UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	Docket No. 63-001-HLW
	)	
U.S. DEPARTMENT OF ENERGY	)	ASLBP No. 09-892-HLW-CAB-04
	)	
(High-Level Waste Repository)	)	October 9, 2009
	)	

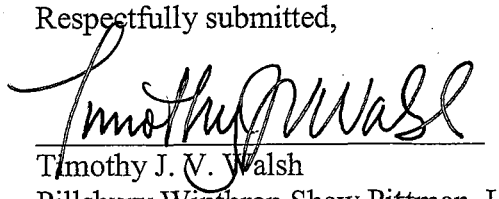
THE NUCLEAR ENERGY INSTITUTE'S IDENTIFICATION OF WITNESSES

Among other requirements, the September 30, 2009 CAB Case Management Order #2 ("Order") requires that, within ten days after the start of Phase I discovery, each party identify the witnesses it intends to call at a hearing to provide testimony in support or defense of each Phase I contention. Order at 5. The Order requires that certain information be provided for each witness, including identification information, the subject matter(s) that each witness will address, the specific contention(s) that each witness will address, relevant publications authored by the witness within the previous ten years, and any cases in which the witness provided testimony (by trial or deposition) within the past four years. Order at 6.

Pursuant to these requirements, the Nuclear Energy Institute ("NEI") hereby submits the required information for the following witnesses: Dr. Michael J. Apted (Attachment 1); Dr. Fraser King (Attachment 2); Dr. Matthew W. Kozak (Attachment 3); and Dr. Everett L. Redmond II (Attachment 4). Dr. Redmond is a witness for contention NEI-SAFETY-005. Drs. Apted, King, and Kozak are witnesses for contention NEI-SAFETY-006.

As required by the Order (at 6), every 60 days hereafter, NEI will provide either an updated witness list with the information required by the Order, or a certification that no other witnesses have been identified.

Respectfully submitted,



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Counsel for the Nuclear Energy Institute

Dated: October 9, 2009

ATTACHMENT 1

MONITOR SCIENTIFIC LLC
3900 S. Wadsworth Blvd., Suite 555
Denver, CO 80235 USA

Michael A. Bauser
Nuclear Energy Institute
1776 I St NW, Suite 400
Washington, DC, 20006

5 October 2009

Subject: Dr. Michael J. Apted, Witness for NEI-SAFETY-006, Drip Shields Are Not Necessary

Dear Mr. Bauser:

I intend to be a witness on the Nuclear Energy Institute's (NEI's) contention SAFETY-006 Drip Shields Are Not Necessary. As required by the September 30, 2009 CAB Case Management Order #2, I provide below my background information, qualifications, and relevant publications for the previous ten years. I have not provided any testimony at trial or by deposition in any case in the previous four years.

Name: Michael John Apted

Affiliation: Monitor Scientific LLC

Address: Suite 555, 3900 South Wadsworth Blvd., Denver, Colorado 80235

Curriculum Vitae: see Attachment 1

General Statement of Subject Matter(s) To Be Addressed: The drip shield that the Department of Energy ("DOE") proposes as part of the Engineered Barrier System ("EBS") are not necessary because the repository is capable of meeting regulatory requirements with significant performance margin and defense in depth without drip shields. Installation of the drip shields will result in significant and unnecessary radiation exposures, resource use, and costs, and is therefore inconsistent with 'as low as reasonably achievable" ("ALARA") principles.

Contention(s) To Be Addressed: NEI SAFETY 06, Drip Shields Are Not Necessary:

Relevant Publications (since 1998):

Apted, M. and T. H. Pigford. 1998. "Reliable Design Strategies for Engineered Barriers at Yucca Mountain," in *Proceedings of the 8th International Conference on High-level Radioactive Waste, Las Vegas, NV, May 11-14, 1998*, American Nuclear Society, La grange Park, IL, pp. 477-480.

Apted, M. (Committee Member). 2000. *Final Report: for Electrometallurgical Techniques for DOE Spent Fuel Treatment, Board on Chemical Sciences and Technology*, National Research Council, Washington DC.

Apted, M., F. King, D. Langmuir, R. Arthur, and J. Kessler, 2005. "The Unlikelihood of Localized Corrosion of Nuclear Waste Packages Arising from Deliquescent Brine Formation." *Journal of Materials* 57, 43-48.

Kessler, J., M.W. Kozak, M. Apted, W. Zhou, and G. Mungov, 2006. "EPRI's Total System Performance Assessment of Yucca Mountain using IMARC 9," *Proc. International High-Level Waste Management Conference.* Las Vegas.

Chang, F.-L. Zhou, W. Shih, C.-F.; Apted, M. Chen, C.-L.; and Li, J.-C. 2006 "Post-closure safety assessment of horizontal KBS-3-type repository," in *Proceedings of the International High-Level Radioactive Waste Management Conference, 11th, Las Vegas, NV*, American Nuclear Society, La Grange Park, IL, pp. 1017-1023.

Apted, M. (Program Manager and contributing co-author). 1998 to 2008. Electric Power Research Institute's (EPRI's) Program on Technology Innovation (see following reports)

EPRI, 1998. *Alternative Approaches to Assessing the Performance and Suitability of Yucca Mountain for Spent Fuel Disposal*, EPRI Report Number108732, Electric Power Research Institute, Palo Alto CA, CA.

EPRI, 2000. *Evaluation of the Candidate High-Level Radioactive Waste Repository at Yucca Mountain Using Total System Performance Assessment: Phase 5*, Report Number 1000802, EPRI, Palo Alto, CA.

EPRI, 2002a. *Evaluation of the Proposed High-Level Radioactive Waste Repository at Yucca Mountain Using Total System Performance Assessment: Phase 6*, Report Number 1003031, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2002b. *Integrated Yucca Mountain Safety Case and Supporting Analysis: EPRI's Phase 7 Performance Assessment*, Report Number 1003334, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2003. *Scientific and Technical Priorities at Yucca Mountain*, Report Number 1003335, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2004a. *Evaluation of a Spent Fuel Repository at Yucca Mountain, Nevada: 2004 Progress Report.* Report Number 1009705, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2004b. *Potential Igneous Processes Relevant to the Yucca Mountain Repository: Extrusive-Release Scenario Analysis and Implications*, Report Number 1008169, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2005a. *Program on Technology Innovation: Potential Igneous Processes Relevant to the Yucca Mountain Repository: Intrusive-Release Scenario, Analysis and Implications.* EPRI Report Number 1011165, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2005b. *Potential Igneous Processes Relevant to the Yucca Mountain Repository: Intrusive-Release Scenario.* EPRI Report Number 1011165, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2005c. *EPRI Yucca Mountain Total System Performance Assessment Code (IMARC) Version 8.* EPRI Report Number 1011813. Electric Power Research Institute, Palo Alto.

EPRI, 2005d. *Yucca Mountain Licensing Standard Options for Very Long Time Frames: Technical Bases for the Standard and Compliance Assessments*, EPRI Report Number 1011754, Electric Power Research Institute, Palo Alto, CA.

EPRI, 2005e. *Effects of Seismicity and Rockfall on Long-Term Performance of the Yucca Mountain Repository: 2005 Progress Report.* EPRI Report Number 1011812. Electric Power Research Institute, Palo Alto, CA.

EPRI, 2006a. *Treatment of Colloid-Facilitated Transport for Yucca Mountain Total System Performance Assessment.* EPRI Report Number 1013440 Electric Power Research Institute, Palo Alto, CA.

EPRI, 2006b. *Program on Technology Innovation: EPRI Yucca Mountain Spent Fuel Repository Evaluation, 2006 Progress Report.* EPRI Report Number1013445, Electric Power Research Institute, Palo Alto, California.

EPRI, 2006c. *Effects of Multiple Seismic Events and Rockfall on Long-Term Performance of the Yucca Mountain Repository.* EPRI Report Number 1013444. Electric Power Research Institute, Palo Alto, CA.

EPRI 2007. *Room at the Mountain: Analysis of the Maximum Disposal Capacity for Commercial Spent Nuclear Fuel in a Yucca Mountain Repository.* EPRI Report Number 1015046. Electric Power Research Institute, Palo Alto, CA: 2007.

EPRI, 2008. *Occupational Risk Consequences of the Department of Energy's Approach to Repository Design, Performance Assessment and Operation in the Yucca Mountain License Application.* EPRI Report Number 1018058. Electric Power Research Institute, Palo Alto, CA.

EPRI, 2009a. *Long-Term Climate Modeling and Hydrological Response to Climate Cycles in the Yucca Mountain Region.* EPRI Report Number 1018714. Electric Power Research Institute, Palo Alto, CA.

EPRI, 2009b. *EPRI Yucca Mountain Total System Performance Assessment Code (IMARC) Version 10: Model Description.* EPRI Report Number 1018712. Electric Power Research Institute, Palo Alto, CA.

Best regards,

Michael J. Apted, Ph.D.
President
Monitor Scientific LLC

ATTACMENT 1: Curriculum Vitae of **MICHAEL J. APTED, Ph.D.**

EDUCATION

- Stanford University, School of Earth Sciences, Post-Doctoral Studies, May 1980- July 1982
- University of California, Los Angeles, CA: Ph.D., Geochemistry, 1980
- Massachusetts Institute of Technology: B.S., Chemistry 1974

PROFESSIONAL HISTORY

- Monitor Scientific, LLC, Denver, CO, President, 1996-Present.
- QuantiSci Inc. (formerly Intera Information Technologies, Inc..), Denver, CO, Managing Director of US Operations, 1990-1996.
- Pacific Northwest Laboratories, Richland, Senior Staff Scientist, 1985-1990
  - U.S. Department of Energy, Waste Package Activities of the Performance Assessment Scientific Support (PASS) Program, Manager, 1987-1990.
  - Japanese Power Reactor and Nuclear Fuel Development Corporation, Performance Assessment Center for Engineered Barriers (PACE) Program, Technical Manager, 1987-1990.
- Basalt Waste Isolation Project (BWIP), Rockwell Hanford Co., Richland, WA
  - Laboratory Manager, Waste/Barrier/Rock Interactions Testing and EBS Design Programs,, 1982-1985.

AFFILIATIONS AND AWARDS

- International Technical Advisory Committee (ITAC) to the Nuclear Waste Management Organization of Japan (NUMO)
- US National Academy of Sciences/ National Research Council Committee on (1) pyrochemical processing and (2) development of associated waste forms for Department of Energy-EM wastes.
- Member, technical and licensing advisory panels to the SSM and STUK regulators in Sweden and Finland, respectively.

REPRESENTATIVE EXPERIENCE

- Over twenty-five years of experience in research and development related to waste disposal, primarily in the areas of (1) materials testing under simulated subsurface conditions and (2) safety/risk analysis of geological disposal and transport of hazardous and radioactive wastes.
- Fifteen years in programmatic management of design and safety analysis of engineered barrier structures for the isolation of radioactive wastes for programs with the U.S. Department of Energy, as well as international repository projects and regulatory agencies.
- Fifteen years in operational management of a environmental consulting company with worldwide business in the U.S., Canada, Europe and Asia.
- Twenty-five years research experience in applied chemical and advanced spectrometric analysis of earth materials, including solids, water, and gases.
- Eighteen years as a consultant to national and international nuclear waste agencies, including the US National Academy of Sciences, the International Atomic Energy Agency, and the Nuclear Energy Agency.

REPRESENTATIVE PROJECTS

Monitor Scientific, LLC

As President of Monitor Scientific, Dr. Apted works as a technical consultant to industries and governments in the field of nuclear waste management. He has consulted for the French, Swedish,

Canadian, Spanish, German, Finnish, Swiss South Korean, Taiwanese and South African repository programs investigating nuclear-waste disposal, as well as being a consultant to the Nuclear Energy Agency and the International Atomic Energy Agency on disposal of spent fuel and sealed radiological sources. Currently he is an technical advisor to the regulatory agencies for nuclear waste disposal in Sweden (SSM) and Finland (STUK), respectively.

U.S. Department of Energy

For DOE's Basalt Waste Isolation Program, Dr. Apted previously was the Laboratory Manager for the Waste/Barrier/Rock Interactions Testing Facility. In this role, Dr. Apted developed and managed test and characterization programs for understanding the long-term dissolution/ leach behavior of glass and crystalline waste forms, as well as testing the chemical interaction of such waste forms with geological media. He also devised innovative engineered barrier designs to assure the long-term isolation of nuclear waste forms in geological formations. Subsequently, as Manager for the DOE's Waste Package Studies within the Performance Assessment Scientific Support (PASS) Program, Dr. Apted co-developed the AREST mass-transport code for evaluating the safety of the engineered barriers of a high-level waste repository system.

Electric Power Research Institute and Nuclear Energy Institute

Dr. Apted has been a principle author of the Electric Power Research Institute's risk assessment model for HLW disposal in a geological repository at Yucca Mountain, Nevada, USA. His particular research expertise is on design of engineered barrier systems, near-field geochemistry affecting degradation of engineered materials, and total system performance assessment. Dr. Apted has been the Program Manager for EPRI's multi-year *Program on Technology Innovation*, conducting independent oversight of licensing activities with respect to the Yucca Mountain Repository Project. Since January 1, 2009, Dr. Apted now coordinates the same independent oversight program on review of the Yucca Mountain license application (LA) for the Nuclear Energy Institute.

Japanese Power Reactor and Nuclear Fuel Development Corporation

Dr. Apted was a principal editor of the English version of the H12 Second Progress Report for HLW disposal, published by Japanese Power Reactor and Nuclear Fuel Development Corporation (JNC) in 2000. He was the Technical Manager of JNC's Performance Assessment Center for Engineered Barriers (PACE) Program for studies of actinide chemistry, innovative waste package design (pre-fabricated emplacement modules, or PEMs), and computer simulation of thermal-chemical-hydrological-mechanical conditions in a nuclear waste repository. Dr. Apted is a founding member of the International Technical Advisory Committee to NUMO, and also serves as a coordinator of NUMO's International Tectonics Meetings investigating faulting, seismic and volcanism hazards analyses with respect to siting a repository in Japan.

Regulatory Authorities in Sweden and Finland

Dr. Apted is a member of technical and licensing advisory groups to both the Swedish regulator (BRITE for SSM) and the Finnish regulator (AEGIS for STUK) regarding the permanent disposal of high-level, radioactive wastes in deep geological repositories.

US National Academy of Sciences

Dr. Apted is a member of the current US National Academy of Sciences panel on "Waste Form Technology and Performance" that is investigating the disposal of US defense radioactive and hazardous wastes in glass and/or crystalline waste forms. Dr. Apted is particularly involved in assessing mass-transport and chemical constraints on the release of contaminants contained in such waste forms over time periods of safety and regulatory concern.

ATTACHMENT 2

ICC

Integrity Corrosion Consulting Ltd
3396 Stephenson Point Road
Nanaimo, British Columbia, Canada V9T 1K2

Michael A. Bauser
Nuclear Energy Institute
1776 I St NW, Suite 400
Washington, DC, 20006

October 5, 2009

ICC-09-029

Dear Mr. Bauser,

Dr. Fraser King, Witness for NEI-SAFETY-006, Drip Shields Are Not Necessary

I attach the necessary information in support of my potential role as a witness on the Nuclear Energy Institute's (NEI's) contention SAFETY-006 Drip Shields Are Not Necessary. As required by the September 30, 2009 CAB Case Management Order #2, I provide below my background information, qualifications, and relevant publications for the previous ten years. I have not provided any testimony at trial or by deposition in any case in the previous four years.

Name: Fraser King

Affiliation: Integrity Corrosion Consulting Ltd.

Address: Suite 3396 Stephenson Point Road, Nanaimo, BC, Canada V9T 1K2

Curriculum Vitae: see Attachment 1

General Statement of Subject Matter(s) To Be Addressed: The drip shield that the Department of Energy ("DOE") proposes as part of the Engineered Barrier System ("EBS") are not necessary because the repository is capable of meeting regulatory requirements with significant performance margin and defense in depth without drip shields. Installation of the drip shields will result in significant and unnecessary radiation exposures, resource use, and costs, and is therefore inconsistent with 'as low as reasonably achievable" ("ALARA") principles.

Contention To Be Addressed: NEI SAFETY 06, Drip Shields Are Not Necessary:

Relevant Publications (since 1998): see Attachment 2

Yours sincerely,

Fraser King

Fraser King, Ph.D., FNACE

Integrity Corrosion Consulting Ltd

Attachment 1:

Curriculum Vitae

Dr. Fraser King, Ph.D., FNACE

Education: 1975-1978
B.Sc. Chemistry, 1st class honours
Imperial College, University of London, U.K.

1978-1981
Ph.D. Chemistry
Imperial College, University of London, U.K.
Thesis title: Transference numbers in concentrated electrolyte solutions

Employment:

May 1999-present
Integrity Corrosion Consulting Ltd., Nanaimo, BC, Canada
Position: President

March 1999-April 2007
NOVA Chemicals, NOVA Chemicals Research & Technology Centre, Calgary
Position: Senior Scientist, Environment and Corrosion

September 1984-March 1999
Atomic Energy of Canada Limited, Pinawa, Manitoba
Position: Corrosion scientist/applied electrochemist

October 1981-September 1984
Central Electricity Generating Board, CERL, Leatherhead, U.K.
Position: Corrosion Scientist

Areas of Expertise:

Corrosion science (pipeline steels, copper alloys, stainless steel, oxides), environmentally assisted cracking, localized corrosion (pitting, crevice and under-deposit corrosion), electrochemical behaviour of oxides, behaviour of organic coatings, modelling of microbial and corrosion processes, applied electrochemistry (metals and semi-conductors), high-temperature, high-pressure electrochemistry, chemical cleaning/deposit removal, mathematical modelling of corrosion processes, lifetime prediction, environmental assessments.

Experience:

Dr. Fraser King has B.Sc. and Ph.D. degrees in chemistry and electrochemistry from Imperial College of Science and Technology, University of London, U.K. He is a Fellow of the National Association of Corrosion Engineers (NACE International), a member of the American Nuclear Society, ASM International, and the Canadian Institute if Canada, and was elected to serve on the NACE International Research Committee in 2004.

Fraser has 28 years experience in corrosion, materials science, and applied electrochemistry in the nuclear and oil and gas industries. His research interests include: corrosion, applied electrochemistry, lifetime prediction, safety and risk assessments, reactive-transport modelling, environmental impact analysis, the design, fabrication, and performance of nuclear waste containers, the performance of used nuclear fuel under disposal conditions, corrosion of reactor and steam generator components, and the chemical cleaning of nuclear steam generators.

Dr. King was Technical Program Leader for copper corrosion studies for Atomic Energy of Canada Limited's (AECL) deep underground repository program for 15 years. His work on the corrosion of copper lead to the adoption of this material as the reference container material for the disposal of nuclear waste for Ontario Power Generation's (OPG) Deep Geologic Repository Program. As part of this program, Dr. King has developed models for uniform corrosion, stress corrosion cracking (SCC) , microbiologically influenced corrosion (MIC), and under-deposit corrosion of copper containers. These models are now being extended to C-steel and passive materials, such as Alloy 22.

Dr. King was a co-author of the 1994-1996 Environmental Impact Statement (EIS) for AECL's deep underground nuclear fuel waste management program and was involved in public hearings and consultations on the proposed concept. This program was succeeded by the OPG Deep Geologic Repository program, which is currently being reviewed, along with other options, by the Nuclear Waste Management Office (NWMO) and the Government of Canada.

Fraser was Technical Leader on containment issues for EPRI's independent analysis of the high-level waste repository at Yucca Mountain, Nevada, U.S. He had responsibility for developing lifetime prediction models for the Alloy 22 waste packages and Ti drip shields. Various corrosion processes were taken into account, including uniform corrosion, localized (crevice) corrosion, SCC, MIC, and hydrogen-induced cracking (for Ti only). Separate analyses were developed for both the nominal scenario and seismic and igneous disruptive events. Dr. King also lead a revision of EPRI's treatment of used fuel alteration and radionuclide release models.

Since 1999, Dr. King has been President of Integrity Corrosion Consulting Limited. Fraser is the lead OPG consultant for the development of lifetime prediction models for copper and C-steel waste containers in both crystalline rock and sedimentary deposits. OPG are currently assessing the feasibility of using C-steel as a waste package material as an alternative to copper. In addition, sedimentary deposits (sandstone or shale) may be considered as an alternative to crystalline rock for the host geological formation. Dr. King is also a consultant for nuclear waste management programs in Sweden, Switzerland, Finland, Japan, the United Kingdom, and the IAEA in the areas of waste container performance and used fuel alteration. More recently, Fraser has also become involved in the assessment of the performance of L&ILW containers during both storage and disposal in a deep underground repository.

Over the past eleven years, Fraser has also worked extensively in the oil and gas pipeline and petrochemicals industries. He established and managed a program in pipeline corrosion funded by a range of companies and organizations, including TransCanada Pipelines, NOVA Chemicals, the Pipeline Research Council International (PRCI), the Gas Technology Institute (GTI), and the Canadian Energy Pipeline Association (CEPA). Fraser managed a program of 30-35 projects with total funding of $2-3M. His pipeline-related interests include: pipeline and chemical plant integrity, stress corrosion cracking (initiation and propagation), external corrosion, internal corrosion, coatings, repair techniques, field measurements of pipe-depth environments, cathodic protection, model development, failure investigation, inhibitor selection

and performance, failure analysis, and diagnostic methods for fouling of turbines at compressor stations.

Fraser has authored over 300 journal papers, refereed conference papers, and technical reports in the areas of corrosion science, lifetime prediction, and safety analysis. In addition to his work on nuclear waste disposal, Dr. King has also performed studies on the SCC of reactor components, hydrogen generation during LOCA incidents, the *in situ* repair of cracks using electrodeposition techniques, the removal of magnetite and copper deposits from steam generators by chemical means, and the *in situ* disposal of decommissioned nuclear reactors.

Attachment 2:

List of Relevant References Since 1998

Journal publications

King, F. 2009. Microbiologically influenced corrosion of nuclear waste containers. Corrosion 65, 233-251.

King, F., M. Kolar, J.H. Kessler, and M. Apted. 2008. Yucca Mountain Engineered Barrier System Corrosion Model (EBSCOM). Journal Nuclear Materials, 379, 59-67.

M. Apted, F. King, D. Langmuir, R. Arthur, and J. Kessler, "The unlikelihood of localized corrosion of nuclear waste packages arising from deliquescent brine formation," Journal of Materials 57, 2005, 43-48.

Refereed conference proceedings

King, F., L. Mao, J. Luo, M. Apted, J.H. Kessler, and A. Sowder. 2009. Mechanistic studies of the crevice corrosion of Alloy 22 in chloride-nitrate solutions. In Proc. CORROSION/2009 (NACE International, Houston, TX), paper no. 09425.

King, F., J. Luo, L. Mao, M. Apted, J.H. Kessler, and A. Sowder. 2009. Studies of the effect of chloride and nitrate on the propagation of localize corrosion of Alloy 22. In Scientific Basis for Nuclear Waste Management XXXII, N.C. Hyatt, D.A. Pickett, and R.B. Rebak (eds.), Mat. Res. Soc. Symp. Proc. 1124 (Materials Research Society, Warrendale, PA, 2009), pps. 455-462.

King, F., M. Kolar, R. Arthur, and M. Apted. 2008. A revised EPRI source-term model for the dissolution of commercial spent nuclear fuel. In Proc. 12th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 432-439.

King, F. 2008. The impact of microbiologically influenced corrosion on the lifetimes of the Yucca Mountain engineered barrier system. In Proc. 12th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 229-240.

King, F. 2008. MIC of nuclear waste containers. In Proc. Research Topic Symposium, CORROSION/2008 (NACE International, Houston, TX).

F. King, R. Arthur, M. Apted, and J. Kessler. 2007. Potential for the Localized Corrosion of Alloy 22 Waste Packages in Ternary and Quaternary Deliquescent Brines in the Yucca Mountain Repository. In Proc. Waste Management 2006, February 25 – March 1, 2007, Tucson, AZ (University of Arizona, Tucson, AZ).

King, F. and M. Kolar. 2006. EPRI's Engineered Barrier System Corrosion Model (EBSCOM). In Proc. 11th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 478-485.

King, F., R. James, S. Findlan, M. Apted, and J. Kessler. 2006 Performance of the Waste Package During an Igneous Disruptive Event. In Proc. 11th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 835-842.

Kozak, M.W., M. Apted, M. Morissey, F. King, J. Kessler, and G. Mungov. 2006 Consequences Associated with Igneous Activity at Yucca Mountain. In Proc. 11th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 170-176.

R. James, F. King, and J. Kessler. 2006 The Consequence of Seismic Activity on Waste Package Structural Integrity. In Proc. 11th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 913-920.

Apted, M.J., D. Langmuir, and F. King. 2006 Evaluation of Potential Formation and Impacts of Deliquescent Brines. In Proc. 11th International High-level Radioactive Waste Management Conference, American Nuclear Society (La Grange Park, IL), pps. 921-924.

Kessler, J., M. Apted, J. Kemeny, F. King, A.M. Ross, B. Ross, F.W. Schwartz, and W. Zhou. 2006. Room at the mountain: estimated maximum amounts of commercial spent nuclear fuel capable of disposal in a Yucca Mountain repository. In Proc. ICONE 14, International Conference on Nuclear Energy, American Society of Mechanical Engineers (New York, NY), Paper ICONE14-89857.

Apted, M., M. Kozak, W. Zhou, J. Kemeny, F. King, D. Martin, R. James, M. Stirling, M. Morrisey, B. Ross, and J. Kessler. 2006 Independent analysis of seismicity and rockfall scenarios for the Yucca Mountain repository. In Proc. Waste Management 2006, February 26 – March 2, 2006, Tucson, AZ (University of Arizona, Tucson, AZ), paper 6163.

Apted, M., J. Kessler, M. Morrisey, F. King, W. Zhou, M. Kozak, and F. Schwartz. 2006. Potential igneous processes relevant to the Yucca Mountain Repository: intrusive-release Scenario. In Proc. Waste Management 2006, February 26 – March 2, 2006, Tucson, AZ (University of Arizona, Tucson, AZ), paper 6086.

A.C. Lloyd, R.J. Schuler, J.J. Nöel, D.W. Shoesmith, and F. King, "The influence of environmental conditions and passive film properties on the MIC of engineered barriers in the Yucca Mountain Repository," in Scientific Basis for Nuclear Waste Management XXVIII, J.M. Hanchar, S. Stroes-Gascoyne, and L. Browning (eds.), Mat. Res. Soc. Symp. Proc. 824 (Materials Research Society, Warrendale, PA, 2004), pps. 3-9.

Company and other reports

King, F. 2008. In Occupational Risk Consequences of the Department of Energy's Approach to Repository Design, Performance Assessment and Operation in the Yucca Mountain License Application. Electric Power Research Institute Technical Report 1018058.

King, F. 2007. In Room at the Mountain: Analysis of the Maximum Disposal Capacity for Commercial Spent Nuclear Fuel in a Yucca Mountain Repository. Electric Power Research Institute Technical Report 1015046.

King, F. 2006. In Effects of Multiple Seismic Events and Rockfall on Long-Term Performance of the Yucca Mountain Repository. Electric Power Research Institute Technical Report *1013444*.

King, F. 2006. In Program on Technology Innovation: EPRI Yucca Mountain Spent Fuel Repository Evaluation, 2006 Progress Report. Electric Power Research Institute Technical Report 1013445

King, F. 2005. In EPRI Yucca Mountain total system performance assessment code (IMARC) version 8. Electric Power Research Institute Technical Report, 1011813.

King, F. 2005. In Yucca Mountain licensing standard options for very long time frames. Technical bases for the standard and compliance assessments. Electric Power Research Institute Technical Report, 1011754.

King, F. 2005. In Program on Technology Innovation: Evaluation of a Spent Fuel Repository at Yucca Mountain, Nevada. 2005 Progress Report. Electric Power Research Institute Technical Report, 1010074.

King, F. 2005. In Effects of Seismicity and Rockfall on Long-Term Performance of the Yucca Mountain Repository: 2005 Progress Report. Electric Power Research Institute Technical Report 1011812.

King, F. 2005. In Program on Technology Innovation: Potential Igneous Processes Relevant to the Yucca Mountain Repository: Intrusive-Release Scenario, Analysis and Implications. Electric Power Research Institute Technical Report 1011165,

King, F. 2004. In Comments regarding in-drift chemistry related to corrosion of containment barriers at the candidate spent fuel and HLW repository at Yucca Mountain, Nevada. Electric Power Research Institute Technical Update, 1010941.

King, F. 2004. In Potential igneous processes relevant to the Yucca Mountain repository: extrusive-release scenario. Electric Power Research Institute Technical Report, 1008169.

King, F. 2004. In Evaluation of a spent fuel repository at Yucca Mountain, Nevada: 2004 progress report. Electric Power Research Institute Technical Report, 1009705.

ATTACHMENT 3

MONITOR SCIENTIFIC LLC
3900 S. Wadsworth Blvd., Suite 555
Denver, CO 80235 USA

Michael A. Bauser
Nuclear Energy Institute
1776 I St NW, Suite 400
Washington, DC, 20006

5 October 2009

Subject: Dr. Matthew W. Kozak, Witness for NEI-SAFETY-006, Drip Shields Are Not Necessary

Dear Mr. Bauser:

This letter is a response to you request for information about potential witnesses on the Nuclear Energy Institute's (NEI's) contention SAFETY-006 Drip Shields Are Not Necessary. As required by the September 30, 2009 CAB Case Management Order #2, I provide below my background information, qualifications, and relevant publications for the previous ten years. I have not provided any testimony at trial or by deposition in any case in the previous four years.

Name: Matthew W. Kozak

Affiliation: Monitor Scientific LLC

Address: Suite 555, 3900 South Wadsworth Blvd., Denver, Colorado 80235

Curriculum Vitae: see Attachment 1

General Statement of Subject Matter(s) To Be Addressed: The drip shield that the Department of Energy ("DOE") proposes as part of the Engineered Barrier System ("EBS") are not necessary because the repository is capable of meeting regulatory requirements with significant performance margin and defense in depth without drip shields. Installation of the drip shields will result in significant and unnecessary radiation exposures, resource use, and costs, and is therefore inconsistent with 'as low as reasonably achievable" ("ALARA") principles.

Contention(s) To Be Addressed: NEI SAFETY 06, Drip Shields Are Not Necessary:

Relevant Publications (since 1998):

Refereed Publications

Guskov, A.V., and M.W. Kozak. "The ISAM Safety Assessment Programme," Safety Barrier. 2, 40-42 (2005) (published jointly in English and Russian).

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Smith, G., J. Merino, and M.W. Kozak, Uncertainty and Variability in Biosphere Dose Conversion Factors for the Groundwater Release Scenario for Yucca Mountain, Proc. 12th International High-Level Waste Management Conference, Las Vegas, September 7-11, 2008.

Park, J.W., H. Jung, and C.L. Kim, and M.W. Kozak, Effects Of Concrete Degradation On The Performance Assessment For A LILW Disposal Facility. International Symposium on Radiation Safety Management, Daejeon, Korea, Nov. 2007.

Kozak, M.W., C. Beyleveld, and A. Carolissen. Safety Assessment of Low- and Intermediate-Level Waste Disposal at Vaalputs, South Africa, AGU Fall Meeting, San Francisco, 11 – 15 December 2006.

Kozak, M.W., M. J. Apted , M.M. Morrissey, F. King, J. Kessler, and G. Mungov, "Consequences Associated with Igneous Activity at Yucca Mountain," Proc. International High-Level Waste Management Conference. Las Vegas, May 2006.

Kessler, J., M.W. Kozak, M. Apted, W. Zhou, and G. Mungov, "EPRI's Total System Performance Assessment of Yucca Mountain using IMARC 9," Proc. International High-Level Waste Management Conference. Las Vegas, May 2006.

Smith, G., D. Jackson, M. Herben, and M.W. Kozak, "Biosphere Dose Conversion Factors for the Extrusive Igneous Release Scenario as Evaluated in the EPRI TPSA for Yucca Mountain," Proc. International High-Level Waste Management Conference. Las Vegas, May 2006.

Smith, G., D. Jackson, M. Herben, J, Merino, and M.W. Kozak, "Updated Biosphere Dose Conversion Factors for the Groundwater Release Scenario Taking Account of Climate Change and Natural Groundwater Discharge," Proc. International High-Level Waste Management Conference. Las Vegas, May 2006.

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Kozak, M.W., J.W. Park and C.L. Kim, "Integration Of Safety Assessment And Data Management For A Low-Level Waste Disposal Facility In Korea," WM'05 Conference, February 27 – March 5, 2005.

Zhou, W., M.W. Kozak, J-W Park, C-L Kim, C-H Kang, "Development of SAGE Version 1.0, A Computer Code the Safety Assessment Analyses for Korean Low-Level Waste Disposal," Proceedings of the Annual Conference of the Korean Atomic Industrial Forum and the Korean Nuclear Society (KAIF/KNS), pp. 325-334, April 17-19, Seoul, 2002.

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Kozak, M.W., "International Perspectives on Treatment of Uncertainty," invited plenary lecture at Environmental Stewardship: Promising Solutions to Uncertainty, New Orleans LA, February 5-7, 2002.

Kozak, M.W., C. Torres-Vidal, E. Kelly, A. Guskov, J. van Blerk, "Safety Cases For The Co-Ordinated Research Project On Improvement Of Safety Assessment Methodologies For Near Surface Radioactive Waste Disposal Facilities (ISAM)," IAEA-CN-90/70, Issues and Trends in Radioactive Waste Management, International Conference on Waste Management, Vienna, 9–13 December 2002.

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Van Blerk, J.J., and M.W. Kozak, "Borehole Disposal of Spent Radiation Sources: 1. Principles," IAEA-CN-78, pp. 194-187, Proc. International Conference of the Safety of Radioactive Waste Management, Cordoba, Spain, 13-17 March 2000.

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Kozak, M.W.,"Technical basis for environmental impact and safety assessments required for restoration and waste management projects," invited plenary lecture to the Autumn Congress of the South African Radiation Protection Society, May 1999.

Kozak, M.W., "Safety Assessment of a Radioactive Waste Disposal Facility in the Former Soviet Union," invited lecture to the Autumn Congress of the South African Radiation Protection Society, May 1999.

Ghassemi, A., Bonano, T., and M.W. Kozak, "Risk-based Decision Making." PSAM Conference, 1998, New York.

Serebryakov, B. E., and M.W. Kozak, "Safety Assessment of the Radioactive Waste Disposal Facility, Which Belonged to Corporation "Radon," in Proc. 4th International Symposium Ural Atomic, Ural Industrial, September 22-24 1998 (published in Russian as Оценка Безопасности пункта захоронения Радиоактивных Отходов, Принадлежавшево Объединению «РАДОН».)

Little, R H, M J Egan, M.W. Kozak, P R Maul and B M Watkins "Progress towards a Common Approach in Quantitative Assessment of Hazardous Waste Disposals," Paper presented the Fourth International Symposium and Exhibition on Environmental Contamination in Central and Eastern Europe, Warsaw, September 15-17, 1998.

Best regards,

Matthew W. Kozak, Ph.D.
Principal Consultant
Monitor Scientific LLC

ATTACHMENT 1:

Curriculum Vitae for MATTHEW W. KOZAK, Ph. D.

KEY QUALIFICATIONS

- Over twenty years of experience in environmental and engineering research and development, and in application of safety assessment and risk assessment techniques for radioactive, hazardous, and mixed waste disposal.
- Over twenty years in technical management of multiple projects on safety assessment of near-surface radioactive waste disposal facilities, dose assessment of residual radioactive contamination in soils and buildings, and computer code development.
- Member of the International Review Team for the safety assessment of the Australian National Repository, 2004.
- Member (and past chair) of National Council on Radiation Protection and Measurements (NCRP) Committee 87-3 on Performance Assessment of Radioactive Waste Disposal Facilities (1991-2005).
- Member of NCRP Umbrella Scientific Committee 87 on Radioactive and Mixed Waste (1991-2004).
- Member of the National Academy of Science, National Research Council Committee on Cesium Processing Alternatives for High-Level Waste at the Savannah River Site (2000-2001).
- Official U.S. delegate to the International Atomic Energy Agency's Coordinated Research Program on Improvement of Safety Assessment Methodologies (ISAM), 1997-2000. Member of the Coordinating Committee for ISAM, and leader of the Safety Cases Working Group.
- International Expert Missions on safety assessment, regulatory analysis, and licensing of near-surface radioactive waste disposal facilities to Australia, Belarus, Bulgaria, Egypt, Estonia, Malaysia, Moldova, and Poland, sponsored by the International Atomic Energy Agency.
- Development of the USNRC performance assessment methodology for low-level waste in accordance with requirements in 10 CFR Part 61.
- Eight years of research experience in surface and colloid science, with special application to analysis of electrokinetic phenomena in porous media and concentrated suspensions.

AREAS OF EXPERTISE

- Nuclear, chemical, and mixed waste management
- International technology transfer in waste management methods
- Systems analysis of waste disposal facilities
- Regulatory assessment of radioactive and mixed waste

- Surface and colloid science
- Electrokinetic phenomena

EDUCATION

Kansas State University, 1976-1977
Bachelor of Chemical Engineering, 1981, Cleveland State University
Ph. D. in Chemical Engineering, 1988, University of Washington, Seattle. (Dissertation: "Electrokinetics of Concentrated Suspensions and Porous Media").

DETAILED PROFESSIONAL EXPERIENCE

5/15/99 – present: *Principal Consultant,* **Monitor Scientific, LLC**

1/95 – 5/15/99 *Principal Staff Consultant, Environmental Systems Assessment Group,* **QuantiSci, Inc.** (formerly Intera Information Technologies Inc.)

1/89 to 1/95: *Senior Member of the Technical* Staff, **Sandia National Laboratories**

6/81 to 9/83: *Research Engineer,* **Standard Oil (Ohio) Research**

6/80 to 9/80: *Summer Intern* **Harshaw Catalyst Research**

2/80 to 6/80: *Research Consultant,* **Mill-Rose Laboratories,** Mentor, OH.

EXPERIENCE SUMMARY

Dr. Kozak has been employed by Monitor Scientific LLC and its progenitors since January 1995. During that time, he has provided technical support to numerous clients in the areas of safety assessment of both near-surface and geological radioactive waste disposal facilities, regulatory development, dose assessment for residual contamination of soils and buildings, toxic materials risk assessment, and mixed waste issues.

He has supported the Electric Power Research Institute in developing improved approached for conducting safety assessments for the proposed Yucca Mountain high-level waste repository. This work has involved input on regulatory approaches, methodological development, and software development and management for releases from the repository, including an independent evaluation of the effects of an igneous event on the repository.

Dr. Kozak has supported the Nuclear Energy Institute in developing legal contentions associated with the Yucca Mountain license application. This process has led to the acceptance of several contentions into the license hearings.

Dr. Kozak has also supported a number of international clients on both low-level and high-level waste repository evaluations, and remedial action sites. Recent project work has focused on programs in Korea, South Africa, Sweden, and Ukraine. Past projects have been conducted in Canada, Japan, and the

UK. This work has included a variety of tasks, including site-specific assessments, regulatory development, generic modeling, and technical review.

Dr. Kozak has supported the U.S. Environmental Protection Agency (EPA) in a variety of technical areas from 2001 - 2004. He has led the technical team developing the basis for acceptance of radionuclides at RCRA-C disposal facilities. He also provided technical support for the licensing regulation for the proposed Yucca Mountain high-level radioactive waste repository. Additional areas of support to EPA have included evaluations of radionuclides in sewage sludge, spent source analysis, and evaluation of mixed waste minimally contaminated with radioactivity.

Dr. Kozak chaired Scientific Committee 87-3 for the National Council on Radiation Protection (NCRP) from 1991-2002. NCRP Scientific Committee 87-3 had the goal of providing national guidance to resolve issues associated with safety assessment of radioactive waste disposal facilities. Dr. Kozak was also a member of NCRP Umbrella Scientific Committee 87 on Radioactive and Mixed Waste. Dr. Kozak was also a member of the National Research Council Committee on Cesium Processing Alternatives for High-Level Waste at the Savannah River Site (2000-2001).

In the area of chemical waste risk assessment, Dr. Kozak developed improved methods for conducting risk assessments that incorporate human health, ecological, worker, and cost risks in a common framework. The methodology was applied to a site in New Mexico, USA. Dr. Kozak also led a project to evaluate the toxic component of low-level waste streams for a major North American power utility, and for a South African repository.

Dr. Kozak is a frequent consultant to the International Atomic Energy Agency. He has been to Bulgaria, Egypt, Estonia, Malaysia, Moldova, Poland, and Romania on missions to site, develop, construct, and analyze disposal facilities to provide national capacity to disposal of radioactive waste. He also has completed an IAEA Expert Mission to Belarus, during which risks were evaluated, associated with waste disposals of Chernobyl-contaminated wastes. Dr Kozak was the official U.S. delegate to the IAEA's Coordinated Research Program on Improvement of Safety Assessment Methodologies (ISAM). He was a member of the Coordinating Committee for ISAM, and leader of the Safety Cases Working Group. He participated in the subsequent program, ASAM (Application of Safety Assessment Methodologies) as a technical advisor for the reassessment and regulatory working groups. He is currently participating in the PRISM program.

Dr. Kozak is a past member of the U.S. Department of Energy's Research and Development Task Team (RDTT), which has been established to identify research needs to improve near-surface waste disposal practices throughout the DOE complex. Dr. Kozak was invited to participate in this effort despite not being associated with a DOE disposal facility because of his international reputation in near-surface disposal.

He has supported the U.S. Nuclear Regulatory Commission (NRC) in their development of a safety assessment methodology for near-surface radioactive waste disposal facilities. This work involved

participation in an international Coordinated Research Program on low-level waste disposal safety assessment (NSARS), conducting joint modeling exercises with 18 other countries. Dr. Kozak was a key member of this group, leading several of the activities. Additional research and technical support on a variety of issues is being done as part of this work for both the Office of Research and the Office of Nuclear Materials Safety and Safeguards at NRC.

In the area of residual contamination, Dr. Kozak has been the principal technical evaluator of a proposed technical approach developed by NRC for the analysis of potential doses from contaminated soils and buildings. The technical approach was previously developed by NRC, and during its implementation, a number of flaws have been discovered. Dr. Kozak has been assisting NRC to discover the flaws and to implement improved analysis methods for this problem. This work is being conducted for the NRC as part of a subcontract agreement with Sandia National Laboratories.

In the area of mixed waste, Dr. Kozak has provided technical support to the U.S. Department of Energy (DOE) headquarters (department EM-331) to develop a technical rationale for defining minimally hazardous radioactive wastes and minimally radioactive hazardous wastes. This work was conducted for the DOE as part of a subcontract agreement with Sandia National Laboratories.

During his tenure as Senior Member of the Technical Staff at Sandia National Laboratories, Dr. Kozak led numerous projects on radioactive and mixed wastes. His principal responsibilities were to lead projects in the areas of low-level waste, residual contamination, and Below-Regulatory Concern waste for the NRC. Dr. Kozak was also the principal technical leader of an Inter-Regional Short Course on safety assessment of near-surface disposal facilities, which was jointly sponsored by IAEA and the NRC. While at Sandia, Dr. Kozak also participated in the International Transport Model Validation (INTRAVAL) exercise as a U.S. Participant.

Dr. Kozak also conceived, initiated, and led a project to develop an electrokinetic method for removal of heavy metal contaminants from soils. While Dr. Kozak was at Sandia, the project developed a bench-scale experimental apparatus that provided the first demonstration of removal of contaminants by electrokinetics under unsaturated soil conditions. The project has since continued under another investigator at Sandia, and is currently moving to the field scale.

PROFESSIONAL AFFILIATIONS / CERTIFICATIONS

Member of Health Physics Society (member of the International Collaboration Committee, 2009)
Member of the Society for Risk Analysis
Member of American Nuclear Society
Member of American Institute of Chemical Engineering

ATTACHMENT 4

NUCLEAR ENERGY INSTITUTE

Everett L. Redmond II
SENIOR PROJECT MANAGER
USED FUEL STORAGE AND
TRANSPORTATION

October 6, 2009

Michael A. Bauser
Nuclear Energy Institute
1776 I St NW, Suite 400
Washington, DC, 20006

Subject: Dr. Everett L. Redmond II, Witness for NEI-SAFETY-05 Excessive Conservatism in the Postclosure Criticality Analysis

Dear Mr. Bauser:

I intend to be a witness on the Nuclear Energy Institute's (NEI's) contention SAFETY-09 Excessive Conservatism in the Postclosure Criticality Analysis. As required by the September 30, 2009 CAB Case Management Order #2, I provide below my background information and qualifications. Even though I have numerous publications, as identified on my curriculum vitae, I do not have any relevant publications within the previous ten years. I have not provided any testimony at trial or by deposition in any case in the previous four years.

Name: Everett L Redmond II

Affiliation: Nuclear Energy Institute

Address: 1776 I Street, NW, Suite 400, Washington, DC, 20006

Curriculum Vitae: see Attachment 1

General Statement of Subject Matter(s) To Be Addressed: The postclosure criticality analysis described in Section 2.2.1.4.1.1 of the License Application (LA) Safety Analysis Report (SAR) provides substantial safety margin and is excessively conservative in several respects and inconsistent with common industry practice. This over conservatism design will result in installation of disposal control rod assemblies in some cases, creating increased occupational dose to workers, unnecessary expenditures from the Nuclear Waste Fund, and increased economic and environmental costs.

Contention(s) To Be Addressed: NEI-SAFETY-05, Excessive Conservatism in the Postclosure Criticality Analysis

Sincerely,

Everett L. Redmond II

Attachment

1776 I Street, NW | Suite 400 | Washington, DC | 20006-3708 | P: 202.739.8122 | F: 202.533.0222 | elr@nei.org | www.nei.org

Attachment 1

Everett L. Redmond II, Ph.D.

1609 Sherwood Rd.
Silver Spring, MD 20902
202-739-8122
elr@nei.org

At the Nuclear Energy Institute, Dr. Redmond has been responsible for developing and coordinating the response of the commercial nuclear power industry to generic technical and regulatory issues related to the storage and transportation of spent nuclear fuel.

Professional Experience

Project Management

Nuclear Energy Institute 2006-Present

- Created the first NEI dry cask storage vendor task force and focused their efforts on regulatory issues that are specific to the vendors.
- Increased the effectiveness of the NEI dry storage task force by creating a steering committee comprised of industry representatives and focusing their efforts on specific issues
- Manages ACI Nuclear's consultation services to NEI.
- Successfully organized and executed the annual NEI Dry Storage Forum through direct involvement and the management of ACI Nuclear's efforts on the Dry Storage Forum.
- Effectively coordinates different NEI departments (e.g. legal, nuclear generation, government affairs) as appropriate to address issues.
- Successfully engaged the Nuclear Regulatory Commission (NRC) on various issues; including minimizing the impact of NRC regulatory interpretations through the issuance of enforcement guidance.
- Successfully represented the industry in various meetings with the Nuclear Regulatory Commission, NRC Advisory Committee on Nuclear Waste and Materials, Department of Transportation, DOT Surface Transportation Board, and Congressional staffers

Shielding Analysis

Holtec International 1995-2006

- Developed shielding analysis methods and performed all shielding analyses for licensing Holtec's dual-purpose HI-STAR 100 System for storage and transportation and Holtec's HI-STORM 100 System for storage with the USNRC under 10CFR71 and 10CFR72 regulations.
- Responded to all NRC shielding related Requests for Additional Information and interacted with NRC on numerous occasions in vigorous technical discussions.
- Developed technical approach and performed numerous site specific dose evaluations to comply with 10CFR72 dose requirements.
- Developed preferential fuel loading plans for Holtec's dry cask systems to reduce personnel exposure and off-site dose.

Everett L. Redmond II

- Authored shielding evaluations, licensing chapters, and responded to all questions from the regulatory agency for site specific dry storage applications for Trojan Nuclear Plant, Diablo Canyon and Humboldt Bay and Jose Cabrera Nuclear Power Plant in Spain.
- Performed wet storage shielding evaluations for PWR and BWR power plants. Analyses include gamma heating evaluations and dose rate evaluations.

Massachusetts Institute of Technology 1990-1994

- Developed and documented a full three-dimensional Monte Carlo (MCNP) model of the MIT MITR-II Nuclear Reactor. Validated fresh core and depleted core configurations against experimental criticality data.
- Developed the original Monte Carlo portion of the patient treatment planning program for patient trials of Boron Neutron Capture Therapy, which began in 1994, at the MIT Nuclear Reactor Laboratory and validated these methods against experimental data for neutron and gamma dose in a phantom model.

Criticality Analysis

Holtec International 1995-2006

- Performed spent fuel pool criticality analysis for PWR and BWR spent fuel pools to license spent fuel pool expansion projects with the Nuclear Regulatory Commission.
- Reviewed numerous criticality analyses for spent fuel pool storage expansion projects.
- Participated in reviews and meetings with the NRC for licensing burnup credit for spent fuel transportation under 10 CFR 71.

Research and Development

Holtec International 2004-2005
Responsible for Holtec International's involvement in Collaborative Research and Development Program with Oak Ridge National Laboratory to develop new uses for depleted uranium.

Expert Witness Services

Nuclear Energy Institute 2008
Provided expert witness testimony in regards to the transportation of spent nuclear fuel in Department of Transportation, Surface Transportation Board hearings.

Holtec International 2001-2002
Provided expert witness testimony in regards to shielding analyses for Private Fuel Storage in NRC Atomic Safety and Licensing Board hearings.

Attachment 1

Everett L. Redmond II

Employment History

Nuclear Energy Institute		Washington, D.C.
2006-Present	Senior Project Manager	
Holtec International		Marlton, New Jersey
1995-2006	Principal Engineer	
Los Alamos National Laboratory		Los Alamos, New Mexico
Summers 1993 and 1994	Graduate Research Assistant	
Raytheon		Sudbury, Massachusetts
Spring 1993	Shielding Consultant	
Northeast Utilities Company		Hartford, Connecticut
Summer 1992	Engineer	
Idaho National Engineering Laboratory		Idaho Falls, Idaho
1987 – 1990	Engineer and Co-op Student	

Education

Massachusetts Institute of Technology
Ph.D. in Nuclear Engineering and a Minor in Biology (1997)
M.S. in Nuclear Engineering (1990)
B.S. in Nuclear Engineering (1990)

Activities and Awards

Technical Reviewer for DOE Nuclear Engineering Education Research Proposals (2006)

Member American Nuclear Society (1986-Present)

Member of MIT Educational Council with responsibility for interviewing prospective MIT undergraduates.

MIT Knapp Fellowship 1992

Avid Scuba Diver
PADI Instructor since 2006

REFERENCES AVAILABLE UPON REQUEST

Everett L. Redmond II

PUBLICATIONS

1. E.L. Redmond II and M. Marionneaux, "Measured and Calculated Dose Rates Around the HI-STORM 100 Dry Cask Storage System," Proceedings of the 12th Biennial RPSD Topical Meeting, Santa Fe, NM, April 14-18, 2002.

2. V. Bilovsky and E.L. Redmond II, "A Discussion of the Shielding Characteristics of the HI-STORM 100 Dry Cask Storage System," Proceedings of the 12th Biennial RPSD Topical Meeting, Santa Fe, NM, April 14-18, 2002.

3. E.L. Redmond II, "Methodology for Calculating Dose Rates from Storage Cask Arrays Using MCNP," *Trans. Am. Nucl. Soc*., 77, 332, (1997)

4. E.L. Redmond II, "Multigroup Cross Section Generation Via Monte Carlo Methods," Doctoral Thesis, Massachusetts Institute of Technology (1997).

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	Docket No. 63-001-HLW
U.S. DEPARTMENT OF ENERGY	)	
(High-Level Waste Repository)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "The Nuclear Energy Institute's Identification of Witnesses" have been served upon the following persons on this 9th day of October, 2009 by Electronic Information Exchange.

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