

# DANIEL METLAY

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## SUMMARY

Over thirty years experience in academia, government, and private sector with a focus on the design and operation of organizations from which an extremely high level of reliability is demanded. Broad-based involvement with the issue of technology and public policy. Recognized expert in administrative and regulatory processes. Extensive substantive knowledge of nuclear power and environmental policy-making. Demonstrated ability to lead and work productively in small groups and teams. Extremely effective teacher. Strong analytic, writing, and verbal communications skills. Ph.D in political science with a concentration in public administration, public policy, and organization theory.

## EDUCATION

University of California, Berkeley	Ph.D in Political Science [With Highest Honors]
University of California, Berkeley	M.A. in Political Science
California Institute of Technology	B.S. in Molecular Biology and Medieval History [With Highest Honors]

## PROFESSIONAL EXPERIENCE

- Affiliate, Center for International Security and Cooperation (CISAC), Stanford University.
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- Research Affiliate, J. John Garrick Center for Risk Sciences, University of California, Berkeley, 2018 -
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- Senior Professional Staff, U.S. Nuclear Waste Technical Review Board, 1994-2018.
- Task Force Director, Secretary of Energy Advisory Board, U.S. Department of Energy, 1991-1994.
- Associate Research Scientist, Brookhaven National Laboratory, 1988-1991.
- Assistant Professor, Department of Political Science, Massachusetts Institute of Technology, 1982-1988.
- Assistant Professor, Department of Political Science, Indiana University, Bloomington, 1976-1982.

- Public and Private Sector Experiences, 1968-1988.
  - ✓ Served as an expert witness defending the owner of a nuclear fuel reprocessing plant against a several-hundred-million-dollar breach-of-contract law suit.
  - ✓ Prepared an analysis of radioactive waste management policies and program implementation for the U.S. Congress Office of Technology Assessment.
  - ✓ Participated in two extended efforts, one sponsored by the Conservation Foundation, the other by the Keystone Center, to bring together public interest group leaders, nuclear industry executives, state and federal government officials, and academics to work out policy difference with respect to the management of radioactive waste.
  - ✓ Coordinated the analysis of technological strategies for radioactive waste management as a full-time consultant to the White House Office of Science and Technology Policy.
  - ✓ Served on the U.S. Nuclear Regulatory Commission Task Force on Radioactive Waste Management.
  - ✓ Taught high school physics and biology as a Peace Corps volunteer in Nigeria.
  - ✓ Worked as a management analyst at the National Institutes of Health.

## MAJOR HONORS AND AWARDS

DuPont Travel Fellowship  
 Fulbright Fellowship to England (declined)  
 National Science Foundation Fellowship  
 Ford Foundation Fellowship  
 Brookings Institution Doctoral Fellowship  
 Leonard D. White Award from the American Political Science Association for the best dissertation in public administration and public policy  
 Indiana University Faculty Research Grant  
 Research Grant from the Andrew Mellon Foundation  
 Research Grant from the Russell Sage Foundation  
 Performance Awards, U.S. Department of Energy, 1991-1993.  
 Performance Awards, U.S. Nuclear Waste Technical Review Board, 1994-2017.

## REFEREED PUBLICATIONS RELEVANT TO RADIOACTIVE WASTE MANAGEMENT

2016 "Selecting a Site for a Radioactive Waste Repository: A Historical Analysis," *Elements*, 12(4):269-274.

- 2013 "Safety Cases and Siting Processes," in Nuclear Energy Agency, *The Safety Case for Deep Geological Disposal of Radioactive Waste: State of the Art*, Paris, France, 319-324. [With Rodney Ewing].
- 2013 "Consent-Based Siting: What Have We Learned?," *Radwaste Solutions*, 20(3):28-37.
- 2012 Guest Editor, "How Social Science Informs Engineering Practice," *Bridge*, 42(3):3-4.
- 2012 "Decision Strategies for Addressing Complex, 'Messy' Problems," *Bridge*, 42(3):6-16. [With Daniel Sarewitz].
- 2012 "Management of Radioactive Waste: A Socio-Technical Challenge," *Bridge*, 42(2):5-14. [With B. John Garrick and N. Mote].
- 2011 "Recognizing Interdependencies in Design of Nuclear Fuel Cycle and Transportation of SNF and HLW," *Packaging, Transport, Storage, and Security of Radioactive Material*, 22(1):41-45. [With M. Abkowitz and N. Mote].
- 2000 "From Tin Roof to Torn Wet Blanket: Predicting and Observing Groundwater Movement at a Proposed Nuclear Waste Site," in *Prediction: Science, Decision Making, and the Future of Nature*, D. Sarewitz, R. Pielke, Jr., and R. Byerly, eds., 199-228, (Island Press: Washington D.C.).
- 1999 "Institutional Trust and Confidence: A Journey into a Conceptual Quagmire," in *Social Trust and the Management of Risk*, G. Cvetkovich and R. Löfstedt, eds., 100-116, (Earthscan: London).
- 1996 "Hazards and Institutional Trustworthiness: Facing a Deficit of Trust," *Public Administration Review*, 56(4):341-348. [With T. LaPorte]
- 1995 "The Evolving Role of Engineered Barriers in Disposing of Commercial High-Level Radioactive Waste," in *Environmental Issues and Waste Management Technologies in the Ceramic and Nuclear Industries*, V. Jain and R. Palmer, eds., 139-147, (ACERS: Westerville).
- 1986 "Technology Policy and Political Science: A Status Report on the Field," *Science, Technology, and Politics*, 2(1):8-17.
- 1984 "Living in a Risky World," *Journal of Health Policy, Politics, and Law*, 9(2):325-332.
- 1982 "Citizen Knowledge and Choices on the Complex Issue of Nuclear Energy," *American Journal of Political Science*, 26(4):615-642. [With J. Kuklinski and W. Kay]
- 1982 "Institutional Aspects of Radioactive Waste Management," *Radiation Research*, 91(1):34-44.

- 1979 "Radioactive Waste Management: Government as a Problem Solver," in *Waste Management*, R. Post, ed., 45-53, (University of Arizona Press: Tucson).
- 1975 "Public Attitudes Toward Present and Future Technologies," *Social Studies of Science*, 5(3):373-398. [With T. LaPorte]
- 1975 "Technology Observed: Attitudes of a Wary Public," *Science*, 188(4184):121-127. [With T. LaPorte]
- 1975 "Understanding the Future Behavior of Complex Systems," in *Organized Social Complexity*, T. LaPorte, ed., 220-255, (Princeton University Press: Princeton).

## GOVERNMENT PUBLICATIONS RELEVANT TO RADIOACTIVE WASTE MANAGEMENT

- 2016 Survey of National Programs for Managing High-Level Radioactive Waste and Spent Nuclear Fuel: Update, U.S. Nuclear Waste Technical Review Board, Arlington, VA. [Lead Author]
- 2015 Designing a Process for Selecting a Site for a Deep-Mined, Geologic Repository for High-Level Radioactive Waste and Spent Nuclear Fuel, U.S. Nuclear Waste Technical Review Board, Arlington, VA. [Lead Author]
- 2011 Experience Gained from Programs to Manage High-Level Radioactive Waste and Spent Nuclear Fuel in the United States and Other Countries, U.S. Nuclear Waste Technical Review Board, Arlington, VA. [Lead Author]
- 2010 "Ethical Issues and Social Expectations," in Nuclear Energy Agency, Towards Transparent, Proportionate, and Deliverable Regulation of Geological Disposal, Paris, 115-117.
- 2006 Factors Affecting the Public and Political Acceptance for the Implementation of Geological Disposal, United Nations, International Atomic Energy Agency, Vienna. [Lead author]
- 1994 Earning Public Trust and Confidence: Requisites for Managing Radioactive Waste, U.S. Department of Energy, Secretary of Energy Advisory Board. [Lead author]
- 1992 Influence of Organizational Factors on Nuclear Power Plant Performance Reliability, Brookhaven National Laboratory for the U.S. Nuclear Regulatory Commission, Office of Regulatory Research, NUREG/CR-5538. [With S. Haber, J. O'Brien, and D. Crouch]
- 1985 "Radioactive Waste Management Policymaking," Appendix A in Managing the Nation's High-Level Radioactive Waste, U.S. Congress, Office of Technology Assessment, OTA-O-171, 199-244.
- 1979 Report to the President by the Interagency Review Group on Nuclear Waste Management, Interagency Review Group on Nuclear Waste Management, TIS-29442. [Major contributor]
- 1978 Subgroup Report on Alternative Technologies for the Isolation of Nuclear Waste, Interagency Review Group on Nuclear Waste Management, TID-28818. [Lead author]
- 1978 Proposed Goals for Radioactive Waste Management, U.S. Nuclear Regulatory Commission, NUREG-0300. [With W. Bishop, I. Hoos, R. Watson, P. McGrath, D. Frasier, and W. Stoneman]

1978 "A History and Interpretation of Radioactive Waste Management Policy," in W. Bishop, ed., *Essays Relevant to the Regulation of Radioactive Waste Management*, U.S. Nuclear Regulatory Commission, NUREG-0412, 1-18.

INVITED CONFERENCE/MEETING PARTICIPATION AND  
APPOINTMENTS RELEVANT  
TO RADIOACTIVE WASTE MANAGEMENT

- 2018- Member, Scientific Advisory Board, DeepIsolation, a firm attempting to implement a deep borehole approach to disposal of spent nuclear fuel.
- 2018- Member, Conference Committee, Engineering Conferences International.
- 2018- "International Approaches to Disposing of High-Activity Radioactive Waste," Stimson Center, Washington, DC.
- 2018 "What in the World: Disposing Radioactive Waste," Guest Lecture, The George Washington University, Washington, DC.
- 2017 "Collaborative Social Science Research: The Other Side of the Coin," Keynote Talk, European Commission, JOPRAD Project, Prague, Czech Republic.
- 2017 "Developing a Deep-Mined Geologic Repository: Status of National Programs," IAEA Interregional Group Fellowship Training Workshop, Dallas, Texas.
- 2016 "Designing a Process for Siting a Deep-Mined, Geologic Repository for High-Level Radioactive Waste and Spent Nuclear Fuel," Western Interstate Energy Board, Phoenix, Arizona.
- 2016 "The Dilemma of Multiple Choices: Comparing the Technical Suitability of Sites for a Deep-Mined, Geologic Repository for High-Activity Radioactive Waste," Center for International Security and Cooperation, Stanford University.
- 2016 "Designing a Process for Siting a Deep-Mined, Geologic Repository for High-Level Radioactive Waste and Spent Nuclear Fuel," Karlsruhe Institute of Technology, Institute for Nuclear Waste Disposal.
- 2016 "Organizations Matter: Monitoring and Long-Term Governance," Keynote Talk, ENTRIA Workshop on Radioactive Waste Management, Karlsruhe, Germany.
- 2016 "Designing a Process for Siting a Deep-Mined, Geologic Repository for High-Level Radioactive Waste and Spent Nuclear Fuel," DAEF Key Topics in Deep Geological Disposal, Cologne, Germany. [with R. Ewing]
- 2016 Testified before the Nevada State Legislative Committee on Radioactive Waste Management, Las Vegas.

- 2016 “Addressing Technical Suitability and Social Acceptability,” Energy Communities Alliance Peer Exchange on Consent-Based Siting and Nuclear Priorities,” Austin, Texas.
- 2015-present Member, Steering Committee, Radioactive Waste Management Reset, Center for International Security and Cooperation, Stanford University.
- 2015 “The Role of Social Sciences in a Low-Carbon Energy Mix: The Way Forward,” SENIX, Stockholm, Sweden.
- 2014 “Standards and Performance Assessment as Applied to the Yucca Mountain Repository,” Technical Exchange Workshop, Beijing, People’s Republic of China. [with R. Ewing]
- 2013 “Consent-Based Siting: What Have We Learned?,” International High-Level Radioactive Waste Management Conference, Albuquerque, New Mexico.
- 2012 Session Chairman, “The Future of Nuclear Waste—Benefit or Burden?,” seminar sponsored by the Swedish National Council for Nuclear Waste, Stockholm, Sweden.
- 2012 Testified before the U.S. Congress, Senate, Subcommittee on Clean Air and Nuclear Safety, Committee on Environment and Public Works.
- 2012 “Sweden Has Solved Its Nuclear Waste Problem, Why Can’t We,” Future Tense, sponsored by the New America Foundation, Washington, DC.
- 2012 “Socio-technical Challenges Facing Geological Disposal in the United States,” InSOTEC Stakeholder Seminar, Barcelona, Spain.
- 2012 Discussion Group Leader, Conference on Preparing for Construction and Operation of Geological Repositories—Challenges to the Regulator and the Implementer, sponsored by the Nuclear Energy Agency of the OECD, Paris, France.
- 2011-2013 Member, Stakeholder Reflection Group, InSOTEC Project, sponsored by the European Commission.
- 2011 “International Experience Developing Deep-Mined Geologic Repositories,” AtomExpo11, Moscow, Russia.
- 2011 Session Chairman, “International Experiences and Processes of Participation and Transparency,” Societal Aspects of the Nuclear Waste Issue, sponsored by SKB, Stockholm, Sweden.
- 2011 “Perspectives of an STS Practitioner,” STGlobal, sponsored by Arizona State University.
- 2011 “Establishing the Technical Basis for Institutional Prescriptions,” Waste Management 2010, Phoenix, Arizona.

- 2010 “International Experience Developing Deep-Mined Geologic Repositories,” Blue Ribbon Commission on America’s Nuclear Future, Disposal Subcommittee, Washington, DC.
- 2010- 2014 Member, Science Advisory Board, Garrick Foundation for the Advancement of the Risk Sciences.
- 2010 Moderator, Conference on Retrievability and Reversibility, sponsored by the Nuclear Energy Agency of the OECD, Reims, France.
- 2010 “Link Between Nuclear Power Plant Construction and ‘Solutions’ for the Disposition of High-Activity Radioactive Waste,” Future of Nuclear Power Workshop, University of California, Berkeley.
- 2010 “U.S. Nuclear Waste Technical Review Board’s Post-Yucca Mountain Role,” Waste Management 2010, Phoenix, Arizona.
- 2009 “Regulatory Requirements and the Analyzability of the Repository Safety Case,” John F. Kennedy School of Government, Harvard University.
- 2009 Member, Planning Committee, VALDOR Conference, sponsored by the European Union, SKB, and SKI, Stockholm, Sweden.
- 2009 “Ethical Issues and Societal Expectations in the Management of Radioactive Waste,” Regulators’ Forum, sponsored by the Nuclear Energy Agency of the OECD, Tokyo, Japan.
- 2006 “Nuclear Energy and the Development of a National Energy Policy,” Gordon Research Conference, Big Sky, Montana.
- 2006 Member. Planning Committee, VALDOR Conference, sponsored by the European Union, SKB, and SKI, Stockholm, Sweden.
- 2006 “Radioactive waste management history,” Department of History, University of California, San Diego.
- 2005 “Obligation to Future Generations: The Interplay of Science and Policy,” to the 3<sup>rd</sup> International Conference on Politics and Information Systems, Orlando, Florida.
- 2005 Presentations on (1) the NWTRB and (2) institutional arrangements for managing radioactive waste to International Atomic Energy Agency-sponsored training seminar for key radioactive waste management officials from countries possessing limited nuclear power generating facilities, Lawrence Berkeley National Laboratory, Berkeley, California.
- 2005 Presentation on the NWTRB to U.S. Transportation Council—a nuclear industry trade association, Washington, D.C.

- 2004 Presentations on (1) the NWTRB and (2) institutional arrangements for managing radioactive waste to International Atomic Energy Agency-sponsored training seminar for key radioactive waste management official from countries possessing limited nuclear power generating facilities, Lawrence Berkeley National Laboratory, Berkeley, California.
- 2004 "Chlorine-36: A Case Study of Uncertain Science," Two-day seminar, Graduate School of Public Policy, Arizona State University, Washington, D.C.
- 2004 "Modeling Energy Systems," Sandia National Laboratory, Albuquerque, New Mexico. [Workshop produced a report: "Modelers and Policymakers: Improving the Relationship," SAND2004-2888.]
- 2004 "Demand and Supply for Public Participation," National Academy of Sciences, Board of Radioactive Waste Management, Washington, DC.
- 2003 Presentations on (1) the NWTRB and (2) institutional arrangements for managing radioactive waste to International Atomic Energy Agency-sponsored training seminar for key radioactive waste management officials from countries possessing limited nuclear power generating facilities, Lawrence Berkeley National Laboratory, Berkeley, California.
- 2003 Member, Planning Committee and Session Chairman, VALDOR Conference, sponsored by the European Union, SKB, and SKI, Stockholm, Sweden.
- 2001 Member, Planning Committee and Session Chairman, VALDOR Conference, sponsored by the European Union, SKB, and SKI, Stockholm, Sweden.
- 2000 "Measuring Institutional Trust and Confidence," Forum for Stakeholder Confidence, Radioactive Waste Management Committee, Nuclear Energy Agency, Organization for Economic Cooperation and Development, Paris, France. [Paper is summarized in Nuclear Energy Agency, Stakeholder Confidence and Radioactive Waste Disposal, Paris, 2000.]
- 1999 "Can Lessons Be Learned from International Experiences in Managing Radioactive Waste? Can Any Lessons Be Applied?," National Academy of Sciences-sponsored Conference on the Disposition of Radioactive Waste, Irvine, California.
- 1999 Member, Planning Committee and Session Chairman, VALDOR Conference, sponsored by the European Union, SKB, and SKI, Stockholm, Sweden.
- 1999 "Radioactive waste management," Department of Geology, Stanford University, Palo Alto, California.

- 1998 “Measuring Groundwater Movement at Yucca Mountain,” National Science Foundation-sponsored conference on the use of geologic predictions in developing public policy, Estes Park, Colorado.
- 1996 “Trust in the Department of Energy,” Conference on Institutional Trust, University of Western Washington, Bellingham, Washington.
- 1995 “Cross-National Approaches to Radioactive Waste Management,” Plenary Session Chair, International High-Level Radioactive Waste Management Conference, Las Vegas, Nevada.
- 1994 Invited presentations on radioactive waste management to the Energy Resources Group and the Department of Nuclear Engineering, University of California, Berkeley.
- 1994 National Academy of Public Administration-sponsored workshop on intergenerational equity and the management of radioactive waste, Washington, D.C. [Workshop produced a 1997 Report, “Deciding for the Future: Balancing Risks, Costs, and Benefits Fairly Across Generations.”]
- 1993 “Findings of the Secretary of Energy Advisory Board Task Force on Radioactive Waste Management,” International High-Level Radioactive Waste Management Conference, Las Vegas, Nevada. [With T. LaPorte] [Paper is published in Conference Proceedings.]
- 1985 “Developing Indicators for Science Literacy,” National Academy of Sciences-sponsored conference, Gainesville, Florida.
- 1985 “Interest Groups and the Management of Risk,” Brookings Institution, Washington, D.C.
- 1983 “Measuring Public Attitudes Toward Technology,” Social Science Research Council, Washington, D.C.
- 1981 Testified before U.S. Congress, House of Representatives, Committee on Science and Technology, on comprehensive radioactive waste management legislation. [Testimony is printed in Committee Hearings, 66, 605-615.]
- 1979 Panel Chairman, U.S. Department of Energy-sponsored Conference on Federal-State Cooperation in Siting a Radioactive Waste Repository, Orcas Island, Washington.
- 1979 Testified before a Committee of the Washington State Legislature on radioactive waste management issues, Richland, Washington.
- 1979 “Radioactive Waste Management: A Skeptic's View,” Keynote Address, Waste Management 1979, Tucson, Arizona.

- 1979 "Radioactive Waste Management in the United States: An Interpretative History of Efforts to Gain Wider Social Consensus," Conservation Foundation-sponsored conference, Palo Alto, California. [With G. Rochlin]
- 1977 Testified before the State of California Energy Conservation Commission, Sacramento, California.
- 1976 "Making Social Impact Assessments with Uncertain Data," Conference on Public Policy Issues Associated with Radioactive Waste Management, Chicago, Illinois.
- 1976 "Public Attitudes Towards Technological Change," Spring Meeting, American Physical Society, Washington, D.C.
- 1976 "Public Understanding of Science: Rational or Irrational," Annual Meeting, American Association for the Advancement of Science, Boston, Massachusetts.

PAPERS RELEVANT TO  
RADIOACTIVE WASTE MANAGEMENT  
DELIVERED AT PROFESSIONAL SOCIETY MEETINGS

- 2009 "The Discovery of  $Cl^{36}$  at Yucca Mountain: A Case Study of Experimenter's Regress," Annual Meeting of the Society for the Social Studies of Science, Arlington, Virginia. [With Grischa Metlay]
- 2001 "Predicting Percolation Flux at Yucca Mountain," Annual Meeting, American Association for the Advancement of Science, Los Angeles, California.
- 1997 "Emerging Public Attitudes Toward Science and Technology," Annual Meeting, National Association of Public Administrators, Raleigh, North Carolina.
- 1990 "The Organizational Dimension of Severe Accident Management," Annual Meeting, American Political Science Association, Washington, D.C.
- 1985 "Agenda Setting in Health and Environmental Risk Controversies," Annual Meeting, American Association for the Advancement of Science, Los Angeles, California.
- 1984 "Interest Groups and Activists: Their Motivations, Incentives, and Objectives," Annual Meeting, American Association for the Advancement of Science, New York City, New York.
- 1984 "Decision-Making on Scientific Issues," Annual Meeting, American Political Science Association, Washington, D.C.

- 1980 “Enduring Question, New Issues: Participatory Decision-Making in the Nuclear Energy Controversy,” Annual Meeting, American Political Science Association, Washington, D.C.
- 1977 “Theories of Agency Failure, or, Why Regulatory Agencies Continue to be Unreliable When the Solutions Seem So Obvious,” Annual Meeting, American Political Science Association, Washington, D.C.
- 1977 “The Politics and Behavior of Technological Dissent,” Annual Meeting, Public Choice Society, New Orleans, Louisiana.
- 1973 “Voting on the Clean Environment Initiative in California,” Annual Meeting, Western Political Science Association, San Diego, California.
- 1973 “Who Should Control Technology?” Annual Meeting, American Association of Public Opinion Researchers, Asheville, North Carolina.

## PROFESSIONAL SOCIETIES

Society for Risk Analysis  
Society for the Social Studies of Science