

# Davis-Besse Unit 1 Fire Hazard Analysis Report

## DAVIS-BESSE NUCLEAR POWER STATION UNIT NO. 1

### SECTION 2.0

### REFERENCES

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This section serves to identify those references that were utilized in the development of this report. The references identified in this section do not constitute all documents used in the effort, but represent the most pertinent sources of information. These documents are referenced throughout the sections of this report.

### 2.1 Drawings

- A. DB-1 Piping and Instrument Diagrams (P&IDs), M-001 through M-099.
- B. DB-1 AC Electrical System One-Line Diagrams, E-1 through E-29.
- C. DB-1 Elementary Wiring Diagrams, E-30B through E-65B.
- D. DB-1 Fire Protection Drawings, A-221F through 231F.
- E. DB-1 General Floor Plan Drawing, A-3 through A-9.
- F. DB-1 Lighting & Communications Drawings, E-381 through E-409.
- G. DB-1 Raceway Drawings, E-300s and E-400s.
- H. DB-1 General Arrangement and Equipment Location Drawings, M-100s.
- I. DB-1 Electrical Circuit Schedule, E-200B.
- J. DB-1 Electrical Raceway Schedule, E-300B.
- K. DB-1 Equipment Circuit Schedule, E-500B.
- L. DB-1 Fire Protection Piping Drawings, M-269-A through M-269-ZS.
- M. DB-1 Equip/Raceway Fire Protective Coating or Wrapping, E-899A.
- N. DB-1 SFRCS Input Circuits, SF-003A
- O. DB-1 SFRCS Component Actuation, SF-003B
- P. DB-1 SFAS Actuated Equipment Tabulation, E17B
- Q. DB-1 SFRCS Actuated Equipment Tabulation, E19B
- R. DB-1 Barrier Function List, C-1594

### 2.2 Procedures

- A. DB-1 System Descriptions (See applicable System Description)
- B. DB-1 Abnormal Procedure, DB-OP-02501, "Serious Station Fire".
- C. DB-1 Abnormal Procedure, DB-OP-02508, "Control Room Evacuation".

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- D. DB-1 Abnormal Procedure, DB-OP-02519, "Serious Control Room Fire".
- E. DB-1 Emergency Procedure, DB-OP-02521, "Loss of AC Power Sources".
- F. DB-1 Emergency Procedure, DB-OP-02000, "RPS, SFAS, SFRCS Trip or SG Tube Rupture".
- G. DB-1 Maintenance Procedure, DB-ME-04100, "Emergency Lighting System Test".
- H. DB-1 Fire Protection Procedure, DB-FP-04005, "Fire Brigade Equipment Monthly Inspection".
- I. DB-1 Pre-Fire Plan Manual, (contains applicable pre-fire plans)

### 2.3 Reports

- A. Not Used
- B. Not Used
- C. Not Used
- D. DB-1 Updated Safety Analysis Report (USAR), Volumes 1-12, Docket No. 50-346.
- E. Fire Protection Handbook, 14th Edition, dated September 1980.
- F. Not Used
- G. Not Used
- H. Appendix R Radio Communications Study, Rev. 2 July 12, 1990 (NEP 90-08197)
- I. Dry Fuel Storage Basis Manual
- J. BAW-1990 B&W Design Review Report for the Byron Jackson N-9000 Seal
- K. Byron Jackson N-9000 Instruction Manual
- L. B&W N-9000 Appendix R Evaluation (B&W Doc I.D. 51-1172516-00)
- M. Time-Line Study for Appendix R Operator Actions

### 2.4 NRC Documents

- A. U.S. Code of Federal Regulations, Title 10, Part 50, Appendix R.
- B. U.S. NRC I.E. Information Notice 84-09, "Lessons Learned from NRC Inspections of Fire Protection Safe Shutdown Systems (10CFR50, Appendix R)", dated February 13, 1984

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- C. U.S. NRC I.E. Information Notice 85-09, "Isolation Transfer Switches and Post-Fire Shutdown Capability", dated June 1985.
- D. U.S. NRC Generic Letter 81-12, "Fire Protection Rule (45 FR 76602, November 19, 1980)", dated February 20, 1981, including supplement.
- E. U.S. NRC Memorandum (R. Mattson to D. Eisenhut), "Clarification of Generic Letter 81-12", dated March 1982.
- F. U.S. NRC Generic Letter 83-33, "NRC Positions on Certain Requirements of Appendix R to 10CFR50" dated October 14, 1983.
- G. U.S. NRC Generic Letter 85-01, "Fire Protection Policy Steering Committee Report", dated January 9, 1985 (Superseded by GL 86-10).
- H. U.S. NRC Regulatory Guide 1.97, "Instrumentation for Light Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident", Revision 1.
- I. U.S. NRC Generic Letter 86-10, "Implementation of Fire Protection Requirements", dated April 24, 1986.
- J. U.S. NRC I.E. Information Notice 92-18, "Potential for Loss of Remote Shutdown Capability during a Control Room Fire", dated February 28, 1992.

### 2.5 Letters

- A. Toledo Edison Letter to NRC, "Appendix R Request for Control Room and Component Cooling Water Room", April 29, 1982, Serial No. 815. (See also Ref. 2.5.K)
- B. NRC Letter to Toledo Edison, "Appendix R to 10CFR50 - Exemption From Certain Technical Requirements", November 23, 1982, Log No. 1138.
- C. Toledo Edison Letter to NRC, "Appendix R Exemption Requests", September 30, 1983, Serial No. 991.
- D. NRC Letter to Toledo Edison, "Exemption From Certain Requirements of Appendix R to 10CFR50", August 20, 1984, Log No. 1586.
- E. Toledo Edison Letter to NRC, "Appendix R Exemption Requests", January 12, 1987, Serial No. 1327.
- F. Toledo Edison Letter to NRC, "Fire Protection - Manual Operator Actions", March 15, 1989, Serial No. 1642.
- G. Toledo Edison Letter to NRC, "Fire Protection - 10CFR50, Appendix R Exemption Requests", July 31, 1989, Serial No. 1694.
- H. Toledo Edison Letter to NRC, "Fire Protection - Appendix R Exemption Request Involving Conduits Embedded in Concrete", September 30, 1989, Serial No. 1719.

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- I. Toledo Edison Letter to NRC, "Appendix R Pressurizer Level Exemption Request Withdrawal and Protection of Containment Equipment", October 20, 1989, Serial No. 1722.
- J. NRC Letter to Toledo Edison, "Exemption to 10CFR50, Appendix R, Section III.G & III.J", April 18, 1990, Log No. 3219.
- K. NRC Letter to FENOC, "Exemption from the Requirements of 10 CFR 50, Section III.G of Appendix R," December 26, 2002, Log 6041.
- L. Toledo Edison Letter to NRC, "Fire Protection - National Fire Protection Association (NFPA) Code Review", July 31, 1989, Serial Number 1685.
- M. Toledo Edison Letter to NRC "Fire Protection - Protection of Equipment Against the Effects of Inadvertent Fire Suppression System Actuation", November 22, 1989, Serial Number 1735.
- O. Toledo Edison Letter to NRC Response to Questions 19, 20, and 29 from RAI and Code Compliance Review NFPA 72E and 13, May 23, 1988, Serial No. 1497
- P. NRC Letter to Toledo Edison, "Amendment 18 to Facility Operating License", July 26, 1979, Log No. 409.
- Q. NRC Letter to Toledo Edison, "Amendment 24 to Facility Operating License", April 29, 1980, Log. No. 547
- R. NRC Letter to Toledo Edison, "Safety Evaluation of Fire Protection Measures at the Davis-Besse Nuclear Power Station", May 30, 1991, Log No. 3480.
- S. Toledo Edison Letter to NRC, Exemption Request for Remote Oil Fill System, November 18, 1997, Serial 2493
- T. NRC Letter to Toledo Edison, "Issuance of Exemption from the Requirements of 10CFR; Part 50, Appendix R, Section III.O Regarding Oil Collection Systems for Reactor Coolant Pumps," January 30, 1998, Log 5205.
- U. Toledo Edison Letter to NRC, "Fire Protection - Request for Deviations on Assembly of the Fire Brigade", September 30, 1989, Serial 1-893.
- V. NRC Letter to FENOC, "Exemption from the requirements of 10 CFR 50, Appendix R, Section III.G 3," July 21, 2005, LOG 6317.
- W. Renewed Operating License, December 8, 2015

### 2.6 Calculations

- A. "Natural Circulation Cooldown with the Continuous Vent Line Installed" Toledo Edison Calculation C-NSA-064.02-018
- B. "RFA-87-0095-00, Safe Shutdown During a Fire With One CAC", Toledo Edison Calculation C-ME-60.05-004.

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- C. Non-Rated Opening Calculations, Toledo Edison Calculations C-FP-013.06-001 series.
- D. “Combustible Loading Contribution of Electrical Raceways & Enclosures” and “Combustible Loading Analysis”, Toledo Edison Calculations C-FP-013.10-005 and C-FP-013.10-006, respectively.
- E. “Coordination of Low Voltage Circuits”, C-EE-002.01-011.
- F. Not Used
- G. “120V AC, 240V AC Coordination Evaluation”, S&L Calculation 7453-10-EAD-1.
- H. “480V Breaker Coordination to Meet Common Power Source Criteria for Appendix R,” Toledo Edison Calculation C-EE-013.10-001.
- I. “Multiple High Impedance Faults Caused by 10CFR50 Appendix R Fire”, Toledo Edison Calculation C-EE-017.01-003.
- J. “Multiple High Impedance Faults Caused by 10CFR50 Appendix R Fire”, Toledo Edison Calculation C-EE-006.01-003.
- K. “Cable Ampacity Calculation”, Calculation C-EE-015.07-010.
- L. “Impact of Fire Transients in other areas on LVSWGR/Battery Rms.”, Toledo Edison Calculation C-ME-30.01-003.
- M. “Inadvertent Containment Spray Actuation - Appendix R,” Calculation C-NSA-061.01-007.
- N. Davis-Besse Appendix R Overheating Summary Report, NSA-64.02-032
- O. C-NSA-065.01-018, Davis-Besse MU System Analysis - Appendix R
- P. C-NF-062.02-019, Davis-Besse Appendix R 1% Shutdown Value Verification.
- Q. SW System Performance Following an App R Event (Proto-Power Calc 03-011 and Associated Document NPE-03-00051).

### 2.7 Miscellaneous

- A. RFA-89-1966, Ventilation Requirements for Room 050
- B. RFA-89-1852, Ventilation Requirements for ECCS Pump Rooms
- C. RFA-89-1903, Emergency Diesel Generator Circuits
- D. RFA-89-1939, Ventilation Requirements for the Makeup Pump Room
- E. RFA-90-0311, Safe Shutdown During a Fire With One CAC in Slow Speed

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- F. PCAQR-96-0324, Analysis of MOV Circuits with a Hot Short. Based on IN92-18.
- G. RFA-96-0203, CST Inventory Needed for App. R Shutdown (Related to PCAQ 96-0324)
- H. Evaluation of Time to Achieve Cold Shutdown for Appendix R Alternate Shutdown Fire Areas, dated 07-07-03 (CR 02-06492)