3.2-1, Section 9.5.7.1 | Revised Table 3.2-1 to identify the proper construction code and safety classifications for the D/G piping. Revised Section 9.5.7.1 to reference Table 3.2-1 for the applicable D/G lube oil piping standards. |
| Table 3.2-1, Figure 3.2-1 | Updated the figure to use appropriate design and construction codes. Revised the table to correct safety classification for the sample station coolers and to correct note 4. |
| Table 3.2-3 | Revised Note 10 to clarify the applicable ASME B&PV Code edition used in the design of the D/G A-E fuel oil storage tanks. |
| 3.4 | Added a statement regarding the operator's action to mitigate the effects of the worst case flood. |
| 3.5 | Corrected typographical errors. |
| 3.5.1.1.1 | Clarified that turbine missiles are specifically analyzed and not dismissed on the basis of not being considered credible. |
| 3.7b.4.1 | Editorially changed to add missing revision number. |
| 3.7b.4.1.1, 3.7b.4.1.4 | Changed to clarify the location of seismic monitor VT 15702. |
| 3.9.3.2b.2 | Updated discussion of static valve qualification. |
| Table 3.9-17 | Editorial changes. |
| 3.13 | Added reference to R.G. 1.75, Rev. 2, for D/G E. |
| 3.13.1 | Added clarification to compliance with Regulatory Guides 1.3, 1.5 and 1.25. Added reference to R.G. 1.29, Rev. 3 for D/G E. Revised R.G. 1.48 to remove reference to Tables 3.9-1 and 3.9-8 and added reference to Table 3.9-6. Added discussion to R. G. 1.100 stating that original equipment qualification was re-assessed to criteria of R.G. 1.100. Also made minor editorial changes. |
| 4.2.4.1 | Changed to document elimination of the commitment to perform routine control rod friction testing based upon GE SIL 320. |
| 5.2.5.1.2 | Changed the description of the drywell leak detection system to differentiate between normal and post-LOCA functions. |
| 5.2.5.1.2.3.1, Table 5.2-14, Table 5.2-13, Table 6.2-12, Table 6.2-22, and Section 9.5.1.1.11 | Redesignated penetrations for use in the CRM System. |

| FSAR SECTION | DESCRIPTION |
|--|---|
| 5.2.5.2(3) | Deleted the statement that the SRV Acoustic Monitoring System is used for leak detection of NSSS. |
| Table 5.2-8, Section 7.6.1a.4.3.5.1 | Revised to clarify that there is no alarm function for high flow conditions in RHR shutdown cooling which causes an isolation. |
| 5.4.5.1, 5.4.5.2 | Changed the description of the MSIV closure design basis. |
| 5.4.7.1.1.3, 6.2.2.2 | Administratively changed to clarify the description, design and licensing bases for the use of the suppression pool cooling. |
| 5.4.7.1.3, Table 5.4-3, Section 6.2.6.3, Table 6.2-12, Table 6.2.22, and Section 6.3.2.6 | Deleted reference to valves HV 151-F097, F055A(B), F141A(B) in the RHR System to reflect elimination of the steam condensing mode. |
| 6.2.2.2 | Added clarification to indicate that containment cooling/spray is initiated when directed by Emergency Operating Procedures and may be done simultaneously with LPCI Injection. |
| 6.2.3.2.3.1, Table 6.2-15, Figure 6.2-66D & E | Revised the discharge path of the Drywell Floor Drain Sump and Drywell Equipment Drain Tank drain lines. |
| 6.2.2.4 | Changed to reflect deletion of lever and addition of local disc position indicators to the RHR pump discharge check valve. |
| 6.2.4.3.6, 6.2.4.3.6.3, 6.2.6.3, Tables 6.2-12 and 6.2-22 | Changed to reflect elimination of Appendix J, Type C Leak Rate Testing for CIV's which are located in lines that penetrate the primary containment and terminate below the minimum water level in the suppression pool. |
| 6.2.6 | Incorporated changes from 10 CFR 50, Appendix J, Option B and R. G. 1.163 for performance based testing. |
| Table 6.2-12A | Added check valve 2F028 as a containment boundary valve for penetration #217. |
| Table 6.2-12, Section 6.3.2.2.3, and Table 6.3-2 | Changed the stroke time requirements for Core Spray Injection Valves HV-152(252)F005A, B to reflect modifications to the motor actuators. |
| Table 6.2-12, Table 8.5-5 | Redesignated penetrations for use with CRM system. |
| Table 6.2-13 | Corrected typographical errors in the hydrogen and oxygen generation rates. |
| 6.3.2.2.3 | Revised to reflect the addition of local disc position indicators on the Core Spray Pump Discharge Check Valves. |
| 6.3.4.2.1, 6.3.5, 7.3.1.1a.1.3.2, 7.3.1.1a.1.3.5, 7.3.1.1a.1.3.7, 7.3.1.1a.1.3.9 | Changed to clarify surveillance test practices for the HPCI System. |
| Table 6.2-12, Table 6.2-22 | Redesignated spare penetrations for use in the CRM System. |

| FSAR SECTION | DESCRIPTION |
|--|--|
| 7.1.2.5.6 | Added reference to BTP EICSB 10. |
| Table 7.1-3, Sections 7.4.2.1.2.3.4, 7.4.2.1.2.1.11, Table 6.2-15a, Section 7.4.2.1.2.1.1, Section 3.1.2.4.4 | Editorial changes. |
| Table 7.1-3 | Deleted reference to BTP EICSB-24. |
| 7.2.1.1.3, 8.3.1.6 | Changed to clarify that the inertia of the RPS MG set flywheel is sufficient to maintain voltage and frequency ratings for switching or other transients of short duration. |
| 7.3.1.1a.2.4.3.5 | Corrected typographical error - MSIV isolation occurs on Level 1, not Level 2. |
| 7.3.1.1a.1.5.5, Question 032.73 | Added a description of Core Spray Pump interlocks between Unit 1 and Unit 2. Deleted statement from Question 032.73. |
| 7.3.1.1a.2.4.1.1.6, 7.3.1.1b.1.3, 7.3.2a.2.2.3.1.14, | Revised to reflect the addition of bypasses associated with MSIVs and CIG valves. |
| 7.3.1.1a.2.4.1.1.6, 7.3.1.1b.1.3, 7.3.1.1b.8.3.2, 7.3.2a.2.2.3.1.12, 7.3.2a.2.1.13, 7.3.2a.2.2.3.1.14, | Revised to reflect the addition of bypasses associated with MSIVs and CIG valves. |
| 7.3.1.1a.2.4.1.9.3, 7.3.1.1a.2.4.1.9.5 | Clarified the description the RWCU system differential flow circuitry. |
| 7.3.1.1b.8.2.2.4, 3.3.2.4 | Section 7.3.1.1b.8.2.2.4 was changed to add an exception for RHRSW heat exchanger inlet valves. Section 3.3.2.4 was changed to clarify spray pond riser and distribution piping description. |
| 7.3.2a.1.2.3.1.2, 7.4.1.1.3.6, 7.6.2a.4.2.2 | Enhanced the text to provide a more complete description and cross references. |
| 7.6.1b.1.1.1 | Editorial change. |
| 7.6.1b.1.2.1 | Editorial change. |
| 7.7.1.2.5.2 | Added "4 ROD DISPLAY INOP" to list of Main Control Room lights. |
| 7.7.1.14 | Revised description of accelerometer mounting locations. |
| 8.1.5.1 | Editorial change to provide consistency with the stability discussion in Section 8.2.2.2. |
| 8.1.6.1(a) | Added clarification to the compliance with R.G. 1.6 relative to the 125 VDC common load transfer. |
| 8.1.6.1(r) | Editorial change. |
| Table 8.1-2 | Updated table by the addition of new listings. |
| 8.2.2, Table 8.2-1 | Updated the offsite power analysis discussion. |
| Tables 8.3-1, 8.3-1a, 8.3-1c, 8.3-2, 8.3-2a, 8.3-3, 8.3-3a, 8.3-4, 8.3-4a, 8.3-5, 8.3-5a | Revised to reflect reductions in Non-ESF Load - Essential Lighting. |
| 8.3.2.2.1 | Changed the reference for IEEE Standard 450 from 1972 version to 1980 version. Added reference to IEEE 484-1975 to be applicable to plant Class IE batteries. |

| FSAR SECTION | DESCRIPTION |
|---|---|
| Table 8.3-1, Figure 8.3-3, Table 9.2-17 | Revised to reflect increased operating loads and capacities for Unit 1 Reactor Building Chillers. |
| 9.1.3, Appendix 9A, Table 9.1-2e | Provided clarification requested by NRC regarding the source of heat loads used in Appendix A analysis and those applicable to FPCCS design. |
| 9.1.4 | Changed to allow the use of nylon slings for handling new fuel assemblies in lieu of the general purpose grapples. |
| 9.1.4.2.3.1 | Changed to allow temporary relocation of the fuel prep machine up-travel-stop to accommodate new fuel shuffles into the fuel pool and assembly of ABB fuel bundles. |
| 9.1.4.2.10.2.4.1, 9.1.4.2.7.1 | Added text to clarify fuel shuffles are not required. |
| 9.1.5 | Corrected figure reference. |
| 9.2.5.2 | Changed material for the RHR Pump motor oil cooler. |
| 9.2.5.2, 9.2.6.2 | Changed the description of the ESW and RHRSW to correct tube material identification, added the description of the piping corrosion monitoring program, and clarified the functions of the ESW during normal power generation to include suppression pool and surveillance testing in addition to shutdown (cooling) and emergencies. |
| 9.2.12.3.2.3, 9.4.2.1.2, Table 9.4-3 | Changed to reflect changes made to improve refueling floor air temperature by regulating Zone III heating and cooling coil operation via Zone III exhaust air temperature rather than Zone III supply air temperature. |
| Figure 9.2-1B | Updated figure with latest P&ID. |
| 9.3.1.1.2 | Changed editorially to address use of manual valves. |
| 9.4.2.1 | Added a note to the Reactor Building HVAC System for normal operation description indicating the Railroad Access Shaft is a "No Zone". |
| Table 9.4.6 | Increased the maximum allowable differential pressure across the Radwaste Building supply air filter. |
| 9.5.5.1 | Clarified the quality group classification identified for the diesel cooling water system. |
| Table 9A-2 | Deleted table. |
| 10.2.3.6, 10.2.5 | Revised turbine valve exercising guidance. |
| 10.4.1.5.1 | Changed the condenser low vacuum alarm setpoint. |
| 10.4.1.3.2, 10.4.1.5.2, Table 11.2-1, | Documented changes made to the LWR System required by the installation of the condenser hotwell HP, IP, LP sample streams and the SF6 gas injection. |

| FSAR SECTION | DESCRIPTION |
|--|---|
| 10.4.3.1, Figure 10.4-4, Figure 10.4-9 | Revised to reflect the replacement of portions of the steam seal piping with low alloy steel where wall thinning due to erosion/corrosion had taken place. |
| 11.2.2.3 | Removed reference to internal mixing eductors from the description of the Liquid Radwaste Chemical Processing Subsystem. |
| 11.2.4, Table 11.2-15 | Changed the dilution factor for consumption of aquatic biota and shoreline exposure from 5.0 to 15.9. |
| 11.4.2.2, Table 11.4-3, Table 11.4-4 | Changed text to reflect use of radwaste solidification and elimination of waste/cement process. |
| 12.1, 12.5, 13.4, 17.2, Tables 13.1-1,-2,-3, Figures 13.1-1, -2, -3, -3a, -3b, -3c, -3d, -4, -4a, -4b, -4c, -6a, -6b, -6c, -6d, -7 | Changed to reflect changes in the Nuclear Department Organization. |
| 12.5.1.2, Table 12.5-1 | Revised to reflect changes to the Health Physics organization. |
| 12.5.3.7.2.1, 12.5.3.7.2.2 | Updated Health Physics Level I and II training requirements. |
| 13.1.2.2.7 | Changed to delete reference to the Curriculum Development Supervisor. |
| 13.4.1 | Administrative changes to reflect onsite organization and PORC composition. |
| 13.5.2.2.10 | Changed the code requirement from ANSI N45.2.9-1979 to ANSI N45.2.9-1974. |
| 15.6.5.5.1, 3.13, Tables 6.5-2, 15.6.22 | Increased assumed secondary containment bypass leakage rate from 5 scfh to 9 scfh. |
| 17.2.1.1.2.2 | Added the NDE Level III responsibility under the Manager-Nuclear Technology. |
| 18.1.7.3 | Revised to reflect replacement of the Nuclear Safety Assessment Group (NSAG) with Independent Safety Evaluation Services (ISES). |
| 18.1.13.3, 18.2.26.3 | Administrative change to correct procedure numbers. |
| 18.21.3.5, Table 18.1-7 | Changed to reflect revised dose rates and power uprate considerations. |
| Question 040.41 | Question response changed to reflect response to violations 387/88-18-03 and 388/88-21-03 (PLA-3126) and incorporation of fuel oil procurements under the receiving inspection program. |
| Question 211.251 | Response has been supplemented to reflect modification of the RHR suction valves to preclude pressure locking. |
| General | Editorial changes made to facilitate use of electronic storage and retrieval of the text. |

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of :

PENNSYLVANIA POWER &
LIGHT COMPANY :

Docket No. 50-387
and 50-388

REVISION NO. 51

FINAL SAFETY ANALYSIS REPORT
FOR THE
SUSQUEHANNA STEAM ELECTRIC STATION
UNITS NO. 1 AND NO. 2

Pennsylvania Power & Light Company, hereby files Revision 51 to its Final Safety Analysis Report dated July 31, 1978.

PENNSYLVANIA POWER & LIGHT COMPANY
BY:



R. G. Byram
Senior Vice President - Generation and Chief Nuclear Officer

Sworn to and subscribed before me
this 15th of April, 1997.

