#### 8.0 References

## References for Executive Summary and Chapter 1.0

- 1 Richard J. Dudley, Office of Nuclear Reactor Regulation, letter to Nuclear Energy Institute, dated September 20, 1999.
- 2. Lynnette Hendricks, Nuclear Energy Institute, letter to Office of Nuclear Reactor Regulation, dated November 12, 1999.
- 3. U.S. Nuclear Regulatory Commission, "An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis," Regulatory Guide 1.174, July 1998.
- 4. Bulletin 94-01

### Chapter 2

- 5. Transcript from Commission meeting held on Wednesday, March 17, 1999, "Briefing on Part 50 Decommissioning Issues Public Meeting," in Rockville, Maryland.
- 6. Transcript from public meeting held on April 13, 1999, "Reactor Decommissioning Public Meeting," in Rockville, Maryland.
- 7. Summary of public meeting held on May 5, 1999, "Summary of Meeting with the Nuclear Energy Institute and Public Stakeholders," May 28, 1999.
- 8. Memorandum from Gary Holahan, NRC to John Zwolinski, NRC, "Preliminary Draft Technical Study of Spent Fuel Pool Accidents for Decommissioning Plants," June 16, 1999.
- U.S. Nuclear Regulatory Commission, "Regulatory Analysis for the Resolution of Generic Safety Issue 82, "Beyond Design Basis Accidents in Spent Fuel Pools," NUREG-1353, April 1989.
- 10. Benjamin, A.S., McCloskey, D.J., Powers, D.A., and Dupree, S.A, "Spent Fuel Heatup Following Loss of Water During Storage," NUREG/CR-0649 (SAND77-1371), March 1979.
- 11. Sailor, et. al., "Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82", NUREG/CR-4982 (BNL-NUREG-52093), July 1987.
- 12. U.S. Nuclear Regulatory Commission, "Residual Decay Energy for Light-Water Reactors for Long-Term Cooling," Branch Technical Position ASB 9-2, Rev.2, July 1981 from the "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power.
- 13. American Nuclear Society, Draft ANS-5.1/N18.6, "Decay Energy Release Rates Following Shutdown of Uranium-Fueled Thermal Reactors," October 1973.
- 14. *U.S. Code of Federal Regulations*, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Section 65, Part 50, Title 10, "Energy."
- 15. *U.S. Code of Federal Regulations*, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," Appendix B, Part 50, Title 10, "Energy."
- 16. U.S. Code of Federal Regulations, "Conditions of Licenses," Section 54, Part 50, Title 10, "Energy."
- 17. U.S. Code of Federal Regulations, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," Part 72, Title 10, "Energy."
- 18. Summary of public meeting held on July 15-16, 1999, "Summary of Public Workshop on Decommissioning Spent Fuel Pool Risk" September 20, 1999.

4

 U.S. Nuclear Regulatory Commission, Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," July 1998.

## References for Chapter 3.1

- 1. Mellor, A.M., "Heterogenous Ignition of Metals: Model and Experiment", Aerospace and Mechanical Sciences Report No. 816, NASA Grant NsG-641, Department of Aerospace and Mechanical Sciences, Princeton University, Princeton, New Jersey, October 1967.
- 2. Tapscoctt, R.E., *Fire Protection Handbook*, 18<sup>th</sup> Edition, Section 4, Chapter 16, "Metals," National Fire Protection Association, Quincy, MA, February 1997.
- 3. Cooper, "Review of Zirconium-Zircaloy Pyrophoricity," RHO-RE-ST-31P, Rockwell International, Rockwell Hanford Operations, Richland, WA, November 1984.
- 4. Benjamin, A.S., McCloskey, D.J., Powers, D.A., and Dupree, S.A, "Spent Fuel Heatup Following Loss of Water During Storage," NUREG/CR-0649 (SAND77-1371), March 1979.
- Benjamin, A.S., "Dynamic Modeling of Physical Phenomena for Probabilistic Assessment of Spent Fuel Accidents," Sandia National Laboratories, SAN097-2870C, November 1997.
- 6. Condliff, Alex, F., Materials Selection & Design, "Avoiding Zirconium Equipment Pyrophoric Incidents," October 1988.
- 7. Levitz, N.M., Kullen, B.J., and Steindler, M.J., "Management of Waste Cladding Hulls. Part I. Pyrophoricity and Compaction", ANL-8139, Argonne National Laboratory, February 1975.
- 8. Markstein, G.H., "Combustion of Metals," Technical Report CAL-86-P, Cornell Aeronautical Laboratory, November 1962.
- 9. Perkins, K.R., and Connell, H., "Impact of Revised Reaction Rate Equation on the Likelihood of Zirconium Fires in a Drained Spent Fuel Pool (Task 5)," Brookhaven National Laboratory, August 27, 1986.
- 10. Tapscoctt, R.E., *Fire Protection Handbook*, 17<sup>th</sup> Edition, National Fire Protection Association, Quincy, MA.
- 11. Schulz, Wallace, "ARH-2351 Shear-Leach Processing of N-Reactor Fuel - Cladding Fires," Separations Chemistry Laboratory, Research and Development, Chemical Processing Division, Atlantic Richfield Hanford Company, Richland, WA, February 15, 1972.

9.0 Acronyms

ANSI American National Standard Institute

ANS American Nuclear Society

ASB NRC Auxiliary Systems Branch (Plant Systems Branch)

atm atmosphere

BNL Brookhaven National Laboratory

BTP Branch Technical Position
BWR Boiling Water Reactor

CFD Computational Fluid Dynamics

CFM Cubic Feet per Minute

CFR Code of Federal Regulations

DOE Department of Energy

DSP Decommissioning Status Plant

ECCS Emergency Core Cooling System EPRI Electric Power Research Institute

ET Event Tree

FAA Federal Aviation Administration FFU Frequency of Fuel Uncovery

FT Fault Tree

gpm Gallon(s) per Minute GSI Generic Safety Issue

GWD Gigawatt-Day

HCLPF High Confidence / Low Probability of Failure

HRA Human Reliability Analysis

HVAC Heating, Ventilation, and Air Conditioning

INEL Idaho National Engineering and Environmental Laboratory

ISFSI Independent Spent Fuel Pool Installation

kW Kilowatt

LLNL Lawrence Livermore National Laboratory

MR Maintenance Rule

MW Megawatt
MWD Megawatt-Day
MTU Megaton Uranium

NEI National Energy Institute

NFPA National Fire Protection Association NRC Nuclear Regulatory Commission

NRR NRC Office of Nuclear Reactor Regulation

POE Probability of Exceedance

POF Probability of Failure

PRA Probabilistic Risk Assessment PWR Pressurized Water Reactor

QA Quality Assurance

RES NRC Office of Research

RG Regulatory Guide

SF Spent Fuel

SFP Spent Fuel Pool

SFPCC Spent Fuel Pool Cooling and Cleaning System

SNL Sandia National Laboratory

SRP Standard Review Plan

SSC Systems, Structures, and Components

SSE Safe Shutdown Earthquake

TS Technical Specification

UKAEA United Kingdom Atomic Energy Authority

# Appendix 1 Event Trees and Fault Trees

Appendix 2 Structural Integrity of Spent Fuel Pool Structures Subject to Seismic Events

Appendix 3 Structural Integrity of Spent Fuel Pool Structures Subject to Heavy Loads

Appendix 4 Structural Integrity of Spent Fuel Pool Structures Subject to Tornados and High Winds

Appendix 5 Structural Integrity of Spent Fuel Pool Structures Subject to Aircraft Crashes

Appendix 6 Consequence Assessment from Zirconium Fire

Appendix 7 Potential for Criticality in Decommissioning Spent Fuel Pools

Appendix 8 Guidance for Part 72 Independent Spent Fuel Storage Installations

Appendix 9 Potential Fire Protection Methods for Mitigation of a Zirconium Fire

## Appendix 10 Stakeholder Interactions