

October 8, 2009

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
U.S. DEPARTMENT OF ENERGY	)	Docket No. 63-001-HLW
)	
(High-Level Waste Repository)	)	ASLBP Nos. 09-876-HLW-CAB01
	)	09-877-HLW-CAB02
	)	09-878-HLW-CAB03
	)	09-892-HLW-CAB04

NRC STAFF IDENTIFICATION OF WITNESSES

On September 30, 2009, Construction Authorization Board 04 ("the Board") issued "CAB Case Management Order #2" ("Order") addressing matters related to discovery in the above-captioned proceeding. The Order opened discovery for Phase I of the proceeding, consisting of legal issue, NEPA, and safety contentions related to Volumes 1 and 3 of the SER, Order at 3, and directed the parties, including the NRC staff ("Staff") with respect to Phase I NEPA contentions, to identify the witnesses it intends to call at the hearing in support or defense of each contention included in Phase I of discovery, *id.* at 5.

A list of the witnesses Staff intends to call with respect to the NEPA contentions in Phase I is included as Attachment 1. A combined curriculum vitae and list of publications for each of the four Staff witnesses identified in Attachment 1 are included as Attachments 2 through 5. None of the Staff witnesses has provided testimony at trial or by deposition during the past 4 years.

The Staff will identify its witnesses for safety contentions related to Volumes 1 or 3 of the SER no later than 10 days after the publication of each volume. See Order at 7.

Respectfully submitted,

/Signed (electronically) by/

Margaret J. Bupp
Counsel for NRC Staff
U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop O-15 D21
Washington, DC 20555-0001
(301) 415-3722
mjb5@nrc.gov

Dated at Rockville, Maryland
this 8th day of October, 2009

NRC Staff Witnesses for Phase I NEPA Contentions

Witness	Affiliation	Address	General Subject Matter	Contentions
Keith Compton	Senior Systems Performance Analyst, Performance Assessment Branch, Technical Review Directorate, Division of High-Level Waste Repository Safety, Office of Nuclear Materials Safety and Safeguards, NRC	Mail Stop EBB-2-B02 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001	Performance assessment and the use of the TSPA in the EIS	All Phase I NEPA
Brittain Hill	Senior Advisor-Science, Technical Review Directorate, Division of High-Level Waste Repository Safety, Office of Nuclear Materials Safety and Safeguards, NRC	Mail Stop EBB-2-B02 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001	Geology; Igneous Activity	INY-NEPA-006, WHI-NEPA-01, WHI-NEPA-02, WHI-NEPA-03, WHI-NEPA-04
Christine Pineda	Senior Project Manager (NEPA), Project Management Branch A, Licensing and Inspection Directorate, Division of High-Level Waste Repository Safety, Office of Nuclear Materials Safety and Safeguards, NRC	Mail Stop EBB-2-B02 U.S. Nuclear Regulatory Commission Washington, DC 20555-0001	Staff's adoption determination process	All Phase I NEPA
David Turner	Staff Scientist, Geochemistry Group, Center for Nuclear Waste Regulatory Analyses, Geosciences and Engineering Division, Southwest Research Institute® (SwRI®)	Southwest Research Inst. 6220 Culebra Rd. Bldg. 189 San Antonio, TX 78238-5166	Geology; Staff's adoption determination process	All Phase I NEPA

CURRICULUM VITAE

Keith L. Compton

U.S. Nuclear Regulatory Commission, MS EBB-02-02, Washington DC 20555-0001

Education

PhD, Department of Environmental Engineering and Science, Clemson University, December 2001

Dissertation Advisor: Prof. Robert A. Fjeld

Dissertation: The Yenisei River and the Mining and Chemical Combine: Past Releases, Current Conditions, and Future Threats

Prototype Training (Officer), S3G Prototype, Ballston Spa, NY, 1988

US Navy Nuclear Power School (Officer), Orlando, FL, 1987

B.S., Physics, Rhodes College, 1986

Experience

2003 - Present: Performance Assessment Branch, Division of High-Level Waste Repository Safety, Office of Nuclear Materials Security and Safeguards, U.S Nuclear Regulatory Commission

- *Senior Systems Performance Analyst (2006 – Present). Supervisors: Mr. Eugene Peters, Mr. Jack Guttmann*
 - Divisional lead for examination of DOE Total System Performance Assessment model
 - Technical coordinator for examination of DOE Preclosure Safety Analysis
 - Technical coordinator for examination of biosphere modeling
- *Systems Performance Analyst (2003-2006). Supervisor: Dr. Andrew Campbell*
 - Divisional lead for examination of DOE Total System Performance Assessment model
 - NRC TPA code development (development and testing), focusing on treatment of igneous eruptive scenarios, seepage, tephra redistribution, and biosphere modeling
 - Dose assessment for disposal of contaminated municipal incinerator sludge

1998 – 2003: International Institute of Applied Systems Analysis, Laxenburg, Austria

- *Research Associate, Risk, Modeling, and Society Project (2001-2003). Supervisor: Dr. Joanne Linnerooth-Bayer*
 - Coordinated activities of a small group of analysts on assessing integrated approaches to managing catastrophic flood hazard risks
 - Integrated input from disciplines with different approaches to risk management (e.g., hydrology, flood protection engineering, finance, and sociology) in an innovative probabilistic framework that highlighted how different types of uncertainty (aleatory and epistemic) can impact social decision-making.
- *Research Assistant, Radiation Safety of the Biosphere Project (1998-2001). Supervisor: Prof. Frank L. Parker*
 - Lead modeler for assessing far-field (10-250 km) floodplain contamination and dose impacts associated with past and potential releases of radioactivity into the Yenisei River. Developed a novel approach for assessing contaminated sediment transport in rivers with limited data.
 - Coordinated modeling efforts to assess migration of reprocessing wastes from a deep-well injection site in the Krasnoyarsk Region of the Russian Federation.
 - Examined comparative floodplain radiological impacts of waste disposal activities at US nuclear facilities at Oak Ridge (Clinch River) and former Soviet nuclear facilities at Mayak (Techa River)

- Developed source terms and screening methods for assessing dose impacts of long-range atmospheric transport from potential accidents at nuclear naval facilities in the Russian Far East (Vladivostok and Petropavlovsk) to locations in Japan and Alaska

1992-1997: Clemson University Department of Environmental Systems Engineering

- Graduate Student. Major Advisor: Prof. Robert A. Fjeld.
 - Coursework and research in contaminant fate and transport, environmental health physics, probability, and toxicology.
 - Research assistant to Prof. R. A. Fjeld, Development of training material for risk assessment education.
 - Graduate student assistant to the Committee on Decontamination and Decommissioning of Uranium Enrichment Facilities, Board on Energy and Environmental Systems, National Research Council. Supervisor: Prof. R. A. Fjeld
 - Teaching assistant to Prof. T. J. Overcamp, Air pollution meteorology course
 - Practicum (1993), Center for Risk Management, Oak Ridge National Laboratory. Supervisor: Dr. C. C. Travis. Assessment of radiological impacts from environmental restoration activities at the Rocky Flats Plant for the DOE Programmatic Environmental Impact Statement for Environmental Restoration.
 - Internship, Savannah River Site (1992). Supervisor: Mr. D. Bickford. Evaluation of RCRA regulatory requirements for disposal of vitrified hazardous waste.
- DOE Environmental Restoration and Waste Management Fellowship
- Young Scientists Summer Program, International Institute for Applied Systems Analysis

1986 - 1991: U. S Navy. Rank at Separation: LT (O-3). Qualified Submarine Warfare Officer (Nuclear)

- Decommissioning Crew, USS Sea Devil (SSN-664), Charleston Naval Shipyard, Charleston, SC
- Ships Communicator, Electronic Warfare Officer, and Cryptographic Materials System Custodian, USS Sand Lance (SSN-660)
- Reactor Controls Division Officer, USS Sand Lance (SSN-660)

List of Publications (last ten years)

1. Benke R., D. Hooper, J. Durham, D. Bannon, K. Compton, and M. Necsoiu. (2009). Measurement of airborne particle concentrations near the Sunset Crater volcano, Arizona. *Health Physics*. 2009 Feb; 96(2):97-117.
2. K. Compton, 2009. Spent Fuel Import, Storage, and Reprocessing in the Russian Federation: An Evaluation of Actors and Risks. Chapter In: Negotiated Risks. International Talks on Hazardous Issues, R. Avenhaus and G. Sjoestedt, eds. Springer-Verlag GmbH, Heidelberg, Germany [2009] [ISBN:978-3-540-92992-5]
3. Compton K., R. Faber, T. Ermolieva, J. Linnerooth-Bayer, and H.-P. Nachtnebel (2008). Development of a Catastrophe Model for Managing the Risks of Urban Flash Flooding in Vienna. IIASA Interim Report IR-08-001 [January 2008, 90 pp].
4. Fjeld R., N. Eisenberg, and K. Compton (2007). Quantitative environmental risk analysis for human health. John Wiley & Sons, Inc. [ISBN 9780471722434]
5. Mahura A., A. Baklanov, J. Sorensen, F. Parker, V. Novikov, K. Brown, and K. Compton (2005). Assessment of potential atmospheric transport and deposition patterns due to Russian Pacific Fleet operations. *Environmental Monitoring and Assessment*, 102(1-3):261-287 [2005].

6. Compton K. (2004). Report on the Use of MURBANDY Data for Flood Risk Assessment. Final Report submitted to the Commission of the European Communities, Joint Research Centre, Institute for Environment and Sustainability, Ispra, Italy.
7. Brown K., K. Compton, F. Parker F, A. Mahura, and V. Novikov (2003). Analysis of the Dose Commitments Resulting from Atmospheric Transport and Deposition from Nuclear Risk Sites in the Russian Far East. IIASA Interim Report IR-03-012 [August 2003, 210 pp].
8. Compton K., V. Novikov, F. Parker, Yu. Sivintsev (eds) (2003). The Radioactive Legacy of the Russian Pacific Fleet Operations and Its Potential Impact on Neighboring Countries. IIASA Interim Report IR-03-009 [June 2003, 101 pp].
9. Compton K. (2002). Contamination of groundwater and surface water at Russian plutonium production facilities. Proceedings of Fourteenth Contact Expert Group (CEG) Meeting, 9 - 11 April 2002, Vienna, Austria [2002].
10. Compton K., T. Ermolieva, and J. Linnerooth-Bayer (2002). Integrated flood risk management for urban infrastructure: Managing the flood risk to Vienna's heavy rail mass rapid transit system. Proceedings of the Second Annual IIASA-DPRI Meeting "Integrated Disaster Risk Management: Megacity Vulnerability and Resilience", 29-31 July 2002, IIASA, Laxenburg, Austria [2002].
11. A. Mahura, V. Novikov, A. Baklanov, F. Parker, J. Sorensen, and K. Compton (2002). Modeling of atmospheric transport from nuclear risk sites in the Russian Far East. Proceedings of the International Conference on Ecological Problems in Nuclear-Powered Submarine Decommissioning and the Development of Nuclear Power in the Region (ECOFLOT-2002), 16-20 September 2002, Vladivostok, Russia, p. 10.
12. Takano M, V. Romanova, H. Yamazawa, Yu. Sivintsev, K. Compton, V. Novikov, and F. Parker (2002). Reactivity accident of nuclear submarine near Vladivostok. Proceedings of Fourteenth Contact Expert Group (CEG) Meeting, 9 - 11 April 2002, Vienna, Austria.
13. Compton K.L., V. Novikov, and F. Parker (2001). Deep Well Injection of Liquid Radioactive Waste at Krasnoyarsk-26: Analysis of Hypothetical Scenarios. Volume II. IIASA Research Report RR-01-001 [February 2001, 74 pp].
14. Takano M, V. Romanova, H. Yamazawa, Yu. Sivintsev, K. Compton, V. Novikov, F. Parker (2001). Reactivity accident of nuclear submarine near Vladivostok. *Journal of Nuclear Science and Technology (Japan)*, 38(2):143-157.
15. Compton K., V. Novikov, and F. Parker (2000). Deep Well Injection of Liquid Radioactive Waste at Krasnoyarsk-26. IIASA Research Report RR-00-001 [February 2000, 112 pp].
16. Parker F., A. Rybalchenko, V. Velichkin, K. Compton, V. Novikov, A. Pek, V. Malkovsky, and B. Sigaev (2000). Analysis of long term consequences of deep well injection of liquid radioactive waste at the mining and chemical combine Krasnoyarsk Krai: II. Hypothetical scenarios. *Geology of Ore Deposits (Russian Federation)*, 42(2):111-126.
17. Parker F., A. Rybalchenko, V. Velichkin, K. Compton, V. Novikov, A. Pek, V. Malkovsky, and B. Sigaev (1999). Analysis of long term consequences of deep well injection of liquid radioactive waste at the mining and chemical combine Krasnoyarsk Krai: I. Normal evolution scenario. *Geology of Ore Deposits (Russian Federation)*, 41(6):423-439.
18. Parker F., K. Compton, and V. Novikov (1999). Comparative impacts of contamination of the Clinch and Techa Rivers. Collection of Abstracts of the Second International Symposium on the History of Atomic Projects of the 50's: Socio-Political, Environmental and Technical Lessons Learned (HISAP'99), 4-8 October 1999, IIASA, Laxenburg, Austria, p. 45.

19. Parker F., R. Waters, K. Compton, and V. Novikov (1999). Impact of the release of radioactive materials from Krasnoyarsk-26 to the Yenisei River. Proceedings of the International Conference WM'99, 3 March 1999, Tucson, AZ, USA.
20. Waters R., K. Compton, V. Novikov, and F. Parker (1999). Releases of Radionuclides to Surface Waters at Krasnoyarsk-26 and Tomsk-7. IIASA Research Report RR-99-003 [May 1999, 114 pp].
21. Fjeld, R. and K Compton. (1999) Risk Assessment. Article in: The Wiley Encyclopedia of Environmental Pollution and Cleanup. R Meyers and D. Dittrick, eds. (1999) Wiley-Interscience (1999) [ISBN: 0-471-31612-1]

Brittain Eames Hill, Ph.D.

U.S. Nuclear Regulatory Commission, MS EBB-02-02, Washington DC 20555-0001

EDUCATION

Ph.D. in Geology, Oregon State University, Corvallis, June 1991

M.S. in Geology, Oregon State University, Corvallis, June 1984

B.A. in Geological Sciences, University of California, Santa Barbara, June 1981

EMPLOYMENT

September, 2005–Present: Senior Technical Advisor for Repository Science, Office of Nuclear Materials Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington DC.

September 1997–July 2005: Principal Scientist (3/05–7/05); Senior Research Scientist (9/97–3/05), Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute, Texas. Senior technical lead on volcanism and risk assessment for the U.S. Nuclear Regulatory Commission's high-level radioactive waste program.

September 1992–September 1997: Research Scientist, Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute, Texas. Co-principal investigator on volcanism for the U.S. Nuclear Regulatory Commission's high-level radioactive waste program.

June 1990–July 1992: Geologist III, Oregon Department of Geology & Mineral Industries, Portland. Science coordinator and well-site geologist for a geothermal research drilling program in the Oregon Cascade Range.

March 1992–June 1992: Instructor, Oregon State University, Corvallis, Oregon. Taught an introductory engineering geology class to approximately 35 engineering students.

March 1986–June 1990: Independent Consultant for a variety of geothermal, precious metal, and petroleum resource companies.

September 1986–June 1991: Teaching Assistant, Oregon State University. Taught summer field camp (1988, 1989, 1991), mineralogy, lithology, and optical mineralogy labs and occasional lectures.

June 1984–December 1985: Assistant Geologist, UNOCAL Geothermal, California. Conducted geothermal research and exploration California, Nevada, and Utah, including field mapping, computer programming, drilling program management, and geochemical exploration techniques.

PROFESSIONAL SERVICE & MEMBERSHIPS

Expert Panel Member, Bristol University Risk Assessment Group, 2009–Present

Oregon State University, Board of Geoscience Advisors, 2006–Present

Consultant, International Atomic Energy Agency, 2006–Present

Elected Associate Member of Sigma Xi, the Scientific Research Society, 1989

Member of the International Association for Volcanology and Chemistry of the Earth's Interior

Member of the American Geophysical Union and the Geological Society of America

Co-chair, IAVCEI Working Group on Modeling Tephra Hazards, 2002–2005

Corresponding Member, International Volcanic Health Hazards Network, 2003–Present

Divisional Management Advisory Committee, Southwest Research Institute, 1994–1995

Institute Management Advisory Committee, Southwest Research Institute, 1995

Institute Services Committee, Southwest Research Institute, 2003–2005

MAJOR FIELD INVESTIGATIONS

Schell Creek Range, NV: 1980. Mapping of faulted Paleozoic sediments and Tertiary volcanics.
 Bend Highlands, OR: 1982–84. Mapping and physical volcanology of Quaternary pyroclastic deposits.
 Geysers Geothermal field, CA: 1983–85. Spring, soil, and soil-gas sampling, mapping Franciscan Fm.
 Medicine Lake Highlands, CA: 1983–84. Soil-gas and spring sampling, mapping Quaternary volcanics.
 Black Rock Volcanic Field, UT: 1984. Geothermal drilling, mapping and petrology of Quaternary basalt.
 Sparks, NV: 1984. Geothermal wildcat drilling program.
 Regional NV, CA, UT: 1984–85. Geothermal reconnaissance of springs, volcanics, field mapping.
 Mist Oilfield, OR: 1986. Soil and vegetation surveys.
 Three Sisters–Broken Top volcanoes, OR: 1986–90. Mapping, physical volcanology, petrology.
 E. Oregon volcanics: 1988–90. Field mapping, physical volcanology of Neogene volcanics.
 Santiam Pass, OR: 1989–90. Deep geothermal drilling, core studies, downhole geophysics.
 Central NV Volcanic Field: 1992–2002. Petrology, physical volcanology, potential field geophysics.
 Western Great Basin Volcanic Fields: 1993–99. Reconnaissance of physical volcanology, petrology.
 Tolbachik Volcanoes, Kamchatka: 1994–95. Physical volcanology, petrology, potential field geophysics.
 San Rafael volcanic field, UT: 1998–99. Physical volcanology, mapping, potential field geophysics.
 Cerro Negro volcano, Nicaragua: 1995–99. Eruption monitoring, volcanology, petrology, geophysics.

SUPPLEMENTAL EDUCATION

Introduction to Arc/Info. Environmental Systems Research Institute: 12/1992
Advanced GIS with Arc/Info. Environmental Systems Research Institute: 11/1993
Physics of Explosive Volcanism. A. Freundt & M. Rosi, IAVCEI: 1/1997
Gravity-Driven Flows of Volcanic Origin. K. Scott & M. Sheridan, IAVCEI: 1/1997
Analyzing Risk: Science, Assessment and Management. Harvard School of Public Health, 10/1998
Hazard Analysis: Qualitative/Quantitative Analysis Methods. Process Safety Institute, 9/1999
Technical Specialist Audit Observation Training. Nuclear Regulatory Commission, 1/2000
Principles and Techniques for Communicating Effectively about High Concern, Sensitive, or Controversial Issues. Dr. Vincent Covello, Center for Risk Communication: 2/2000
Real-time Volcano Monitoring from Space. A. Harris, IAVCAI: 7/2000
Reviewing a NRC Integrated Safety Analysis. Process Safety Institute: 10/2000
Science and Effective Media Communications. V. Yannacone, GSA: 11/2000
Scope Creep: Preventing and Resolving. S. Walesh, Am Soc. Civil Eng.: 4/2003
Introductory and Advanced Modeling with GOLDSIM. Golder Associates: 8/2004
High-Level Waste Health Physics. NRC, R. Reed & J. Ricci: 9/2004

ADDITIONAL PROFESSIONAL SKILLS

Detailed planning and safe conduct of multidisciplinary field investigations in remote areas, including active volcanoes. Strong project management skills, including integrated operations planning and budgeting. Intermediate to advanced skills in Geographic Information Systems for UNIX and Windows environments, including Arc/Info, ArcView, and ERDAS Imagine. Advanced petrographic analysis of igneous and sedimentary rocks, electron microprobe operations (Cameca SX-50), instrumental neutron activation analysis, and standard x-ray fluorescence and x-ray diffraction techniques. Basic skills in spoken Spanish, rudimentary knowledge of French and German languages.

PROFESSIONAL PUBLICATIONS, 1999-2009

Peer-reviewed Papers:

- Hill, B.E., W. Aspinall, C. B. Connor, J.-C. Komorowski, and S. Nakada. 2009. Recommendations for Assessing Volcanic Hazards at Sites of Nuclear Installations. *In* C. Connor, N. Chapman, and L. Connor, eds. *Volcanic and Tectonic Hazard Assessment for Nuclear Facilities*. New York, NY: Cambridge University Press. p. 566-611.
- Lejeune, A.-M., B.E. Hill, A.W. Woods, R.S.J. Sparks, and C.B. Connor. 2009. Intrusion Dynamics for Volatile-Poor Basaltic Magma Into Subsurface Nuclear Installations. *In* C. Connor, N. Chapman, and L. Connor, eds. *Volcanic and Tectonic Hazard Assessment for Nuclear Facilities*. New York, NY: Cambridge University Press. p. 429-451.
- Woods, A.W., O. Bokhove, A. deBoer, and B. Hill. 2006. Compressible Magma Flow in a Two-dimensional Elastic-walled Conduit. *Earth and Planetary Science Letters*, 246 (3-4): 241–250.
- Heggy, E., S.M. Clifford, R.E. Grimm, C.L. Dinwiddie, D.Y. Wyrick, and B.E. Hill. 2006. Ground-penetrating radar sounding in mafic lava flows: Assessing attenuation and scattering losses in Mars-analog volcanic terrains. *Journal of Geophysical Research*, 111, E06S04, DOI:10.1029/2005JE002589.
- La Femina, P.C., C.B. Connor, B.E. Hill, W. Strauch, and J.A. Saballos. 2004. Magma-tectonic interactions in Nicaragua: The 1999 seismic swarm and eruption of Cerro Negro volcano. *Journal of Volcanology and Geothermal Research*, 137 (1-3): 187–199 DOI: 10.1016/j.jvolgeores.2004.05.006.
- Dunne, W.M., D.A. Ferrill, J.G. Crider, B. Hill, P. La Femina, D. Waiting, A.P. Morris, and R. Fedors. 2003. Orthogonal jointing during coeval igneous degassing and normal faulting, Yucca Mountain, Nevada. *Geological Society of America Bulletin*, 115: 1492–1509.
- Woods, A.W., S. Sparks, O. Bokhove, A-M. LeJeune, C.B. Connor, and B.E. Hill. 2002. Modeling magma-drift interaction at the proposed high-level radioactive waste repository at Yucca Mountain, Nevada, U.S.A. *Geophysical Research Letters*. [DOI 10.1029/2002GL014665].
- Connor, C.B., B.E. Hill, B. Winfrey, N. Franklin, and P.C. La Femina. 2001. Estimation of volcanic hazards from tephra fallout. *Natural Hazards Review* 2(1): 33–42.
- Connor, C.B., J.A. Stamatakis, D.A. Ferrill, B.E. Hill, G. Ofoegbu, F.M. Conway, B. Sagar, and J.S. Trapp. 2000. Geologic factors controlling patterns of small-volume basaltic volcanism: Application to a volcanic hazards assessment at Yucca Mountain, Nevada. *Journal of Geophysical Research* 105: 417–432.
- Doubik, P.Yu., and B.E. Hill. 1999. Magmatic and hydromagmatic conduit development during the 1975 Tolbachik Eruption, Kamchatka, with implications for hazards assessment at Yucca Mountain, Nevada. *Journal of Volcanology and Geothermal Research*, 91: 43–64.

Reviewed Technical Reports:

- Benke, R., B. Hill, D. Hooper, and R. Nez. Description of Abstracted Models for Tephra Redistribution and Resuspension in the TPA Version 5.1 Code. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. March, 2006. ML060900365.

- Hooper, D.R., N.J. Franklin, B.L. Winfrey, and B.E. Hill. Realistic Modeling of Volcanic Eruption Plumes with the TEPHRA Code. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. March, 2006.
- McKague, H.L., D. Ferrill, K. Smart, J. Stamatakis, D. Waiting, and B. Hill. Tectonic Model Synthesis Report for the Yucca Mountain Region. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. March, 2006. ML060900455.
- Pabalan, R., P. Bertetti, G. Cragnolino, C. Dinwiddie, R. Fedors, B. Hill, V. Jain, G. Ofoegbu, Y.-M. Pan, E. Percy, R. Read, K. Smart, G. Walter, and J. Winterle. Performance Confirmation Activities Under 10 CFR Part 63 with Emphasis on Activities Considered Significant to Waste Isolation. CNWRA 2004-6. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. September, 2004.
- Hill, B.E. *Review of DOE Documents Pertaining to Igneous Activity Key Technical Issue Agreements 2.11 and 2.14*. IM 06002.01.051.445. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. April, 2004.
- Hill, B.E., D. Hooper, J. Rubenstone, and J. Trapp. 4.3.10—Volcanic Disruption of Waste Packages (DIRECT1) and 4.3.11—Airborne Transport of Radionuclides (DIRECT2). *Risk Insights Baseline Report*. IM 06002.01.111. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. February, 2004.
- Hill, B.E. *Review of DOE Documents Pertaining to Additional Information Needed for Igneous Activity Key Technical Issue Agreement Item 1.02*. IM 06002.01.051.444. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. February, 2004.
- Hsiung, S., R. Chen, A. Chowdhury, P. Cox, B. Dasgupta, M. Diaz, D. Dunn, A. Garabedian, A. Ghosh, R. Green, D. Gute, B. Hill, M. Leshner, P. Mackin, C. Manepally, D. Pomeroy, O. Povetko, B. Russell, M. Smith, and J. Stamatakis. *Safety Analysis Report for Idaho Spent Fuel Facility—Draft Letter Report*. IM 06003.02.021.410. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. January, 2004.
- Hill, B.E. *Review of DOE Information Addressing Igneous Activity Key Technical Issue Agreement Item 1.02*. IM 06002.051.277. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses. 2002.
- Connor, L., C.B. Connor, and B.E. Hill. 2002. *PVHA_YM Version 2.0 — Probabilistic Volcanic Hazard Assessment Methods for a Proposed High-Level Radioactive Waste Repository at Yucca Mountain, Nevada*. IM 01402.462.260. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Hill, B.E., and J. Stamatakis. 2002. *Evaluation of Geophysical Information Used to Detect and Characterize Buried Volcanic Features in the Yucca Mountain Region*. IM 1402.461.215. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Dasgupta, B., A. Gosh, A. Chowdhury, B.E. Hill, J. Stamatakis, and M. Lescher. 2002. *Hazard Identification for the Geologic Repository Operations Area: A Progress Report*. IM 01402.671.230. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Hsiung, S., and 18 others including B. Hill. 2002. *Acceptance Review of License Application and Safety Analysis Report for Idaho Spent Fuel Facility*. IM 01405.051.205. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.

- Hsiung, S., and 18 others including B. Hill. 2002. *Preliminary Request for Additional Information on the License Application and Safety Analysis Report for Idaho Spent Fuel Facility*. AI 01405.051.010. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Hill, B.E., and J. Trapp. 2001. Volcanic Disruption of Waste Packages. *Input to Commission Paper on Site Recommendation Review—Letter Report*. IM 1402.920.010. Turner, D., B. Russell, S. Hsiung, and P.C. Mackin, eds. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses: 3-170–3-174.
- Waiting, D.L., R. Chen, J.G. Crider, W.M. Dunne, R.W. Fedors, D.A. Ferrill, M.B. Gray, B.E. Hill, P.C. La Femina, H.L. McKague, A.P. Morris, D.W. Sims, and J.A. Stamatakos. 2001. *Technical Assessment of Structural Deformation and Seismicity at Yucca Mountain, Nevada*. IM 1402.471.120. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Ibrahim, A.-B., D. Gute, S. Hsiung, B. Hill, J. Stamatakos, and D. Dunn. 2001. Mechanical Disruption of Engineered Barriers. *Input to Commission Paper on Site Recommendation Review—Letter Report*. IM 1402.920.010. Turner, D., B. Russell, S. Hsiung, and P.C. Mackin, eds. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses: 3-47–3-72.
- Ibrahim, A.-B., P. Justus, J. Stamatakos, J. Weldy, and B. Hill. 2001. Identification of Events with $P > 10^{-8} \text{ y}^{-1}$. *Input to Commission Paper on Site Recommendation Review—Letter Report*. IM 1402.920.010. Turner, D., B. Russell, S. Hsiung, and P.C. Mackin, eds. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses: 3-13–3-27.
- Hill, B.E., C.B. Connor, and J.S. Trapp. 2001. Volcanic Disruption of Waste Packages. *Input to Integrated Issue Resolution Status Report*. MM 1402.461.120. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Connor, C.B., and B.E. Hill. 2001. Airborne Transport of Radionuclides. *Input to Integrated Issue Resolution Status Report*. MM 1402.461.120. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Gute, D., S. Hsiung, B.E. Hill, D. Dunn, and J. Stamatakos. 2001. Mechanical Disruption of Engineered Barriers. *Input to Integrated Issue Resolution Status Report*. MM 1402.461.120. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Hill, B.E., and C.B. Connor. 2000. *Technical Basis for Resolution of the Igneous Activity Key Technical Issue*. IM 20.1402.461.100. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Stamatakos, J.A., B.E. Hill, D.A. Ferrill, P.C. La Femina, D. Sims, C.B. Connor, M.B. Gray, A.P. Morris, and C.M. Hall. 2000. *Composite 13 Million Year Record of Extensional Faulting and Basin Growth of Crater Flat, Nevada*. IM 01402.471.020. San Antonio, Texas: Center for Nuclear Waste Regulatory Analyses.
- Miklas, M.P., B.E. Hill, and J.S. Trapp. 2000. *Predecisional Input to NRC Observation Audit Report, Disruptive Events Process Model Report*. IM 20.1402.331.019. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.
- Hill, B.E. and C.B. Connor. 1999. *Input to Igneous Activity Issue Resolution Status Report – Revision 2*. MM 20-1402-461-910. San Antonio, TX: Center for Nuclear Waste Regulatory Analyses.

Abstracts & Meeting Papers:

- Hill, B.E. NRC Position on Optimization for a Potential Geologic Repository. *NEA RWMC-RF Workshop on Transparent, Proportionate, and Deliverable Regulation for Geological Disposal*. January 21, 2009, Tokyo, Japan. ML090560032.
- Benke, R., B. Hill, and D. Hooper. Fluvial redistribution of contaminated tephra: Description of an Abstracted Model. *International High-Level Radioactive Waste Management Conference, May, 2006, Las Vegas, Nevada*. 2006. ML0603100340.
- Hill, B.E. Formation of Basaltic Tephra-fall Deposits at Either Agglutinated or Fragmented Scoria Cones. *International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly 2004 Abstracts*.
- Hooper, D.M., and B.E. Hill. Geomorphologic Evolution of the Tephra Deposit from Parícutin Volcano, Mexico. *International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly 2004 Abstracts*.
- Woods, A., O. Bokhove, and B.E. Hill. The Role of Elasticity in Volcanic Conduits and its Control on Eruption Rate and Evolution. *International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly 2004 Abstracts*.
- Murphy, K.R., J.A. Stamatakis, B.E. Hill, and M.B. Gray. Geophysical evidence for two distinct Miocene and Quaternary slip rates on the Bare Mountain Fault, Nevada. *Geological Society of America Abstracts with Programs*, 35(5): 196. November, 2003.
- Hill, B.E. 2003. Key Uncertainties in Calculating Volcanic Risk for the Proposed Yucca Mountain Radioactive Waste Repository, Nevada, USA. *Cities on Volcanoes 3 Meeting*, Hilo, HI. July, 2003.
- Hill, B.E., P. La Femina, C. Connor, and J. Stamatakis. 2002. Preliminary Evaluation of the Effects of Buried Volcanoes on Estimates of Volcano Probability for the Proposed Repository Site at Yucca Mountain, Nevada. *EOS, Transactions of the American Geophysical Union*. December, 2002.
- Hill, B.E. 2002. A fundamental role for process models in volcanic hazard assessments. *Geological Society of America Abstracts with Programs*, 34(4): 53.
- Hill, B.E., P. Doubik, and C.B. Connor. 2001. Geologic constraints on conduit formation at explosive basaltic volcanoes. *EOS, Transactions of the American Geophysical Union* 82(47): F1411.
- Hill, B.E., C.B. Connor, J. Weldy, and N. Franklin. 2001. Quantifying hazards from basaltic tephra-fall eruptions. C. Stewart, ed., *Proceedings of the Cities on Volcanoes 2 Conference, Auckland, New Zealand, 12–14 February 2001*. Institute of Geological and Nuclear Sciences Information Series 49. Institute of Geological and Nuclear Sciences Limited: Lower Hutt, New Zealand. p. 50.
- Hill, B.E., C.B. Connor, and J.S. Trapp. 2000. Calculating risk from future basaltic volcanic eruptions at the proposed Yucca Mountain repository site, Nevada. *Geological Society of America Abstracts with Programs* 32(7): 214.
- Stamatakis, J.A., B.E. Hill, D.A. Ferrill, P. La Femina, D.W. Sims, C.B. Connor, A.P. Morris, and M.B. Gray. 2000. Tectonic evolution of the Crater Flat Basin, Nevada. *Geological Society of America Abstracts with Programs*, 32(7): 228.

- Hill, B.E., C.B. Connor, and P.C. La Femina. 2000. Successful eruption forecasting before unrest at Cerro Negro volcano, Nicaragua. *International Association of Volcanology and Chemistry of the Earth's Interior, General Assembly 2000 Abstracts*, p. 152.
- Hill, B. E., P.C. La Femina, C.B. Connor, W. Strauch, G. Davoli, G. Guevara, and A. Saballos. 1999. August 1999 eruption of Cerro Negro Volcano, Nicaragua, successfully forecast using time-volume relationships. *EOS, Transactions of the American Geophysical Union* 80(46): F1110.
- La Femina, P.C., C.B. Connor, B.E. Hill, S. Sandberg, N. Rogers, T. Dixon, W. Strauch, and A. Saballos. 1999. Shallow dike emplacement during August, 1999, seismic and volcanic activity at Cerro Negro, Nicaragua. *EOS, Transactions of the American Geophysical Union* 80(46): F972.
- Woods, A., S. Sparks, O. Bokhove, A-M LeJeune, C. Connor, and B. Hill. 1999. On the motion of magma following the intersection of a dike with a horizontal subsurface tunnel. *EOS, Transactions of the American Geophysical Union* 80(46): F1187.
- Mohanty, S., and 28 others. 1999. A total-system performance assessment code for the safety assessment of the proposed high-level nuclear waste repository at Yucca Mountain, Nevada. *EOS, Transactions of the American Geophysical Union* 80(46): F313.
- Hill, B.E., C.B. Connor, and J.S. Trapp. 1999. Understanding risks from future basaltic volcanic eruptions at the proposed Yucca Mountain Repository site, Nevada. *EOS, Transactions of the American Geophysical Union*, 80(17): S11.
- Hill, B., and C. Connor. 1999. Eruption forecasting at Cerro Negro volcano, Nicaragua, using time-volume relationships. *Transactions, International Union of Geodesy and Geophysics XXII General Assembly*, B. 31.
- Hill, B., C. Connor, and P. Doubik. 1999. Constraints on shallow basaltic subvolcanic conduit dimensions. *Transactions, International Union of Geodesy and Geophysics XXII General Assembly*, B. 169.
- Connor, C.B., B. Hill, A. Woods, and S. Sparks. 1999. Volcanic hazard assessment for a proposed high-level radioactive waste repository at Yucca Mountain, Nevada, U.S.A. *Transactions, International Union of Geodesy and Geophysics XXII General Assembly*, A. 126.
- Woods, A.W., S. Sparks, C. Connor, and B. Hill. 1999. A model of the interaction of a fissure eruption with a horizontal tunnel. *Transactions, International Union of Geodesy and Geophysics XXII General Assembly*, B. 169.

CHRISTINE LENORE PINEDA
U.S. Nuclear Regulatory Commission, MS EBB-02-02, Washington DC 20555-0001

EDUCATION

M.S., Environmental Science and Policy, Johns Hopkins University, 2000
B.A., Sociology, Dickinson College, 1993
Certificate, Environmental Studies, Dickinson College, 1993

PROFESSIONAL EXPERIENCE

February, 2007 – Present: Senior Project Manager, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Division of High-Level Waste Repository Safety

Project lead responsible for developing the NRC staff's Adoption Determination Report (ADR) regarding the Department of Energy's Environmental Impact Statement (EIS) and supplemental EISs relating to a proposed repository at Yucca Mountain, Nevada, and a proposed rail alignment in Nevada. Developed staff guidance for the adoption review; identified and trained interdisciplinary team on National Environmental Policy Act (NEPA) requirements, Nuclear Waste Policy Act requirements, and NRC regulations relating to the adoption review; managed team's EIS review process; co-wrote and managed development of ADR. Participated in workshops with the Affected Units of Local Government to clarify NRC's role for repository licensing and responsibilities under NEPA. Project lead responsible for organizing and managing the NRC staff team that provided formal comments on DOE's 2007 draft Yucca Mountain EISs and conducting a follow-up lessons-learned exercise.

Managed aspects and developed a portion of a report on NRC staff's Congressionally-mandated review of the regulatory processes of DOE's Hanford Waste Treatment Plant (WTP). Pursuant to the direction of the Congress, NRC staff conducted a high-level review of DOE's regulatory processes for the WTP to compare DOE's regulatory approach to NRC's process for nuclear safety regulation. Provided project management support; reviewed the WTP environmental protection measures and compliance program; and developed a section of the report addressing environmental protection measures.

June, 2005 – February, 2007: Project Manager, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Division of High-Level Waste Repository Safety

Project manager for a variety of activities in the NRC's high-level waste program. Responsibilities included project management support to the senior project manager to ensure that the NRC was fulfilling its obligations under the National Environmental Policy Act, the Endangered Species Act, and the National Historic Preservation Act, as well as complying with NRC's regulations for potential adoption of DOE's Yucca Mountain environmental impact statement under the Nuclear Waste Policy Act. Responsibilities also included project management and coordination of Licensing Support Network activities and the development of internal policies and guidance for division staff. Served as member of Division's Yucca Mountain public outreach team and internal communications working group.

October, 2002 – June, 2005: Project Manager, U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards, Division of Waste Management and Environmental Protection

One of two project managers responsible for managing the development of a final EIS to support the licensing review for a new uranium enrichment plant (National Enrichment Facility in

Lea County, New Mexico). Lead project manager for contract management and certain technical issues relating to the development of an EIS for the clean-up of a uranium conversion plant during a time when the plant was being shifted to a different regulatory program within the NRC. Author of guidance for NMSS staff to comply with Endangered Species Act consultation requirements (contained in NUREG-1748, *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs*). Lead developer of an environmental assessment for the approval of Yankee Rowe nuclear power plant license termination plan. Reviewer of numerous environmental assessments for NRC headquarters and regional office regulatory actions associated with a variety of industrial, medical, and other nuclear materials facilities or activities. Reviewer of an EIS for an independent spent fuel storage facility at the Idaho National Engineering and Environmental Laboratory; Reviewer of portions of a generic EIS for a proposed NRC regulation concerning the control of solid materials, including scrap metal and concrete, generated from decommissioning of NRC licensee facilities. Part of a team to audit Brookhaven National Laboratory activities involving ionizing radiation to determine the extent to which such activities at the laboratory would comply with NRC requirements.

February, 2001 – October, 2002: Analyst, U.S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Division of Risk Analysis and Applications

Supported senior technical and management staff by assisting with research activities to support risk-informed rulemakings or rule revisions. Developed a colloquium for about 60 branch staff and laboratory contractors to discuss ongoing projects and explore future research possibilities. Assisted the division's senior technical advisor in NRC's activities to support an international research cooperative for risk-informed decision-making. Participated in a study of nuclear power plant vulnerabilities after September 11, 2001, focusing on spent fuel pool vulnerabilities. Lead coordinator of an agency-wide effort to update a NRC report documenting and describing NRC's risk-informing activities.

June, 1996 – February, 2001: Project Analyst, Environmental Resources Management, Inc. (Exton, PA and Annapolis, MD)

Environmental consultant to private and public sector entities: managed or conducted numerous environmental assessments of commercial, industrial, and government sites, as well as hazardous waste management facilities; developed tools (checklists, regulatory summaries, and guidance) on Federal and state environmental regulations for use in environmental compliance audits; and participated in assessments of corporate environmental management programs. Responsible for coordinating with corporate or facility offices, conducting on site reviews of regulatory status and physical aspects of the sites, verifying status with regulatory agencies, and writing detailed or summary reports of the audits. Interviewed and coordinated with people in a variety of functions, including military officers and civilian staff, corporate management, corporate financial officers and legal counsel, factory workers, engineers, and regulatory agency representatives.

RELEVANT FIELD EXPERIENCE

2004 – 2007: developed and led multiple field trips along the Department of Energy's proposed Caliente rail corridor.

2009: participated in field trip to springs in Death Valley area related to regional groundwater flow.

RELEVANT TRAINING

NEPA Climate Change Analysis and Documentation (Shiple Group), October 2009
Presenting Data and Information (Edward Tufte), September 2009

NEPA Cross-Cutting Training (Environmental Protection Agency), September 2008
Section 106 Essentials (Advisory Council on Historic Preservation), June 2006
Licensing and Evaluation of a High-Level Waste Geologic Repository (NRC), August 2005
High-Level Waste Health Physics (NRC), September 2004
Environmental Monitoring for Radioactivity (NRC), June 2004
Socioeconomic Impact Analysis (Duke University), February 2004
Fuel Cycle Processes (NRC), March 2003
Managing the NEPA Process (Shipley Group), December 2002
Introduction to risk assessment in NMSS (NRC), December 2002
Citizen Participation (Hans and Annemarie Bleiker), October 2002
Public Outreach Meetings (NRC), September 2002
Introductory Health Physics (NRC), July 2002
Applying Statistics (NRC), July 2001
The Regulatory Process (NRC), June 2001

PUBLICATIONS

No relevant publications within the last 10 years

DAVID R. TURNER, Ph.D., P.G.

Current Position:

Staff Scientist
Geochemistry Group
Center for Nuclear Waste Regulatory Analyses
Geosciences and Engineering Division
Southwest Research Institute® (SwRI®)

Experience:

Dr. Turner has more than 25 years' experience in the fields of geochemistry and environmental impact assessment. An employee at the Center for Nuclear Waste Analyses (CNWRA) in the Geosciences and Engineering Division since 1990, his current responsibilities include developing proposals and conducting technical work in the areas of environmental impact assessment, geochemical consulting, groundwater contaminant transport, site decommissioning, facility hazard assessment, and uranium recovery. He has presented geochemistry and environmental science research results at national and international meetings to a wide variety of audiences, including professional societies, industrial and government clients, students and teachers, and members of the general public. He has also developed National Environmental Policy Act training materials, mentored junior staff, and supervised student interns.

Special Expertise:

- Project management, database development, implementation of QA/QC
- Experience in evaluating compliance with federal environmental regulations
- Laboratory skills including fluid inclusion, stable isotope, electron microprobe, mass spectrometry, and petrographic analytical methods
- Computer modeling of geochemical processes using USEPA and USGS codes

Education:

1990 Ph.D. in Geology, University of Utah
1985 M.S. in Geology, University of Utah
1981 B.A. in Music/Geology, College of William and Mary

Previous Positions:

Research Scientist (1990-1993), Senior Research Scientist (1993-1999), Principal Scientist (1999-2003), Assistant Director (2003-2008), Southwest Research Institute, San Antonio, Texas.

Exploration Geologist, Summer 1990, Mobil Oil Corporation, Denver, Colorado.

Exploration Geologist, Summer 1989, Barrick Resources (USA), Inc., Mercur, Utah.

Graduate Research Assistant/Fellow, 1984-1989, University of Utah, Salt Lake City, Utah.

Junior Exploration Geologist, Summer 1985, Unocal-Geothermal Division, Santa Rosa, California.

Reconnaissance Field Geologist, Summer 1984, Steam Reserve Corporation (AMAX), Golden, Colorado.

Professional Registrations and Affiliations:

- Licensed Professional Geoscientist in Texas, No. 237
- Certified Training in ASTM Phase I and Phase II Environmental Site Assessment
- International Association of Geochemistry
- Society of Economic Geologists
- National Association of Environmental Professionals (NEPA Working Group)
- Technical reviewer for *Applied Clay Science*, *Applied Geochemistry*, *Chemical Geology*, *Clays and Clay Minerals*, *Computers and Geoscience*, *Environmental Science and Technology*, *Geochimica et Cosmochimica Acta*, *Journal of Contaminant Hydrology*, *Journal of Nuclear Materials*, *Materials Research Society*, *National Science Foundation*, *Texas Journal of Science*, *Waste Management*

Publications and Presentations:

Selected Presentations

Turner, D.R. and J.R. Bowman. 1984. A petrologic and fluid inclusion study of the sphalerite skarns at the Empire and Pewabic Mines, Hanover, New Mexico. 97th Annual Meeting of the Geological Society of America, November 5-8, 1984. Reno, Nevada.

Turner, D.R. and J.R. Bowman. 1986. Physico-chemical evolution of skarn-forming fluids, Empire and Pewabic sphalerite skarns, Hanover, New Mexico. 99th Annual Meeting of the Geological Society of America, November 10-13, 1986. San Antonio, Texas.

Turner, D.R. and J.R. Bowman. 1988. Modeling of temperature-fluid flow regimes in the Empire Zn-skarns, Hanover, New Mexico. Centennial Celebration of the Geological Society of America, October 31-November 3, 1988. Denver, Colorado.

Turner, D.R., T. Griffin, and T.B. Dietrich. 1993. Radionuclide sorption modeling using the MINTEQA2 speciation code. Materials Research Society Symposium: Scientific Basis for Nuclear Waste Management XVI, November 30-December 4, 1992. Boston, Massachusetts.

Turner, D.R. and S.A. Sassman. 1993. Approaches to sorption modeling for high-level waste performance assessment. 4th International Conference on the Chemistry and Migration Behavior of Actinides and Fission Products in the Geosphere, December 12-17, 1993. Charleston, South Carolina.

Bertetti, R.P., R.T. Pabalan, D.R. Turner, and M. Almendarez. 1994. Experimental study of uranium(6+) sorption on quartz sand. Annual Meeting of the Geological Society of America, October 1994.

Turner, D.R., A.C. Bagtzoglou, and J. Foegelle. 1995. Characterization of the potential for perched water development at Yucca Mountain, Nevada. 6th International Conference on High-Level Radioactive Waste Management, April 30-May 5, 1995. Las Vegas, Nevada.

Turner, D.R., R.T. Pabalan, P. Muller, and F.P. Bertetti. 1995. Uniform surface complexation approaches to radionuclide sorption modeling. 6th International Conference on High-Level Radioactive Waste Management, April 30-May 5, 1995. Las Vegas, Nevada.

Pabalan, R.T. and D.R. Turner. 1995. Uranium(6+) sorption on montmorillonite: Effects of pH, SU, and M/V. 32nd Meeting of the Clay Minerals Society, June 3-8, 1995. Baltimore, Maryland.

Turner, D.R. and R.T. Pabalan. 1997. Sorption modeling for performance assessment at the Center for Nuclear Waste Regulatory Analyses. Invited presentation. Nuclear Energy Agency International Meeting on Chemical Modelling of Sorption, May 6-8, 1997. Oxford, United Kingdom.

Turner, D.R., R.T. Pabalan, J.D. Prikryl, and F.P. Bertetti. 1998. Radionuclide sorption at Yucca Mountain, Nevada—Demonstration of an alternative approach for performance assessment. Materials Research Society Symposium: Scientific Basis for Nuclear Waste Management XXII, November 30-December 4, 1998. Boston, Massachusetts.

Jain, A., J.D. Prikryl, R.T. Pabalan, and D.R. Turner. 1999. Experimental and modeling studies of uranyl adsorption onto binary mixtures of silicate minerals. 217th National Meeting of the American Chemical Society, March 21-25, 1999. Anaheim, California.

Armstrong, A., D.R. Turner, S. Painter, D.A. Farrell, and N.M. Coleman. 1999. Hydrogeological inferences from thermal and chemical measurements at Yucca Mountain, Nevada. American Geophysical Union Spring Meeting, May 31-June 4, 1999. Boston, Massachusetts.

Contardi, J.S., D.R. Turner, and T.M. Ahn. 1999. Modeling colloid transport for performance assessment. Seventh International Conference on the Chemistry and Migration Behavior of Actinides and Fission Products in the Geosphere—Migration '99, September 26-October 1, 1999. Lake Tahoe, Nevada.

Prikryl, J.D., A. Jain, D.R. Turner, and R.T. Pabalan. 1999. Uranium^{VI} sorption behavior on silicate mineral mixtures. Seventh International Conference on the Chemistry and Migration Behavior of Actinides and Fission Products in the Geosphere—Migration '99, September 26-October 1, 1999. Lake Tahoe, Nevada.

Turner, D.R. 1999. The role of radionuclide sorption in high level waste performance assessment: Approaches for the abstraction of detailed models. Invited presentation. Soil Science Society of America Annual Meeting, October 31-November 4, 1999. Salt Lake City, Utah.

Pabalan, R.T., D.R. Turner, and M.P. Miklas, Jr. 1999. Technetium-99 chemistry in reduced groundwaters: Implications for the performance of a proposed high-level nuclear waste repository at Yucca Mountain, Nevada. Materials Research Society Symposium: Scientific Basis for Nuclear Waste Management XXIII, November 29-December 3, 1999. Boston, Massachusetts.

Weldy, J.R., G.W. Wittmeyer, and D.R. Turner. 2000. Building confidence in Nuclear Regulatory Commission quantitative safety assessment methods: External peer review of the Total-system Performance Assessment Version 3.2 code. Waste Management 2000, February 28-March 2, 2000. Tucson, Arizona.

Painter, S. and D.R. Turner. 2000. Radionuclide transport and retardation in the alluvial aquifer near Yucca Mountain, Nevada. Groundwater 2000: International Conference on Groundwater Research, June 6-8, 2000. Copenhagen, Denmark.

Ciocco, J.A., P.C. Mackin, B. Russell, and D.R. Turner. 2001. Implementing risk-informed, performance-based regulation for high-level waste disposal. Waste Management 2001, February 26-March 1, 2001. Tucson, Arizona.

Turner, D.R. 2001. Radionuclide sorption: Abstracting information from detailed models for high-level nuclear waste performance assessment. Invited presentation. Nationale Genossenschaft fur die Lagerung Radioaktiver Abfalle (NAGRA) Geochemistry Workshop, October 28-30, 2001. Wettingen, Switzerland.

Turner, D.R. 2002. The role of geosciences in nuclear waste management. Invited presentation. Trinity University Department of Geosciences, February 11, 2002. San Antonio, Texas.

Turner, D.R. and L. Canter. 2002. A short course on National Environmental Policy Act document review. Southwest Research Institute, November 17-19, 2002. San Antonio, Texas.

Turner, D.R. and L. Canter. 2003. A short course on National Environmental Policy Act document review. Southwest Research Institute, June 25-27, 2003. San Antonio, Texas.

Turner, D.R. and L. Canter. 2004. A short course on National Environmental Policy Act document review. Kentucky Transportation Cabinet, May 25-27, 2004. Frankfort, Kentucky.

Turner, D.R. and P. Mackin. 2004. A short course on National Environmental Policy Act document review. Engineering Field Activities, Northwest, September 21-23, 2004. Poulsbo, Washington.

Pabalan, R.T., D.R. Turner, and F.P. Bertetti. 2004. Radionuclide sorption in high-level waste performance assessment: Abstraction of results from experiments and surface-complexation models. Workshop on Conceptual Model Development for Subsurface Reactive Transport Modeling of Inorganic Contaminants, Radionuclides, and Nutrients, April 20-22, 2004. Albuquerque, New Mexico.

Turner, D.R., F.P. Bertetti, and R.T. Pabalan. 2005. Developing thermodynamic radionuclide sorption models: Experimental and modeling results. Invited Presentation. Nuclear Energy Agency Radionuclide Sorption Workshop, October 10-11, 2005. Paris, France.

Turner, D.R., F.P. Bertetti, and R.T. Pabalan. 2005. Applying radionuclide sorption models in performance assessment. Invited presentation. Nuclear Energy Agency Radionuclide Sorption Workshop, October 10-11, 2005. Paris, France.

Turner, D.R. 2006. Making a living in science and engineering. Invited presentation. University of the Incarnate Word, College of Mathematics, Science, and Engineering, September 29, 2006. San Antonio, Texas.

Turner, D.R. 2008. Applying science in nuclear waste management. Invited presentation. St. Mary's University, Physics and Earth Science Department, February 4, 2008. San Antonio, Texas.

Turner, D.R. and D.A. Pickett. 2008. Overview of the United States regulatory framework for in-situ leach uranium milling. American Association of Petroleum Geologists Annual Meeting, April 20-23, 2008. San Antonio, Texas.

Turner, D.R. 2008. Environmental impact assessment: Disciplined analysis in a multi-disciplinary context. Invited presentation. Sigma Xi, Alamo Chapter, May 20, 2008. San Antonio, Texas.

Peer-Reviewed Publications

Turner, D.R. and J.R. Bowman. 1993. Origin and evolution of skarn fluids, Empire zinc skarns, Central Mining District, New Mexico, U.S.A. *Applied Geochemistry*. Vol. 8. pp. 9-36.

Prikryl, J.D., R.T. Pabalan, D.R. Turner, and B.W. Leslie. 1994. Uranium sorption on α -alumina: Effects of pH and surface-area/solution-volume ratio. *Radiochimica Acta*. Vol. 66. pp. 291-296.

Turner, D.R. and S.A. Sassman. 1996. Approaches to sorption modeling for high-level waste performance assessment. *Journal of Contaminant Hydrology*. Vol. 21. pp. 311-332.

Pabalan, R.T. and D.R. Turner. 1997. Uranium(6+) sorption on montmorillonite: Experimental and surface complexation modeling study. *Aqueous Geochemistry*. Vol. 2. pp. 203-226.

Turner, D.R., R.T. Pabalan, and F.P. Bertetti. 1998. Neptunium(V) sorption on montmorillonite: An experimental and surface complexation modeling study. *Clays and Clay Minerals*. Vol. 46. pp. 256-269.

Turner, D.R. and R.T. Pabalan. 1999. Abstraction of mechanistic sorption model results for performance assessment calculations at Yucca Mountain, Nevada. *Waste Management*. Vol. 19. pp. 375-388.

Contardi, J.S., D.R. Turner, and T.M. Ahn. 2001. Modeling colloid transport for performance assessment. *Journal of Contaminant Hydrology*. Vol. 47. pp. 323-333.

Painter, S., V. Cvetkovic, and D.R. Turner. 2001. Effect of heterogeneity on radionuclide retardation in the alluvial aquifer near Yucca Mountain, Nevada. *Ground Water*. Vol. 39. pp. 326-338.

Prikryl, J.D., A. Jain, D.R. Turner, and R.T. Pabalan. 2001. Uranium^{VI} sorption behavior on silicate mineral mixtures. *Journal of Contaminant Hydrology*. Vol. 47. pp. 241-253.

Wang, P., A. Anderko, and D.R. Turner. 2001. Thermodynamic modeling of radionuclide adsorption on selected minerals. I: Cations. *Industrial and Engineering Chemistry Research*. Vol. 40. pp. 4,428-4,443.

Wang, P., A. Anderko, and D.R. Turner. 2001. Thermodynamic modeling of radionuclide adsorption on selected minerals. II: Anions. *Industrial and Engineering Chemistry Research*. Vol. 40. pp. 4,444-4,453.

Goldberg, S., L.J. Criscenti, D.R. Turner, J.A. Davis, and K.J. Cantrell. 2007. Adsorption-desorption processes in subsurface reactive transport modeling. *Vadose Zone Journal*. Vol. 6. pp. 407-435.

Book and Proceedings Chapters

Manteufel, R.D., M.P. Ahola, D.R. Turner, and A.H. Chowdhury. 1993. An assessment of coupled thermal-hydrologic-mechanical-chemical processes. *Proceedings of the 4th International Conference on High-Level Radioactive Waste Management*. La Grange Park, Illinois: American Nuclear Society. pp. 576-583.

Turner, D.R., T. Griffin, and T.B. Dietrich. 1993. Radionuclide sorption modeling using the MINTEQA2 speciation code. C. Interrante and R. Pabalan, eds. *Materials Research Society Symposium Proceedings: Scientific Basis for Nuclear Waste Management XVI*. Pittsburgh, Pennsylvania: MRS. pp. 783-789.

Turner, D.R. and S.A. Sassman. 1994. Approaches to sorption modeling for high-level waste performance assessment. *Proceedings of the Fourth International Conference on the Chemistry and Migration Behavior of Actinides and Fission Products in the Geosphere—Migration '93*. Munich, Germany: R. Oldenbourg Verlag. pp. 745-756.

Manaktala, H., D.R. Turner, T. Ahn, V. Colten-Bradley, and E. Bonano. 1995. Implications of colloids on the performance of a HLW repository. *Proceedings of the 6th International Conference on High-Level Radioactive Waste Management*. La Grange Park, Illinois: American Nuclear Society. pp. 445-447.

Miklas, M.P., B. Sagar, A. Gureghian, R. Janetzke, H. Karimi, P. Laplante, S. Mohanty, D. Turner, and C. Hägg. 1995. SSI Toolbox to evaluate Swedish high-level waste disposal system performance. *Proceedings of the 6th International Conference on High-Level Radioactive Waste Management*. La Grange Park, Illinois: American Nuclear Society. pp. 500-502.

Turner, D.R., A.C. Bagtzoglou, and J. Foegelle. 1995. Characterization of the potential for perched water development at Yucca Mountain, Nevada. *Proceedings of 6th International Conference on High-Level Radioactive Waste Management*. La Grange Park, Illinois: American Nuclear Society. pp. 72-74.

Turner, D.R., R.T. Pabalan, P. Muller, and F.P. Bertetti. 1995. Uniform surface complexation approaches to radionuclide sorption modeling. *Proceedings of 6th International Conference on High-Level Radioactive Waste Management*. La Grange Park, Illinois: American Nuclear Society. pp. 234-236.

Bertetti, F.P., R.T. Pabalan, D.R. Turner, and M.G. Almendarez. 1996. Neptunium(V) sorption behavior on clinoptilolite, quartz, and montmorillonite. W. Murphy and D. Knecht, eds. *Materials Research Society Symposium Proceedings: Scientific Basis for Nuclear Waste Management XIX*. Pittsburgh, Pennsylvania: MRS. pp. 631-638.

Pabalan, R.T., D.R. Turner, F.P. Bertetti, and J.D. Prikryl. 1998. Uranium^{VI} sorption onto selected mineral surfaces. E.A. Jenne, ed. *Adsorption of Metals by Geomedia*. New York City, New York: Academic Press, Inc.. pp. 99-130.

Turner, D.R., R.T. Pabalan, J.D. Prikryl, and F.P. Bertetti. 1999. Radionuclide sorption at Yucca Mountain, Nevada—Demonstration of an alternative approach for performance assessment. J. Lee and D. Wronkiewicz, eds. *Materials Research Society Symposium Proceedings: Scientific Basis for Nuclear Waste Management XXII*. Pittsburgh, Pennsylvania: MRS. pp. 583-590.

Pabalan, R.T., D.R. Turner, and M.P. Miklas, Jr. 2000. Technetium-99 chemistry in reduced groundwaters: Implications for the performance of a proposed high-level nuclear waste repository at Yucca Mountain, Nevada. D. Shoesmith and R. Smith, eds. *Materials Research Society Symposium Proceedings: Scientific Basis for Nuclear Waste Management XXIII*. Pittsburgh, Pennsylvania: MRS. pp. 231-236.

Weldy, J.R., G.W. Wittmeyer, and D.R. Turner. 2000. Building confidence in Nuclear Regulatory Commission quantitative safety assessment methods: External peer review of the Total-system Performance Assessment Version 3.2 code. *Proceedings of Waste Management 2000*, February 28-March 2, 2000. Tucson, Arizona.

Ciocco, J.A., P.C. Mackin, B. Russell, and D.R. Turner. 2001. Implementing risk-informed, performance-based regulation for high-level waste disposal. *Proceedings of Waste Management 2001*, February 26-March 1, 2001. Tucson, Arizona.

Turner, D.R., F.P. Bertetti, and R.T. Pabalan. 2002. The role of radionuclide sorption in high-level waste performance assessment: Approaches for the abstraction of detailed models. *Soil Science Society of America Proceedings Volume: Soil Geochemical Processes of Radionuclides*. pp. 211-252.

Turner, D.R., R.T. Pabalan, and F.P. Bertetti. 2006. Applying surface complexation modeling to radionuclide sorption. F. Lützenkirchen, ed. *Surface Complexation Modeling*. Amsterdam: Elsevier, Ltd. pp. 553-604.

Technical Reports

Turner, D.R. 1985. A petrologic and fluid inclusion study of the sphalerite skarns of the Buckhorn Gulch Area, Central Mining District, Grant County, New Mexico. M.S. thesis. Salt Lake City, Utah: University of Utah: 110 pp.

Turner, D.R. 1990. Geochemistry, stable isotopes, and fluid flow of the Empire Zinc Skarns, Central Mining District, Grant County, New Mexico. Ph.D. Dissertation. Salt Lake City, Utah: University of Utah: 295 pp.

Pabalan, R.T. and D.R. Turner. 1991a. Sorption modeling for HLW performance assessment. W.C. Patrick, ed. Report on Research Activities for the Quarter January 1 through March 31, 1991. CNWRA 91-01Q. San Antonio, Texas: CNWRA. pp. 9-1 to 9-32.

Pabalan, R.T. and D.R. Turner. 1991b. Sorption modeling for HLW performance assessment. W.C. Patrick, ed. Report on Research Activities for the Quarter April 1 through June 30, 1991. CNWRA 91-02Q. San Antonio, Texas: CNWRA. pp. 9-1 to 9-22.

Pabalan, R.T. and D.R. Turner. 1991c. Sorption modeling for HLW performance assessment. W.C. Patrick, ed. Report on Research Activities for the Quarter July 1 through September 30, 1991. CNWRA 91-03Q. San Antonio, Texas: CNWRA. pp. 9-1 to 9-20.

Turner, D.R. 1991a. Sorption modeling for high-level waste performance assessment: A literature review. CNWRA 91-011. San Antonio, Texas: CNWRA.

Turner, D.R. 1991b. Effects of variable hydrologic saturation on sorption modeling for high-level waste performance assessment: A literature review. CNWRA 91-016. San Antonio, Texas: CNWRA.

Miklas, M.P., Jr., J.L. Russell, D.R. Turner, E.C. Percy, and S. Spector. 1992. Natural resources regulatory requirements: background and consideration of compliance methodologies. CNWRA 92-022. San Antonio, Texas: CNWRA.

Baca, R., D.R. Turner, and B. Sagar. 1993. Performance assessment research. NRC high-level radioactive waste research at CNWRA January-June 1992. B. Sagar, ed. NUREG/CR-5817, CNWRA 92-01S, Vol. 3, No. 1. Washington, D.C.: Nuclear Regulatory Commission. pp. 9-1 to 9-33.

Manteufel, R.D., M.P. Ahola, D.R. Turner, and A. H. Chowdhury. 1993a. A literature review of coupled thermal-hydrologic-mechanical-chemical processes pertinent to the proposed high-level nuclear waste repository at Yucca Mountain. NUREG/CR-6021, CNWRA 92-011. Washington, DC: Nuclear Regulatory Commission.

Pabalan, R.T. and D.R. Turner. 1993a. Sorption modeling for HLW performance assessment. Report on research activities for calendar year 1991. W.C. Patrick, ed. NUREG/CR-5817, CNWRA 91-01A, Vol. 2. Washington, DC: Nuclear Regulatory Commission. pp. 8-1 to 8-66.

Pabalan, R.T. and D.R. Turner. 1993b. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA January-June 1992. B. Sagar, ed. NUREG/CR-5817, CNWRA 92-01S, Vol. 3, No. 1. Washington, DC: Nuclear Regulatory Commission. pp. 8-1 to 8-24.

Pabalan, R.T. and D.R. Turner. 1993c. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA July-December 1992. B. Sagar, ed. NUREG/CR-5817, CNWRA 92-02S, Vol. 3, No. 2. Washington, DC: Nuclear Regulatory Commission. pp. 8-1 to 8-18.

Pabalan, R.T. and D.R. Turner. 1993d. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA January-June 1993. B. Sagar, ed. CNWRA 93-01S. San Antonio, Texas: CNWRA. pp. 8-1 to 8-19.

Turner, D.R. 1993. Mechanistic approaches to radionuclide sorption modeling. CNWRA 93-019. San Antonio, Texas: CNWRA.

Pabalan, R.T. and D.R. Turner. 1994. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA July-December 1993. B. Sagar, ed. CNWRA 93-02S. San Antonio, Texas: CNWRA. pp. 6-1 to 6-23.

Pabalan, R.T., D.R. Turner, and F.P. Bertetti. 1994. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA January-June 1994. B. Sagar, ed. CNWRA 94-01S. San Antonio, Texas: CNWRA. pp. 77-95.

Turner, D.R. and D.A. Pickett. 1994. Report on Geographic Database Development and Investigations to Support CDM Development—Geochemistry FY94. Letter report to NRC. San Antonio, Texas: CNWRA.

Turner, D.R., M. Ahola, D. Ferrill, R. Green, A. Gureghian, R. Hofmann, R. Manteufel, M. Miklas, G. Rice, S. Stothoff, and G. Wittmeyer. 1994. Report of geographic information system database development and investigations to support compliance determination method development—Hydrology FY94. Letter report to NRC. San Antonio, Texas: CNWRA.

Bagtzoglou, A.C., P.C. Lichtner, S.A. Stothoff, and D.R. Turner. 1995. Subregional hydrogeologic flow and transport processes. NRC high-level radioactive waste Research at the CNWRA January-June 1995. B. Sagar, ed. San Antonio, Texas: CNWRA. pp. 9-1 to 9-26.

Bertetti, F.P., R.T. Pabalan, and D.R. Turner. 1995. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA July-December 1994. B. Sagar, ed. CNWRA 94-02S. San Antonio, Texas: CNWRA. pp. 67-81.

Manaktala, H., D.R. Turner, T. Ahn, V. Colten-Bradley, and E. Bonano. 1995. potential implications of colloids on the long-term performance of a high-level radioactive waste repository. CNWRA 95-015. San Antonio, Texas: CNWRA.

Turner, D.R. 1995. A uniform approach to surface complexation modeling of radionuclide sorption. CNWRA 95-001. San Antonio, Texas: CNWRA.

Turner, D.R., A. Bagtzoglou, W. Murphy, A. Nedungadi, Y. Pan, and T. Tolley. 1995. Report on technical assessment methods: Hydrology and geochemistry-FY95. Letter report to NRC. San Antonio, Texas: CNWRA.

Wittmeyer, G.W. and D.R. Turner. 1995. Conceptual and mathematical models of the Death Valley Regional Groundwater Flow System. CNWRA 95-019. San Antonio, Texas: CNWRA.

Angell, P., J. Apps, G. Cragolino, S.-M. Hsiung, P. Lichtner, W. Murphy, R. Pabalan, D. Pickett, N. Sridhar, S. Stothoff, and D. Turner. June 1996. Evolution of the near-field environment in the proposed high-level waste repository at Yucca Mountain—A review of hypotheses. Letter report. San Antonio, Texas: CNWRA.

Lichtner, P.C., G.W. Wittmeyer, and D.R. Turner. February 1996a. Copper leaching from chrysocolla: Preliminary investigation. Prepared for BHP Copper, Tucson, Arizona.

Lichtner, P.C., G.W. Wittmeyer, and D.R. Turner. December 1996b. MULTIFLO predictions of copper production at the Florence, Arizona in situ leach operation. Final report. Prepared for BHP Copper, Tucson, Arizona.

Pabalan, R.T. and D.R. Turner. 1996. Sorption modeling for HLW performance assessment. NRC high-level radioactive waste research at CNWRA July-December 1995. B. Sagar, ed. CNWRA 93-02S. San Antonio, Texas: CNWRA. pp. 3-1 to 3-22.

Lichtner, P.C. and D.R. Turner. February 1997. Critique of DOE's near-field environment modeling for the proposed high-level nuclear waste repository at Yucca Mountain. Letter report. San Antonio, Texas: CNWRA.

Murphy, W.M., D.R. Turner, and D.A. Pickett. 1997. Expert review of geochemistry studies of the Vienne Department Site. ANDRA DS/SR/GO-97.593. Paris, France: Nationale pour la Gestion des Dechets Radioactifs.

Turner, D.R. and P. LaPlante. September 1997a. Safety evaluation report for renewal of Source Material License No. SUA-1534. Crow Butte Resources, Incorporated, Crow Butte Uranium Project, Dawes County, Nebraska. Prepared for the Nuclear Regulatory Commission, Division of Waste Management, Uranium Recovery Branch.

Turner, D.R. and P. LaPlante. September 1997b. Environmental assessment for renewal of Source Material License No. SUA-1534. Crow Butte Resources, Incorporated, Crow Butte Uranium Project, Dawes County, Nebraska. Prepared for the Nuclear Regulatory Commission, Division of Waste Management, Uranium Recovery Branch.

Turner, D.R., J. Winterle, P. LaPlante, and M. Miklas. September 1997. Draft standard review plan for in situ uranium mining license applications. Rev. 0. Prepared for the Nuclear Regulatory Commission, Division of Waste Management, Uranium Recovery Branch.

Turner, D.R., R.T. Pabalan, J.W. Bradbury, D.A. Pickett, and W.M. Murphy. 1997.

Radionuclide Transport. NRC High-Level Radioactive Waste Program Annual Progress Report: Fiscal Year 1996. B. Sagar, ed. NUREG/CR-6513, No. 1/CNWRA 96-OIA. San Antonio, Texas: CNWRA. pp. 11-1 to 11-30.

Turner, D.R., J. Weldy, A. Armstrong, R. Chen, and A.H. Chowdhury. October 1997. Preliminary draft final environmental impact statement for the construction and operation of an independent spent fuel storage installation to store the Three Mile Island Unit 2 Spent Fuel at the Idaho National Engineering and Environmental Laboratory. Prepared for the Nuclear Regulatory Commission, Division of Waste Management, Spent Fuel Project Office.

Turner, D.R., R.W. Fedors, D.A. Pickett, J.D. Prikryl, J.L. Russell, and R. Ehlers. September 1997. Site decommissioning issues involving depleted uranium and contaminated slag: A literature review. CNWRA letter report to the Nuclear Regulatory Commission.

Pickett, D.A., J.D. Prikryl, D.R. Turner, and J.L. Russell. April 1998. Evaluation of leach tests for estimating release from slag sites subject to decommissioning—Final report. CNWRA letter report to the Nuclear Regulatory Commission.

Prikryl, J.D., D.A. Pickett, D.R. Turner, J.L. Russell. January 1998. Slag analysis—Preliminary results. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. April 1998. Radionuclide sorption in fractures at Yucca Mountain, Nevada: A preliminary demonstration of approach for performance assessment. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R., J. Weldy, A. Armstrong, R. Chen, and A.H. Chowdhury. January 1998. Final environmental impact statement for the construction and operation of an independent spent fuel storage installation to store the Three Mile Island Unit 2 Spent Fuel at the Idaho National Engineering and Environmental Laboratory. Prepared for the Nuclear Regulatory Commission, Division of Waste Management, Spent Fuel Project Office.

Turner, D.R., J.W. Bradbury, E.C. Percy, D.A. Pickett, R.T. Pabalan, and J.D. Prikryl. April 1998. Issue resolution status report on radionuclide transport. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R., Wittmeyer, G.W., and F.P. Bertetti. June 1998. Radionuclide sorption in the alluvium at Yucca Mountain, Nevada—a preliminary demonstration of an approach for performance assessment. Letter for Nuclear Waste Regulatory Analyses (CNWRA) letter report to the Nuclear Regulatory Commission.

Armstrong, A., D.A. Farrell, S. Painter, and D.R. Turner. March 1999. Review of the saturated zone flow and transport models used to support the viability assessment of the proposed high-level waste repository at Yucca Mountain. CNWRA letter report to the Nuclear Regulatory Commission.

Farrell, D.A., A. Armstrong, J. Winterle, D.R. Turner, D.A. Ferrill, J. Stamatakis, N.M. Coleman, M. Gray, and S. Sandberg. July 1999. Input to working group report on structural controls on groundwater flow in the Yucca Mountain Region. CNWRA letter report to the Nuclear Regulatory Commission.

Weldy, J.R., G.W. Wittmeyer, and D.R. Turner. 1999. External peer review of the Total-System Performance Assessment Version 3.2 Code. CNWRA 2000-01. San Antonio, Texas: CNWRA.

Mackin, P., P. LaPlante, D.R. Turner, D. Gute, L. Canter, and S. Atkinson. May 2001. Review of the supplement to the draft environmental impact statement for a geologic repository for the disposal of spent nuclear fuel and high-level radioactive waste at Yucca Mountain, Nye County, Nevada. CNWRA letter report to the Nuclear Regulatory Commission.

Smith, M. and D.R. Turner. June 2001. Critical evaluation of West Valley Demonstration Project (WVDP) closure environmental impact statement (EIS) Appendix D—Risk assessment methods. CNWRA letter report to the Nuclear Regulatory Commission.

Smith, M. and D.R. Turner. June 2001. Critical evaluation of West Valley Demonstration Project (WVDP) closure environmental impact statement (EIS) Appendix E—Models for long-term performance assessment. CNWRA letter report to the Nuclear Regulatory Commission.

Farrell, D., D.R. Turner, and R. Fedors. June 2001. Critical evaluation of West Valley Demonstration Project (WVDP) closure environmental impact statement (EIS) Appendix J—Hydrologic models used to calculate groundwater flow and transport. CNWRA letter report to the Nuclear Regulatory Commission.

Farrell, D., D. Sims, D.R. Turner, R. Fedors, and P. Mackin. September 2001. Critical evaluation of WVDP closure EIS Draft Appendix L—Erosion studies. CNWRA letter report to the Nuclear Regulatory Commission.

Povetko, O., L. Yang, and D.R. Turner. December 2001. Critical evaluation of source term and inventory data for the WVDP cleanup and closure EIS. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. December 2001. Validation test plan for MINTEQA2, Version 4.02. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R., P. Mackin, R. Benke, C. Dinwiddie, M. Smith, J. Stamatakis, E. Fedors, L. Canter, S. Atkinson, and B. Strye. January 2002. Review of proposed mixed oxide fuel fabrication facility draft EIS. CNWRA letter report to the Nuclear Regulatory Commission.

LaPlante, P., D. Daruwalla, C. Dinwiddie, E. Fedors, N. Franklin, L. Howard, D. Pickett, M. Smith, D.R. Turner, B. Werling, and S. Atkinson. February 2002. Draft input to a request for additional information regarding the NFS BLEU Project. CNWRA letter report to the Nuclear Regulatory Commission.

Mackin, P., L. Howard, S. Hsiung, J. Winterle, D. Daruwalla, and D.R. Turner. 2002. Standard review plan for in-situ leach uranium recovery facilities. NUREG-1569. Washington, DC: Nuclear Regulatory Commission.

Mackin, P., L. Howard, S. Hsiung, J. Winterle, D. Daruwalla, and D.R. Turner. 2002. Standard review plan for Title II uranium mill tailings. NUREG-1620. Washington, DC: Nuclear Regulatory Commission.

Turner, D.R., D. Pickett, and F.P. Bertetti. 2002. Radionuclide transport in the unsaturated zone. Integrated issue resolution status report. NUREG-1762. Washington, DC: Nuclear Regulatory Commission.

Mackin, P., D.R. Turner, S. Hsiung, and B. Russell. 2002. Yucca Mountain review plan. Draft report for comment. NUREG-1804, Revision 2. Washington, DC: Nuclear Regulatory Commission.

Turner, D.R. March 2002. Validation test for MINTEQA2, Version 4.02. CNWRA letter report to the Nuclear Regulatory Commission.

LaPlante, P., D. Daruwalla, C. Dinwiddie, E. Fedors, N. Franklin, L. Howard, D. Pickett, M. Smith, D.R. Turner, B. Werling, and S. Atkinson. May 2002. Draft environmental assessment for the Nuclear Fuel Services Blended Low-Enriched Uranium Project at Erwin, Tennessee. CNWRA letter report to the Nuclear Regulatory Commission.

LaPlante, P., D. Daruwalla, C. Dinwiddie, E. Fedors, N. Franklin, L. Howard, D. Pickett, M. Smith, D.R. Turner, B. Werling, and S. Atkinson. June 2002. Final environmental assessment for the Nuclear Fuel Services Blended Low-Enriched Uranium Project at Erwin, Tennessee. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. June 2002. Validation test plan for PHREEQC, Version 2.6. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. June 2002. Validation test plan for FITEQL, Version 2.0. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. October 2002. Draft scoping summary report for the proposed Idaho Spent Fuel Facility at the Idaho National Engineering and Environmental Laboratory in Butte County, Idaho. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. November 2002. Final scoping summary report for the proposed Idaho Spent Fuel Facility at the Idaho National Engineering and Environmental Laboratory in Butte County, Idaho. CNWRA letter report to the Nuclear Regulatory Commission.

LaPlante, P., D.A. Farrell, D.R. Turner, and G.W. Wittmeyer. December 2002. Final status report for Task 13: Technical Assistance for Participation in the Memorandum Of Understanding Multiagency Working Groups. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R., P. Mackin, P. LaPlante, E. Fedors, and L. Canter. January 2003. Review of proposed Mixed Oxide Fuel Fabrication Facility revised draft EIS. CNWRA letter report to the Nuclear Regulatory Commission.

Turner, D.R. February 2003. Validation test for PHREEQC, Version 2.6. CNWRA letter report.

Turner, D.R. March 2003. Validation test for FITEQL, Version 2.0. CNWRA letter report.

Turner, D.R., M. Blevins, R. Benke, H. Bryan, L. Canter, B. Dasgupta, E. Fedors, A. Ghosh, R. Green, B. Hill, P. LaPlante, M. Smith, J. Stamatakis, and B. Werling. June 2003. Draft environmental impact statement for the proposed Idaho Spent Fuel Facility at the Idaho National Engineering and Environmental Laboratory in Butte County, Idaho. NUREG-1773. Washington, DC: Nuclear Regulatory Commission.

Mackin, P., D.R. Turner, S. Hsiung, and B. Russell. July 2003. Yucca Mountain Review Plan. Final Report. NUREG-1804, Revision 2. Washington, DC: Nuclear Regulatory Commission.

Turner, D.R., M. Blevins, R. Benke, H. Bryan, L. Canter, B. Dasgupta, E. Fedors, A. Ghosh, R. Green, B. Hill, P. LaPlante, M. Smith, J. Stamatakis, and B. Werling. January 2004. Final environmental impact statement for the proposed Idaho Spent Fuel Facility at the Idaho National Engineering and Environmental Laboratory in Butte County, Idaho. NUREG-1773. Washington, DC: Nuclear Regulatory Commission.

Cragolino, G.A., Y-M. Pan, D.R. Turner, and E.C. Percy. January 2004. Natural analogs of high-level waste container materials—Experimental evaluation of josephinite. CNWRA 2004-02. San Antonio, Texas: Center for Nuclear Waste Regulatory Analyses.

Rubenstone, J., G. Hatchett, D.R. Turner, et al. November 2004. Integrated issue resolution status report. NUREG-1767, Revision 1. Washington, DC: Nuclear Regulatory Commission.

Werling, B., L. Canter, E. Fedors, N. Franklin, O. Osidele, M. Smith, B. Strye, D.R. Turner. November 2004. Draft environmental assessment for renewal of Special Nuclear Material License No. SNM-42 for the BWX Technologies Facility near Lynchburg, Virginia. Washington, DC: Nuclear Regulatory Commission.

Ofoegbu, G., S. Gonzalez, C. Manepally, and D.R. Turner. January 2005. draft input to the technical evaluation report for the Sequoyah Fuels Corporation Reclamation Plan. CNWRA letter report to the Nuclear Regulatory Commission.

Werling, B., L. Canter, E. Fedors, N. Franklin, O. Osidele, M. Smith, B. Strye, and D.R. Turner. August 2005. Final environmental assessment for renewal of Special Nuclear Material License No. SNM-42 for the BWX Technologies Facility near Lynchburg, Virginia. Washington, DC: Nuclear Regulatory Commission.

Bradford, A., D. Esh, A. Ridge, D. R. Turner, E. Percy, J. Winterle, B. Brient, P. Mackin, and P. LaPlante. May 2006. Standard review plan for activities related to U.S. Department of Energy Waste Determinations, draft report for interim use and comment. NUREG-1854. Washington, DC: Nuclear Regulatory Commission.

Turner, D.R. and L. Canter. January 2007. The use of environmental indicators for impact assessment in compliance with the National Environmental Policy Act. CNWRA letter report to the Nuclear Regulatory Commission.

Walter, G.R., D.R. Turner, D. Wyrick, D. Basu, P. Shukla, and K. Das. January 2007. Prospects for generation of hydrogen as an automotive fuel using nuclear fission reactors in the United States. Southwest Research letter report to the Hydrogen Information Technology Service Subscribers.

Bryan, H.C. and D.R. Turner. April 2007. Nevada demographic survey information to support the adoption review of U.S. Department of Energy socioeconomics and environmental justice impact assessments. CNWRA letter report to the Nuclear Regulatory Commission.

Canter, L. and D.R. Turner. July 2007. Identification of reasonably foreseeable future actions related to the adoption review of the DOE Yucca Mountain Final Environmental Impact Statement. CNWRA letter report to the Nuclear Regulatory Commission.

Basagaoglu, H., L. Canter, S. Courage, D. Daruwalla, P. Dubreuilh, E. Huber, P. LaPlante, D. Pickett, J. Prikryl, A. Simpkins, B. Strye, D.R. Turner, G. Walter, and B. Werling. June 2008. Draft generic environmental impact statement for uranium in-situ leach milling facilities. NUREG-1910. Washington, DC: Nuclear Regulatory Commission.

Awards and Honors:

Leadership San Antonio, Class XX
Phi Kappa Phi, Graduate Honor Society
Sigma Xi Research Fellowship
Geological Society of America Research Fellowship
Sigma Gamma Epsilon, Geology Honor Society

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARDS

In the Matter of)	
	)	Docket No. 63-001-HLW
U.S. DEPARTMENT OF ENERGY)	
	)	ASLBP Nos. 09-876-HLW-CAB01
(High-Level Waste Repository)	)	09-877-HLW-CAB02
	)	09-878-HLW-CAB03
	)	09-892-HLW-CAB04

CERTIFICATE OF SERVICE

I hereby certify that copies of the "NRC STAFF IDENTIFICATION OF WITNESSES" in the above-captioned proceeding have been served on the following persons this 8th day of October, 2009, by Electronic Information Exchange.

CAB 01

William J. Froehlich, Chairman
Thomas S. Moore
Richard E. Wardwell
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
E-mail: wjf1@nrc.gov
tsm2@nrc.gov
rew@nrc.gov

CAB 02

Michael M. Gibson, Chairman
Alan S. Rosenthal
Nicholas G. Trikouros
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
E-mail: mmg3@nrc.gov
axr@nrc.gov
nqt@nrc.gov

CAB 03

Paul S. Ryerson, Chairman
Michael C. Farrar
Mark O. Barnett
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
E-mail: psr1@nrc.gov
mcf@nrc.gov
mob1@nrc.gov
mark.barnett@nrc.gov

CAB 04

Thomas S. Moore, Chairman
Paul S. Ryerson
Richard E. Wardwell
Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
E-mail: tsm2@nrc.gov
psr1@nrc.gov
rew@nrc.gov

Office of the Secretary
ATTN: Docketing and Service
Mail Stop: O-16C1
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
E-mail: HEARINGDOCKET@nrc.gov

Office of Commission Appellate
Adjudication
ocaamail@nrc.gov

Charles J. Fitzpatrick, Esq.
John W. Lawrence, Esq.
Egan, Fitzpatrick, Malsch & Lawrence PLLC
12500 San Pedro Avenue, Suite 555
San Antonio, TX 78216
E-mail: cfitzpatrick@nuclearlawyer.com
jlawrence@nuclearlawyer.com

Martin G. Malsch, Esq.
Egan, Fitzpatrick & Malsch, PLLC
1750 K Street, N.W. Suite 350
Washington, D.C. 20006
E-mail: mmalsch@nuclearlawyer.com

Brian W. Hembacher, Esq.
Deputy Attorney General
California Attorney General's Office
300 South Spring Street
Los Angeles, CA 90013
E-mail: brian.hembacher@doj.ca.gov

Timothy E. Sullivan, Esq.
Deputy Attorney General
California Department of Justice
1515 Clay Street., 20th Flr.
P.O. Box 70550
Oakland, CA 94612-0550
E-mail: timothy.sullivan@doj.ca.gov

Kevin W. Bell, Esq.
Senior Staff Counsel
California Energy Commission
1516 9th Street
Sacramento, CA 95814
E-mail: kwbell@energy.state.ca.us

Bryce C. Loveland
Jennings Strouss & Salmon, PLC
8330 W. Sahara Avenue, Suite 290
Las Vegas, NV 89117-8949
Email: bloveland@jsslaw.com

Alan I. Robbins, Esq.
Debra D. Roby, Esq.
Jennings Strouss & Salmon, PLC
1700 Pennsylvania Ave, NW Suite 500
Washington, D.C. 20005
E-mail: arobbins@jsslaw.com
droby@jsslaw.com

Donald J. Silverman, Esq.
Thomas A. Schmutz, Esq.
Thomas C. Poindexter, Esq.
Paul J. Zaffuts, Esq.
Alex S. Polonsky, Esq.
Lewis Csedrik, Esq.
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, N.W.
Washington, DC 20004
E-mail: dsilverman@morganlewis.com
tschmutz@morganlewis.com
tpoindexter@morganlewis.com
pzaffuts@morganlewis.com
apolonsky@morganlewis.com
lcshedrik@morganlewis.com

Malachy R. Murphy, Esq.
18160 Cottonwood Rd. #265
Sunriver, OR 97707
E-mail: mrmurphy@chamberscable.com

Robert M. Andersen
Akerman Senterfitt
801 Pennsylvania Avenue N.W., Suite 600
Washington, DC 20004 USA
E-mail: robert.andersen@akerman.com

Martha S. Crosland, Esq.
Angela M. Kordyak, Esq.
Nicholas P. DiNunzio
James Bennett McRae, Esq.
U.S. Department of Energy
Office of the General Counsel
1000 Independence Avenue, S.W.
Washington, DC 20585
E-mail: martha.crosland@hq.doe.gov
angela.kordyak@hq.doe.gov
nick.dinunzio@rw.doe.gov
ben.mcrae@hq.doe.gov

George W. Hellstrom
U.S. Department of Energy
Office of General Counsel
1551 Hillshire Drive
Las Vegas, NV 89134-6321
E-Mail: george.hellstrom@ymp.gov

Jeffrey D. VanNiel, Esq.
530 Farrington Court
Las Vegas, NV 89123
E-mail: nbrjdv@gmail.com

Susan L. Durbin, Esq.
Deputy Attorney General
1300 I Street
P.O. Box 944255
Sacramento, CA 94244-2550
E-mail: susan.durbin@doj.ca.gov

Frank A. Putzu
Naval Sea Systems Command Nuclear
Propulsion Program
1333 Isaac Hull Avenue, S.E.
Washington Navy Yard, Building 197
Washington, DC 20376
E-mail: frank.putzu@navy.mil

John M. Peebles
Darcie L. Houck
Fredericks Peebles & Morgan LLP
1001 Second Street
Sacramento, CA 95814
E-mail: jpeebles@ndnlaw.com

Ellen C. Ginsberg
Michael A. Bauser
Anne W. Cottingham
Nuclear Energy Institute, Inc.
1776 I Street, N.W., Suite 400
Washington, D.C. 20006
E-mail: ecg@nei.org
mab@nei.org
awc@nei.org

David A. Repka
William A. Horin
Rachel Miras-Wilson
Winston & Strawn LLP
1700 K Street N.W.
Washington, D.C. 20006
E-mail: drepka@winston.com
whorin@winston.com
rwilson@winston.com

Jay E. Silberg
Timothy J.V. Walsh
Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, N.W.
Washington, D.C. 20037-1122
E-mail: jay.silberg@pillsburylaw.com
timothy.walsh@pillsburylaw.com

Gregory L. James
710 Autumn Leaves Circle
Bishop, California 93514
Email: gljames@earthlink.net

Arthur J. Harrington
Godfrey & Kahn, S.C.
780 N. Water Street
Milwaukee, WI 53202
E-mail: aharring@gklaw.com

Steven A. Heinzen
Douglas M. Poland
Hannah L. Renfro
Godfrey & Kahn, S.C.
One East Main Street, Suite 500
P.O. Box 2719
Madison, WI 53701-2719
E-mail: sheinzen@gklaw.com
dpoland@gklaw.com
hrenfro@gklaw.com

Robert F. List, Esq.
Jennifer A. Gores, Esq.
Armstrong Teasdale LLP
1975 Village Center Circle, Suite 140
Las Vegas, NV 89134-6237
E-mail: rlist@armstrongteasdale.com
jgores@armstrongteasdale.com

Diane Curran
Harmon, Curran, Spielberg, & Eisenberg,
L.L.P.
1726 M Street N.W., Suite 600
Washington, D.C. 20036
E-mail: dcurran@harmoncurran.com

Ian Zabarte, Board Member
Native Community Action Council
P.O. Box 140
Baker, NV 89311
E-mail: mrizabarte@gmail.com

Richard Sears
District Attorney No. 5489
White Pine County District Attorney's Office
801 Clark Street, Suite 3
Ely, NV 89301
E-mail: rwsears@wpcda.org

Donald P. Irwin
Michael R. Shebelskie
Kelly L. Faglioni
Hunton & Williams LLP
Riverfront Plaza, East Tower
951 East Byrd Street
Richmond, VA 23219-4074
E-mail: dirwin@hunton.com
mshebelskie@hunton.com
kfaglioni@hunton.com

Curtis G. Berkey
Scott W. Williams
Rovianne A. Leigh
Alexander, Berkey, Williams, & Weathers
LLP
2030 Addison Street, Suite 410
Berkley, CA 94704
E-mail: cberkey@abwwlaw.com
swilliams@abwwlaw.com
rleigh@abwwlaw.com

Bret O. Whipple
1100 South Tenth Street
Las Vegas, Nevada 89104
E-mail: bretwhipple@nomademail.com

Gregory Barlow
P.O. Box 60
Pioche, Nevada 89043
E-mail: lcd@lcturbonet.com

Connie Simkins
P.O. Box 1068
Caliente, Nevada 89008
E-mail: jcciac@co.lincoln.nv.us

Dr. Mike Baughman
Intertech Services Corporation
P.O. Box 2008
Carson City, Nevada 89702
E-mail: bigoff@aol.com

Michael Berger
Robert S. Hanna
Attorney for the County of Inyo
233 East Carrillo Street Suite B
Santa Barbara, California 93101
E-mail: mberger@bsglaw.net
rshanna@bsglaw.net

/Signed (electronically) by/

Margaret J. Bupp
Counsel for the NRC Staff
U.S. Nuclear Regulatory Commission
Office of the General Counsel
Mail Stop O-15D21
Washington, DC 20555-0001
(301) 415-3722
mjb5@nrc.gov