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50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
AUTH.NAME AUTHOR AFFILIATION
KEISER,H.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
BUTLER,W.R. Project Directorate I-2

SUBJECT: Advises that Rev 3 to fire protection review rept forwarded under different cover for review & approval.

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NOTES:LPDR 2 cys Transcripts. 05000387
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Pennsylvania Power & Light Company

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Harold W. Keiser  
Senior Vice President-Nuclear  
215/770-4194

JUN 30 1988

Director of Nuclear Reactor Regulation  
Attn.: Dr. W. R. Butler, Project Director  
Project Directorate I-2  
Division of Reactor Projects  
Mail Station P1-137  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
REVISION NO. 3 TO THE FIRE PROTECTION  
REVIEW REPORT  
PLA-3047 FILES R41-2,S013,P5-1,A17-15

Docket Nos. 50-387  
and 50-388

Dear Dr. Butler:

Under separate cover we are sending Revision No. 3 to the Susquehanna SES Fire Protection Review Report for your review and approval. The Fire Protection Review Report shows our compliance to the requirement of Appendix A to BTP APCS 9.5-1, 10CFR50 Appendix R Sections III.G, III.J, III.L (as applicable) and III.O, 10CFR50.48 and General Design Criterion 3 of Appendix A to 10CFR50. This revision is a complete rewrite of the Fire Protection Review Report.

This revision to the Fire Protection Review Report represents the culmination of the work done in response to the concerns and issues identified in the 1985 Appendix R NRC Compliance audit. It includes the information generated in response to the specific concerns identified by the NRC in the 1985 Audit, as well as, the work which PP&L felt was essential to improve our Appendix R Program. The reasons why we undertook this substantial upgrade effort and the specifics as to what we did and our required follow-up actions were discussed in a meeting in Region I on March 31, 1988.

The following modifications must be completed before Susquehanna SES is in compliance with the new fire hazards analysis as described in the revised Fire Protection Review Report:

<u>DCP No.</u>	<u>Description</u>
88-3016A	Install sprinklers and curbing on Elevation 806.
88-3016B	Install sprinklers to protect ESW Valves intertie to Control Structure HVAC on Elevation 683.

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The first part of the document discusses the importance of maintaining accurate records. It emphasizes that proper record-keeping is essential for ensuring the integrity and reliability of the data collected. This section also outlines the various methods used to collect and analyze the data, highlighting the challenges faced during the process.

In the second part, the authors describe the results of their study. They present a detailed analysis of the data, showing that there is a significant correlation between the variables studied. The findings suggest that the proposed model is effective in predicting the outcomes of the experiment. The authors also discuss the limitations of their study and provide suggestions for future research.

The third part of the document focuses on the practical applications of the research. It discusses how the findings can be used to improve the efficiency of the process and to identify areas for further improvement. The authors conclude by summarizing the key points of the study and expressing their confidence in the results.

<u>DCP No.</u>	<u>Description Cont'd.</u>
88-3016C	Relocate SGTS Equipment Room Temperature Switch on Elevation 806.
88-3016D	Relocate Control Structure Chilled Water Instrument on Elevation 783.
88-3016E	Install heat shield on Elevation 783.
88-3016G	Install emergency lighting in common structures.
88-3016H	Add second location for Control Structure HVAC Operation.
88-3016I	Upgrade Diesel Generator Coolers/ESW.
88-3016J	Modify wiring on local control switch for Diesel Generator A operation.
88-3016K	Modify wiring on local control switch for Diesel Generator B operation.
88-3016L	Modify wiring on local control switch for Diesel Generator C operation.
88-3016M	Modify wiring on local control switch for Diesel Generator D operation.
88-3016N	Modify wiring on local control switch for Diesel Generator E operation.
88-3017A	Modify Emergency Switchgear Cooling fans in Unit 1.
88-3017B	Install isolation for RHR F009 valve for a fire in the Unit 1 Remote Shutdown Panel.
88-3017C	Install emergency lighting in Unit 1.
88-3017D	Replace 125V DC Trip Units in Unit 1.
88-3017E	Install protection for the Unit 1 RHR Hx Service Water valves.
88-3017F	Install protection for the Unit 1 RWCU isolation valves for a fire in the Control Room.
88-3017G	Isolate the Unit 1 HPCI and RCIC deluge valve cables from the Control Room.
88-3017H	Reroute cables from the Unit 1 Remote Shutdown Panel.

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 309

LECTURE 10

STATISTICAL MECHANICS

ENTROPY

AND THE SECOND LAW

OF THERMODYNAMICS

LECTURE 11

ENTROPY

AND THE SECOND LAW

OF THERMODYNAMICS

LECTURE 12

ENTROPY

AND THE SECOND LAW

OF THERMODYNAMICS

LECTURE 13

ENTROPY

AND THE SECOND LAW

OF THERMODYNAMICS

<u>DCP No.</u>	<u>Description Cont'd.</u>
88-3017I	Install isolation of RHRSW for a fire in Panel 1C201.
88-3017K	Install Unit 1 RHR 125V DC source breaker.
88-3017L	Replace Unit 1 480V breakers for better coordination.
88-3017M	Install drip shields in Unit 1.
88-3018A	Modify the Emergency Switchgear Cooling Fans for Unit 2.
88-3018B	Install isolation for the RHR F009 valve for a fire in the Unit 2 Remote Shutdown Panel.
88-3018C	Install emergency lighting in Unit 2.
88-3018D	Replace the 125V DC Trip Units in Unit 2.
88-3018E	Install protection for Unit 2 RHR Hx Service Water valves.
88-3018F	Install protection for Unit 2 RWCU isolation valves for a fire in the Control Room.
88-3018G	Isolate the Unit 2 HPCI and RCIC deluge valve cables from the Control Room.
88-3018H	Install Unit 2 RHR 125V DC source breaker.
88-3018I	Replace Unit 2 480V breakers for better coordination.
88-3018J	Install drip shields in Unit 2.
88-3019	Install raceway wrapping in common structures.
88-3020	Install raceway wrapping in Unit 1.
88-3021	Install raceway wrapping in Unit 2.
88-3022	Install fireproofing on structural steel and support steel in common structures.
88-3023	Install fireproofing on structural steel and support steel in Unit 1.
88-3024	Install fireproofing on structural steel and support steel in Unit 2.
87-3028B	Seal conduits in the Control Structure.

The following information was obtained from the records of the  
 Department of the Interior, Bureau of Land Management, on the  
 subject of the land owned by the United States in the  
 State of California, and more particularly in the  
 County of San Diego, and more particularly in the  
 Township of Escondido, and more particularly in the  
 Section 17, T. 12 N., R. 12 E., S. 14 E., and more particularly  
 in the quarter section 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

It is anticipated that the above listing of required modifications will not change; however, if it does and the Fire Protection Review Report needs to be modified, we will inform you. All the required modifications will be completed by December 31, 1989.

In addition to the above listed modifications, certain manual actions must be proceduralized. This task will be completed by December 31, 1989.

We have evaluated the required modifications and procedural actions with respect to nuclear plant safety and concluded that they do not adversely affect safety or plant operability. We have also evaluated the required modifications and procedural actions for reportability and have issued LER #1-88-008. The appropriate compensatory measures have been established to assure safe operation.

Revision 3 of the Fire Protection Review Report will be used as our Licensing basis for plant modifications. This revision incorporates the closeout of the non-conforming items identified in the 1985 Audit to bring Susquehanna SES into full compliance with the appropriate section of 10CFR50 Appendix R as required by our License. We conclude that Revision 3 with the existing compensatory measures outlined below meets the intent of our License Condition. The existing compensatory actions (roving fire watches per PLA-2417 dated 2/22/85) will remain in effect until the modifications are complete in a Fire Area or Revision 3 of the Fire Protection Review Report is approved, whichever is later.

An amendment to revise our existing License Conditions will be submitted under separate cover by 8/15/88.

We will contact you in July to set up a meeting among PP&L, NRR and Region I to discuss the format and contents of the Fire Protection Review Report.

If you have any questions, please contact C.T. Coddington at (215) 770-7915. Pursuant to 10CFR170, the appropriate fee is enclosed.

Very truly yours,



H. W. Keiser

Enclosure

cc: NRC Document Control Desk (original)  
Mr. M. C. Thadani, NRC Project Manager  
Mr. F. I. Young, NRC Sr. Resident Inspector



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BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION

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In the Matter of :

PENNSYLVANIA POWER &  
LIGHT COMPANY :

Docket Nos. 50-387  
50-388

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REVISION NO. 3

FIRE PROTECTION REVIEW REPORT

SUSQUEHANNA STEAM ELECTRIC STATION  
UNIT NOS. 1 AND 2

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Licensee, Pennsylvania Power & Light Company, hereby files Revision No. 3 to its Fire Protection Review Report.

This revision contains a total rewrite of the Susquehanna SES Fire Protection Review Report.

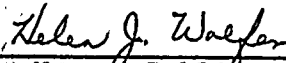
PENNSYLVANIA POWER & LIGHT COMPANY  
BY:



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H. W. Keiser  
Senior Vice President - Nuclear

Sworn to and subscribed before me  
this 30th of June, 1988.

  
Notary Public

HELEN J. WOLFER, Notary Public  
Allentown, Lehigh County, Pennsylvania  
My commission expires April 4, 1989

THE UNITED STATES OF AMERICA

DEPARTMENT OF THE INTERIOR

WASHINGTON, D. C.

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OFFICE OF THE GEOLOGICAL SURVEY

WASHINGTON, D. C.

REPORT OF THE GEOLOGICAL SURVEY

ON THE GEOLOGY OF THE

STATE OF MONTANA

BY GEORGE H. RICE, GEOLOGICAL SURVEY

AND JOHN W. COOPER, ASSISTANT GEOLOGICAL SURVEY

WITH A DESCRIPTION OF THE GEOLOGY OF THE

STATE OF MONTANA, BY GEORGE H. RICE, GEOLOGICAL SURVEY

AND JOHN W. COOPER, ASSISTANT GEOLOGICAL SURVEY

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