

Docket No. 50-413/414-01A Official Exh. No. SEC-1  
 In the matter of Duke Catawba  
 Staff \_\_\_\_\_  
 Applicant ✓  
 Intervenor \_\_\_\_\_  
 Cont'g Off'r \_\_\_\_\_  
 Contractor \_\_\_\_\_ DATE \_\_\_\_\_  
 Other \_\_\_\_\_  
 Reporter \_\_\_\_\_

1/11/05  
 1/11/05 STEVEN P. NESBIT

Duke Power  
 526 South Church Street  
 Charlotte, NC 28202

DOCKETED  
 USNRC

2005 FEB 17 PM 2: 53

OFFICE OF THE CHIEF  
 RULE MAKING  
 ADJUDICATIONS

#### QUALIFICATIONS:

Mr. Nesbit has 24 years nuclear engineering and management experience in the commercial sector and on Department of Energy (DOE) projects. He is the Mixed Oxide ("MOX") Fuel Project Manager for Duke Power, which is playing a key role in the DOE program to dispose of surplus weapons plutonium. He has 22 years experience with Duke Power. In addition, Mr. Nesbit has managed activities for the Managing and Operating Contractor to DOE's Office of Civilian Radioactive Waste Management. He also has expertise in nuclear safety analysis technology. Mr. Nesbit has extensive experience interacting with the Nuclear Regulatory Commission and he has authored numerous topical reports and technical papers.

#### EDUCATION/TRAINING:

ME, Nuclear Engineering, University of Virginia, 1982  
 BS, Nuclear Engineering, University of Virginia, 1980  
 Graduate course work, Environmental Science

Supervisory Development Program, Duke Power

#### PROFESSIONAL AFFILIATIONS/CERTIFICATIONS:

Registered Professional Engineer, North Carolina  
 Registered Professional Engineer, South Carolina  
 American Nuclear Society

#### EXPERIENCE:

##### 3/99-Present Engineering Supervisor II - Duke Power

Manages Duke Power's activities as part of the project to dispose of surplus United States weapons plutonium using MOX fuel. Directs technical, licensing, and business activities. Serves as a public spokesperson on the MOX fuel project.

##### 09/96-3/99 Consulting Engineer - Duke Power

Led Duke Power's feasibility investigations regarding using MOX fuel at the company's three nuclear plants to support DOE's surplus weapons plutonium disposition program. Served as a representative on the Nuclear Energy Institute's Working Group on Surplus Weapons Plutonium Disposition. Interacted with external groups (Congress, DOE, and the

public) in support of the MOX fuel project.

**11/95-09/96    Engineering Supervisor II - Duke Engineering & Services (DE&S)**

Supervised the Design Basis and Project Integration Section of the DOE Office of Civilian Radioactive Waste Management (OCRWM) Management and Operating Contractor. Developed environmental design criteria and performed design basis accident evaluations for an interim storage facility for spent nuclear fuel.

**05/94-11/95    Manager, Regulatory Interactions Section - DE&S**

Manager of the Las Vegas Regulatory Interactions Section of the Regulatory and Licensing Department of the Management and Operating contractor for the DOE OCRWM. Responsibilities of the seven-person section included interactions with the NRC staff and on-site representatives, the Advisory Committee on Nuclear Waste, and the Nuclear Waste Technical Review Board; development of regulatory positions; regulatory reviews; Site Characterization Analysis comment responses; regulatory commitments; and NRC issue resolution activities.

**12/92-04/94    Engineering Consultant - DE&S**

Licensing Engineer in the Las Vegas Regulatory and Licensing Department of the Management and Operating contractor for the DOE OCRWM. Provided nuclear power plant licensing experience and general support to the DOE Yucca Mountain Site Characterization Office. Assisted with interactions between the DOE, the National Academy of Sciences, the Environmental Protection Agency, and the NRC, related to the development of an environmental standard for the potential repository at Yucca Mountain.

**1991-1992    Utility Engineering Group (UEG) Site Engineer - DE&S**

Site Engineer in Washington, D.C., for the DE&S Utility Engineering Group. Provided utility perspective and experience to the DOE for the New Production Reactor Project. Served on the staff of the Chief Engineer of the project. Provided day-to-day liaison with the various project areas. Served as Project Engineer for the UEG. Managed the DE&S Washington, D.C., office.

**1990-1991    Senior Engineer - Duke Engineering & Services**

Worked in the safety review area of the UEG. Provided utility perspective and experience to the New Product Reactor Project in the area of nuclear reactor safety.

**1988-1990      Design Engineer - Duke Power**

Lead engineer in the area of nuclear safety analysis technology, a work group comprised of five engineers. Worked on developing mass and energy release analysis capability for high energy line breaks at Oconee, McGuire, and Catawba Nuclear Stations. Used the RELAP5/MOD002 transient analysis computer code and wrote in-house analytical codes. Worked to develop reactor building analysis capability for large dry and ice condenser containments, including applications of the FATHOMS (COBRA-NC) and CONTEMPT computer codes. Tested the upgraded Oconee training simulator and evaluated vendor performance. Represented the Babcock and Wilcox Owners Group (B&WOG) on the Project Management Group of the Multi-Loop Integral System Test Facility, a thermal-hydraulic research project sponsored by the B&WOG, the Electric Power Research Institute (EPRI) and the NRC. Served on the Duke Power Crisis Management Team.

**1982-1988      Design Engineer/Assistant Engineer/Junior Engineer - Duke Power**

Lead safety analysis engineer for the Oconee Nuclear Station, a work group of up to five engineers. Served as Duke Power representative on the B&WOG Analysis Committee. Participated in the Technical Advisory Group, a committee comprised of B&WOG, EPRI and NRC representatives, which evaluated the need for thermal hydraulic testing related to once-through steam generators. Helped develop symptom-oriented emergency procedures for Oconee. Performed extensive RETRAN benchmarks of plant transients and helped prepare a safety analysis methods topical report for submission to the NRC. Served as one of 12 auditors for the inaugural Duke Power Self-initiated Technical Audit, patterned after the NRC Safety System Functional Inspections. Participated in fuel loading and start-up physics testing at McGuire Nuclear Station. Participated in zero power physics testing at Oconee. Performed system and containment analyses of the Oconee plant. Prepared technical justifications for emergency Technical Specification changes which prevented unnecessary unit shutdowns.

**1979-1982      Reactor Operator/Reactor Operator Trainee - University of Virginia Reactor Facility**

Reactor Operator Trainee and licensed Reactor Operator for the 2-MW research reactor in Charlottesville, Va. Duties included shift operation work, training and fuel handling.

#### AWARDS/HONORS:

"Doer of Deeds," Yucca Mountain Site Characterization Office, February 2, 1994.  
Newcomb/Thornton Fellowship, University of Virginia, 1980-1981.  
Bachelor of Science with Highest Distinction, University of Virginia, 1980.

#### PUBLICATIONS:

- Nesbit, S. P., Scott, M. W., Eller, J. L., Verbos, F. J., and Costello, M. V., "Non-LOCA Safety Analysis for Operation with Weapons Grade MOX Fuel Lead Assemblies," American Nuclear Society Winter Meeting 2003, New Orleans, LA, November 2003.
- Nesbit, S. P. and Eller, J. L., "Basis for the Design of Reactor Cores Containing Weapons Grade MOX Fuel," Advances in Nuclear Fuel Management III, Hilton Head, SC, October 2003.
- Anderson, S. L., Gilreath, J. D., Nesbit, S. P., and Laubam, T. J., "Mixed Oxide Fuel Effects on the Integrity of the McGuire and Catawba Reactor Vessels," Fifth Topical Meeting on Spent Nuclear Fuel and Fissile Materials Management, Charleston, SC, September 18, 2002.
- Buckner, M. R., Bengelsdorf, H. D., and Nesbit, S. P., "American Nuclear Society Nonproliferation Position Statement," Fifth Topical Meeting on Spent Nuclear Fuel and Fissile Materials Management, Charleston, SC, September 18, 2002.
- Clark, R. H., Dziadosz, D., and Nesbit, S. P., "MOX Fuel Irradiation Program for Disposition of Surplus United States Plutonium," Fourth Topical Meeting on Department of Energy Spent Nuclear Fuel and Fissile Materials Management, San Diego, SC, June 7, 2000.
- Nesbit, S. P. and Bengelsdorf, H. D., "A Comparison of Surplus Weapons Plutonium Disposition Technologies," Third Topical Meeting on Department of Energy Spent Nuclear Fuel and Fissile Materials Management, Charleston, SC, September 9, 1998.
- S. P. Nesbit, "A Utility Perspective on Surplus Weapons Plutonium Disposition in Existing United States Light Water Reactors," Advances in Nuclear Fuel Management II, Myrtle Beach, S.C., March 1997.
- S. P. Nesbit, S. J. Brocoum, M. A. Lugo, J. A. Duguid, P. M. Krishna, "Regulatory Perspective on NAS Recommendations for Yucca Mountain Standards," 7th Annual International High-Level Radioactive Waste Management Conference, Las Vegas, NV, May 1, 1996.

- J. Carl Stepp, Silvio Pezzopane, Quazi Hossain, Michael Hardy, Steven P. Nesbit, "Criteria for Design of the Yucca Mountain Structures, Systems, and Components for Fault Displacement," FOCUS '95 - Methods of Seismic Hazards Evaluation, Las Vegas, NV, September 20, 1995.
- J. Carl Stepp, Michael P. Hardy, Quazi A. Hossain, Steven P. Nesbit, J. Timothy Sullivan, "Seismic Design Methodology for a Geologic Repository at Yucca Mountain," 6th Annual International High-Level Radioactive Waste Management Conference, Las Vegas, NV, May 4, 1995.
- D. Stahl, S. P. Nesbit, L. Berkowitz, "Approach to Compliance with the NRC Substantially Complete Containment Requirement at the Potential Repository at Yucca Mountain," 6th Annual International High-Level Radioactive Waste Management Conference, Las Vegas, NV, May 3, 1995.
- S. P. Nesbit, S. J. Brocoum, "New Public Health and Safety Standards for Yucca Mountain and Their Impact on the Carbon-14 Issue," Waste Management '95 Conference, Tucson, AZ, February 26, 1995.
- S. P. Nesbit, R. J. Gerling, and G. B. Swindlehurst, "Qualification of the Oconee RETRAN Model by Comparison with Plant Transient Data," Nuclear Technology, Volume 83, December 1988.

#### TOPICAL REPORTS:

- DPC-NE-1005P, "Duke Power Nuclear Design Methodology Using CASMO-4/SIMULATE-3 MOX," Duke Energy, August 2001.
- YMP/TR-003-NP, "Seismic Design Methodology for a Geologic Repository at Yucca Mountain," U. S. Department of Energy, October 1995.
- DPC-NE-3003-P, "Mass and Energy Release and Containment Response Methodology," Duke Power Company, August 1993.
- BAW-2079, "Technical Advisory Group Investigation of Once-Through Steam Generator Thermal-Hydraulic Data Requirements," Babcock and Wilcox, March 1989.
- DPC-NE-3000, "Thermal-Hydraulic Transient Analysis Methodology," Duke Power Company, July 1987.

#### SECURITY CLEARANCE:

DOE "L" Clearance (active)

#### REFERENCES:

DOE and commercial references available upon request