



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

February 1, 2001

OFFICE OF THE  
GENERAL COUNSEL

G. Paul Bollwerk, III, Chairman  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dr. Peter S. Lam  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Dr. Jerry Kline  
Administrative Judge  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

In the Matter of  
Private Fuel Storage L.L.C.  
(Independent Spent Fuel Storage Installation)  
Docket No. 72-22-ISFSI

Dear Administrative Judges:

Enclosed herewith are the statements of professional qualifications of Amitava Ghosh and Kazimieras M. Campe, which inadvertently were not attached to their affidavit of January 30, 2001, filed in support of the "NRC Staff's Response to Applicant's Motion for Summary Disposition of Utah Contention K and Confederated Tribes Contention B."

I regret any inconvenience this error may have caused.

Sincerely,

*Catherine L. Marco*

Catherine L. Marco  
Counsel for NRC Staff

Enclosures: As stated

cc w/Encl.: Service List

**AMITAVA GHOSH**  
**Principal Engineer**  
**Center for Nuclear Waste Regulatory Analyses**  
**Southwest Research Institute**

**B.Tech., Mining Engineering, Indian Institute of Technology, Kharagpur, India; 1978**  
**M.S., Mining Engineering, University of Arizona, Tucson, Arizona; 1983**  
**Ph.D., Mining Engineering, University of Arizona, Tucson, Arizona; 1990**

Dr. Ghosh has over 20 years of experience in conducting both academic and industrial research, consulting, and teaching in mining, geological, and geotechnical engineering with special emphasis on numerical simulations, field and laboratory experiments, rock mechanics and rock engineering, explosives and blasting, soil mechanics, rock fracture mechanics, and application of probabilistic methods, theory of fractal geometry, geostatistics, and artificial intelligence. Since joining the Center for Nuclear Waste Regulatory Analyses, he provides technical support to the U.S. Nuclear Regulatory Commission on the design and experimental programs for site characterization of the proposed repository, spent fuel project, and reclamation of active mill tailings sites.

He was the principal investigator for modeling rock joint response under cyclic, pseudostatic, and earthquake loads, evaluating rock joint constitutive models and their implementation in UDEC code, selecting computer codes for simulating coupled thermal-mechanical-hydrological processes at the proposed high-level nuclear repository site at Yucca Mountain, and lead a multi-disciplined team for developing the Centralized Interim Storage Facility Assessment Report. He has developed a part of the Standard Review Plan for reclamation of active mill tailings sites under Title II of the Uranium Mill Tailings Radiation Control Act. He is part of the team developing a module for Total-system Performance Assessment code to assess the risk associated with waste package disruption from fault slippage at Yucca Mountain using probabilistic methodology.

Dr. Ghosh worked as a postdoctoral research fellow at the University of Nevada, Reno. He quantified the utilization of explosive energy in blasting from the energy required to crush the blasted fragments. Dr. Ghosh was awarded the Rocha Medal in 1992 by the International Society for Rock Mechanics in a worldwide competition for his PhD research on the application of fractal geometry and numerical methods to examine fracture formation and propagation in rock using explosives. A paper based on the application of fractal geometry to quantify the effects of natural fractures on rock blasting won the Society of Mining Engineers Outstanding Student Paper contest in Graduate Division in 1989. He worked as a Technical Services Engineer at IDL Chemicals Ltd with emphasis on ground vibration and air blasts from blasting. Dr. Ghosh has taught several courses at the University of Arizona. He has published about 30 technical papers and 15 research reports. He has reviewed papers for several journals and rock mechanics symposiums and chaired the session of Rock Fragmentation from Blasting at the 35th US Symposium on Rock Mechanics.

**PROFESSIONAL CHRONOLOGY:** Technical Services Engineer, IDL Chemicals Ltd., 1978–1981; Graduate Assistant/Associate, University of Arizona, 1982–1990; Postdoctoral Fellow, University of Nevada, Reno, 1990–1992; Research Engineer, Southwest Research Institute, 1992–1994; Senior Research Engineer, Southwest Research Institute, 1994–1999; Principal Engineer, 1999–Present.

**MEMBERSHIPS:** International Society for Rock Mechanics; American Rock Mechanics Association; International Association for Mathematical Geology; American Geophysical Union; Society for Mining, Metallurgy, and Exploration, Inc.

Rev. July 1999

**Kazimieras M. Campe**  
**Statement of Professional Qualifications**

Kazimieras M. Campe  
Senior Reactor Engineer  
Probabilistic Safety Assessment Branch  
Division of Systems Safety and Analysis  
Office of Nuclear Reactor Regulation

B.S., Mechanical Engineering, University of Connecticut  
M.S., Mechanical Engineering, University of Connecticut  
Ph.D., Nuclear Engineering, Purdue University  
Post-Graduate Courses and Training  
    Rensselaer Polytechnic Institute  
        Mathematics  
    Massachusetts Institute of Technology  
        Nuclear Power Plant Operations  
    Babcock & Wilcox  
        Nuclear Power Plant Operations  
    U. S. Nuclear Regulatory Commission  
        System Reliability and Safety Analysis  
        BWR Fundamentals  
        PWR Fundamentals  
        Fault Tree Analysis  
        Radiological Accident Assessment  
        Fundamentals of Inspection  
        Supervision and Management

U. S. Nuclear Regulatory Commission (formerly U. S. Atomic Energy Commission), 1972 - Present

Currently technical staff member of the Probabilistic Safety Assessment Branch. Responsible for performing safety assessments of nuclear power plant facilities. Safety evaluations include thermal hydraulic analyses of containment response to design basis accidents involving loss of coolant events. In addition, performs safety reviews of risks posed to nuclear facilities by external man-made hazards. These include assessment of risks associated with aircraft activity as well as other modes of transportation (e.g., railroads, highways, navigable waterways, and pipelines).

Prior to his present position, Dr. Campe was assigned to the Analytic Support Group, which provided analytic services to the technical branches within the Division of Systems Safety and Analysis. As a technical staff member of this group, he primarily performed thermal hydraulic analyses of nuclear power plant transients and design basis accidents using advanced nuclear analysis codes. Part of his duties within the group involved code development and maintenance activities. In addition, he provided analytic support in other areas, such as spent fuel pool thermal analysis code work.

Before joining the Analytic Support Group, Dr. Campe was employed as Section Chief in the Risk Applications Branch. His responsibilities within the branch were to supervise and participate in the administrative and technical activities of the Reliability Applications Section. This involved the

planning, coordinating, and directing risk evaluations with respect to the design and operation of nuclear power plants. Specifically, using a diverse background of systems engineering and risk assessment, Dr. Campe supervised the development and application of systems reliability and plant risk analysis for the purpose of identifying significant contributors to risk. As Section Chief, he also performed technical evaluations and provided expert consultation in the area of man-made hazards.

Prior to the Risk Applications Branch, Dr. Campe held the positions of Section Leader in the Plant Systems Branch and the Site Analysis Branch. His principal responsibilities were the technical and administrative supervision of licensing actions relating to plant systems design and operation, external hazards, and site suitability determinations.

Before accepting the position of Section leader, Dr. Campe was employed as Senior Site Analyst, Site Analyst, and Nuclear Engineer. He was responsible for performing licensing reviews, principally in the areas of man-made external hazards associated with toxic, flammable, or explosive substances, as well as missile impacts. In addition, he performed reviews of tornado and turbine missile risks, and control room habitability systems with respect to design basis accidents.

His activities in generic studies included technical contract management, computer code development, drafting of Regulatory Guides, and participating in Fission Product Release and Foreign Reactor Safety Research Groups. Specifically, he has prepared most of the technical input for Regulatory Guide 1.115 on turbine missiles. He has also prepared the following sections of the Standard Review Plan, NUREG-0800 (formerly NUREG-75/087): Standard Review Plan § 3.5.1.3, "Turbine Missiles"; Standard Review Plan § 2.2.1-2.2.2, "Identification of Potential Hazards in Site Vicinity"; Standard Review Plan § 2.2.3, "Evaluation of Potential Accidents"; Standard Review Plan § 3.5.1.5, "Site Proximity Missiles (Except Aircraft)"; and Standard Review Plan § 3.5.1.6, "Aircraft Hazards."

#### Hittman Associates, Inc., Columbia, MD, 1966 - 1972

As Section Chief for radiation analysis and special projects, Dr. Campe was responsible for radiation analysis of systems which either use or interface with radioisotopes.

In this capacity, he has performed numerous parametric studies on the radiation shielding characteristics of conceptual polonium, promethium, and plutonium fueled heat sources, and was responsible for detailed analysis of the radiation fields and the radiation shielding requirements of radioisotope thermoelectric generators for spacecraft. He also performed radiation analyses for implanted medical devices.

Dr. Campe also was active in reactor physics analysis, performing calculations and developing advanced computer codes for analyzing water moderated reactor lattices.

#### Pratt and Whitney, CANEL, Middletown, CT, 1960 - 1962 (plus summer of 1963)

As Analytical Engineer, Dr. Campe worked in the Analytic Physics Group on problems associated with the design of a nuclear propulsion reactor for an aircraft. This involved extensive reactor physics analyses of a liquid metal fast fission spectrum reactor.