Kathleen R. Meyer, Ph.D.

Keystone Scientific, Inc.

Education

Ph.D., Radiological Health Sciences, Colorado State University, Fort Collins, 1977
M.S., Health Physics, Colorado State University, Fort Collins, 1975
M.S., Biology, Marquette University, Milwaukee, Wisconsin, 1970
B.A., Biology, Carroll College, Helena, Montana, 1968

Professional Experience

Keystone Scientific, Inc.
President, Fort Collins, Colorado (1990–present)
Independent consultant in the field of radiation dose assessments, environmental health physics, environmental pathway analysis, public interaction, and historic dose reconstruction. Some of the projects undertaken as a member of the *Risk Assessment Corporation* research team are listed.

- Currently, providing technical assistance to the San Ildefonso Pueblo in northern New Mexico with developing a tribal risk assessment program to evaluate human health impacts to the Pueblo community that may come from radionuclides and chemicals in the environment or from Los Alamos National Laboratory (LANL).
- Since 2002, have worked on the *RACER* project to develop a process and tool that can be used to guide the efforts to reduce public health risk and ecological impact from radionuclides and chemicals originating at the LANL.
- In 2002, completed an independent evaluation of exposure and risks to the public from radionuclides and chemicals released by the Cerro Grande Fire at Los Alamos; the fire occurred in May 2000, and burned across a large part of the LANL.
- Applied screening methods to rank radionuclides, facilities, and episodic release events at the Idaho National Engineering and Environmental Laboratory in Idaho in terms of impact on public health
- Independently assessed the interim radionuclide soil action levels adopted by the U.S. Department of Energy, the U.S. Environmental Protection Agency, and the Colorado Department of Health and Environment for cleanup at the Rocky Flats Technology Site
- Reviewed and catalogues historic records and reconstructed historic offsite doses for the Savannah River Site Dose Reconstruction Project
- Reconstructed historic offsite risks associated with surface water pathway for Phase II of the Rocky Flats Dose Reconstruction Project
- Developed exposure scenarios and reconstructed historic offsite doses for the former Feed Materials Production Center in Ohio.

Independent Consultant
(1982–1989)
In 1982, began independent work in technical abstracting, and chemical and radiological risk evaluation for sites containing hazardous materials. Involved in a wide range of activities dealing with radiation biology. Compiled release estimates of radionuclides from the Chernobyl nuclear reactor accident. Performed scientific literature editing, abstracting, indexing, and categorizing for input into U.S. Department of Energy Office of Scientific and Technical Information databases in the areas of biochemistry, genetics, and radiation biology for the Information Management Services, Inc., Oak Ridge, Tennessee. Assisted in a variety of nuclear waste management and reactor-related dose assessments; industrial hygiene assessments; provided regulatory guidance and assistance for Chem-Nuclear Systems, Inc., Columbia, South Carolina. Guided research efforts in cell culture laboratory begun as a post-doctoral researcher in the Biology Division, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Roane State Community College
Part-time Faculty, Harriman, Tennessee (1981–1982)
Part-time faculty position for general college biology lecture and laboratory in the Department of Life Sciences, Roane State Community College.

Postdoctoral Research Fellow
Oak Ridge National Laboratory, Oak Ridge, Tennessee (1977–1981)
As a post-doctoral fellow, assessed the radiation damage and subsequent recovery capabilities of normal tissue, both in cell culture and in animal models; quantified the biological effects of fission neutrons and x-rays in animal models; and developed an in vitro-in vivo animal model system for studying mammary gland carcinogenesis. Established and maintained cell culture laboratory at Oak Ridge National Laboratory, Biology Division, Oak Ridge, Tennessee.

National Institute of Health Assistantship/Graduate Program
Colorado State University, Fort Collins, Colorado (1974–1977)
While part of the Department of Radiology and Radiation Biology Ph.D. program at Colorado State University, researched the effectiveness of elevated temperatures combined with radiation in the control of animal tumors, analyzed the role of hyperthermia in radiotherapy, and managed a cell culture laboratory. Established techniques for maintaining tumor cells in culture.

College of Lake County
Biology division Faculty, Grayslake, Illinois (1970–1974)

Professional Associations and Awards

Member of National Academy of Science Committee on *Safety and Security of Commercial Nuclear Spent Fuel Storage*, 2004
Academic Achievement Award, Carroll College, Helena, Montana, 2000
Member of National Council on Radiation Protection Scientific Committee 64-19
Radiation Research Society, 1975–present
American Chemical Society, 1985–present
National Institute of Health Assistantship at Colorado State University, 1974–1977
AEC Institute in Radiation Biology at Kansas State University, 1973.
Phi Sigma Society Award for Graduate School Achievement, 1970.

Peer-Reviewed Publications

Roberts, K.R. and G.A. Marzluf. 1971. "The Specific Interactions of Chromate with the Dual Sulfate Permease Systems of *Neurospora crassa*." *Archives of Biochemistry and Biophysics* 142. pp. 651–659.

Meyer, K.R., E.L. Gillette, and L.E. Hopwood. 1976. "Radiation and Heat Response of a Mouse Mammary Tumor-Derived Cell Line Assayed in Vivo and In Vitro." *Radiation Research* 67, p. 609. July.

Meyer, **K.R.**, E.L. Gillette, and L.E. Hopwood. 1977. "The Effect of Heat and Irradiating Order on MADCAP 37 Tumor Cells." *Radiation Research* 70, p. 630. June.

Meyer, K.R, L.E. Hopwood, and E.L. Gillette. 1978. "Radiation Response and Characteristics of a Cell Line Derived from a Mouse Mammary Adenocarcinoma." *Radiation Research* 73, pp. 315–329.

Meyer, K.R. and R.L. Ullrich. 1979. "Response and Recovery of Type 2 Alveolar Cells After Radiation." *Proceedings of the American Association of Cancer Research* 20. p. 129.

Meyer, K.R., L.E. Hopwood, and E.L. Gillette. 1979. "The Thermal Response of Mouse Adenocarcinoma Cells at low pH." *European Journal of Cancer* 15. pp. 1219–1222.

Meyer, **K.R.**, L.E. Hopwood, and E.L. Gillette. 1979. "The Response of Mouse Adenocarcinoma Cells to Hyperthermia and Radiation." *Radiation Research* 78. pp. 98–107.

Haschek, W.M., K.R**. Meyer,** R.L. Ullrich, and H. Witschi. 1980. "Potentiation of Chemically-Induced Lung Fibrosis by Thorax Irradiation." *International Journal Radiation Oncology, Biology and Physics* 6. pp. 449–455.

Meyer, K.R., H. Witschi, and R.L. Ullrich. 1980. "Proliferative Response of Type 2 Lung Epithelial Cells After X Rays and Fission Neutrons." *Radiation Research* 82. pp. 559–569.

Witschi, H., W.M. Haschek, **K.R. Meyer**, R.L. Ullrich, and W.E. Dalbey. 1980. "A Pathogenic Mechanism in Lung Fibrosis." *Chest* 78 (2). pp. 395–399.

Meyer, K.R. and R.L. Ullrich. 1981. "Effects of X Rays and Fission Neutrons on an Induced Proliferative Response in Lung Type 2 Epithelial Cells." *Radiation Research* 85 (2). pp. 380–389.

Ullrich, R.L. and **K.R. Meyer**. 1982. "The Influence of Butylated Hydroxytoluene-Induced Cell Proliferation on Mouse Lung Damage After X Rays or Fission Neutrons." *Radiation Research* 89. pp. 428–432.

Holton, G.A., **K.R. Meyer**, and H. R. Meyer. 1987. "Siting a Radioactive Waste Facility: A Pathways Analysis Case Study." *Proceedings of the Air Pollution Control Association Annual Meeting*. New York, New York. June 21–26.

King, C.M. W.L. Marter, B.B. Looney, J.B. Pickett, J.E. Till, **K.R. Meyer**, G.C. Merrel, V.C. Rogers, G.A. Holton, and D.F. Montague. 1987. "Performance Assessment Methods for Mixed Waste Sites at the Savannah River Plant." *Proceedings of the Ninth Annual DOE Low-Level Radioactive Waste Management Conference*. Denver, Colorado, August 25–27.

Meyer, K.R., P.G. Voillequé, G.G. Killough, D.S. Schmidt, S.K. Rope, B. Shleien, R.E. Moore, M.J. Case, and J.E. Till. 1996. "Overview of the Fernald Dosimetry Reconstruction Project. *Health Physics* 71 (4). October. pp. 425–437.

Till, J.E. G. G. Killough, **K. R. Meyer,** W.K. Sinclair, P.G. Voillequé, S.K. Rope, and M.J. Case. 2000. "The Fernald Dosimetry Reconstruction Project. Technology 7: 279-295. October.

Till, J.E., G. G. Killough, **K. R. Meyer**, J. W. Aanenson, and A.S. Rood. 2000. Calculating Soil Action Levels and Uncertainties for Decision-Making During Cleanup of Contaminated Sites. *Proc of International Radiation Protection Association.* IRPA-10 Plenary Session, PS-2-3, Hiroshima. May.

Till, J.E. and **K.R. Meyer**. 2001. Public Involvement in Science and Decision Making. Health Physics 80(4): April.

Till, JE, AS Rood, PG. Voillequé, PD McGavran, **K.R. Meyer,** H.A. Grogan, W.K. Sinclair, J.W. Aanenson, H.R. Meyer, S.K. Rope, and M.J. Case. 2002. Risks to the Public from Historical Releases of Radionuclides and Chemicals at the Rocky Flats Environmental Technology Site. *J of Exp. Analysis and Epidemiology* 12(5): 355-372.

Mohler, H.J., K.R. Meyer, H.A. Grogan, J.W. Aanenson, and J.E. Till. 2004. Application of NCRP Air Screening Factors for Evaluating Both Routine and Episodic Radionuclide Releases to the Atmosphere. *Health Physics* 86(2): 135–144. February.

H.A. Grogan, J.W. Aanenson, P.D. McGavran, **K.R. Meyer,** S.S. Mohler, H. J. Mohler, J.R. Rocco, A.S. Rood, J.E. Till and L.H. Wilson. 2006 "Applied Modeling of the Cerro Grande Fire at Los Alamos: An Independent Analysis of Exposure, Health Risk, and Communication with the Public." In *Applied Modeling and Computations in Nuclear Science*. ACS Symposium Series 945. Edited by T.M. Semkow, S. Pommé, S.M. Jerome, and D.J. Strome. American Chemical Society, Washington, DC.

Technical Reports and Conference Proceedings

Meyer, K.R. 1977. *Heat and Radiation Response of a Mouse Mammary Tumor-derived Cell Line*. Ph.D. dissertation. Colorado State University, Fort Collins, Colorado.

Till, J.E. and **K.R. Meyer**. 1988 "The Use of Chemical and Radionuclide Risk Estimates in Site Performance Evaluation of Mixed Waste Sites." *Proceedings of the Tenth Annual DOE Low-Level Waste Management Conference*. Denver, Colorado. August 30–September 1. pp. 148-161.

Till, J.E. and **K.R. Meyer.** 1989. "A Review of Protective Actions Taken During the Chernobyl Accident-Implications for the U.S. and the State of Illinois." *Chernobyl: Implications for Illinois.* Proceedings of conference held in Chicago, Illinois, October 22–23, 1987. Illinois Department of Nuclear Safety, Springfield, Illinois. June.

Till, J.E., R.E. Moore, G.G. Killough, **K.R. Meyer**, and D.W. Schmidt. 1989. "MICROAIRDOS™: A Version of the AIRDOS-EPA Radionuclide Dispersion and Dose

Assessment Code Specifically Developed for Microcomputers." *Radiological Assessments Corporation*, Neeses, South Carolina.

Till, J.E. and **K.R. Meyer**. 1990. "The Additivity of Radionuclide and Chemical Risk Estimates in Assessment of Mixed-Waste Sites." *Environmental Monitoring, Restoration and Assessment: What Have We Learned.* Twenty-Eighth Hanford Symposium on Health and the Environment. Edited by R.H. Gray. Pacific Northwest Laboratory, Richland, Washington, pp. 207–218.

Voillequé, P.G., **K. R. Meyer**, D.W. Schmidt, G.G. Killough, R.E. Moore, V.I. Ichimura, S.K. Rope, B. Shleien and J.E. Till. 1991. *Tasks 2 and 3, Radionuclide Source Terms and Uncertainties–1960-1962. The Fernald Dosimetry Reconstruction Project.* Draft interim report for comment. *Radiological Assessments Corporation*, Neeses, South Carolina. December.

Shleien, B., S.K. Rope, M.J Case, G.G Killough, **K.R. Meyer**, R.E. Moore, D.W. Schmidt, J.E. Till, P.G. Voillequé. 1993. *The Fernald Dosimetry Reconstruction Project, Task 5: Review of Historic Data and Assessments for the FMPC.* Report CDC-4. Draft report for comment. *Radiological Assessments Corporation*, Neeses, South Carolina. May.

Voillequé, P.G., **K. R. Meyer**, D.W. Schmidt, S.K. Rope, G.G. Killough, R.E. Moore, M.C. Case, B. Shleien and J.E. Till. 1993. *The Fernald Dosimetry Reconstruction Project, Tasks 2 and 3, Radionuclide Source Terms and Uncertainties.* Report CDC-4. Draft report for comment. *Radiological Assessments Corporation*, Neeses, South Carolina. November.

Case, M.J., P.D. McGavran, H.R. Meyer, **K.R. Meyer**, A.S. Rood, S.K. Rope, D.W. Schmidt, T.F. Winsor. 1994. *Recommendations for Monitoring to Verify Phases I and II of Part I,* Final Report. Colorado Department of Public Health and Environment. Prepared by *Radiological Assessments Corporation*, Neeses, South Carolina. November.

Grogan, H.A., K.R**. Meyer**, P.G. Voillequé, S.K. Rope, M.J. Case, H.R. Meyer. R.E. Moore, T. Winsor and J.E. Till. 1994. *Verification of Phase I Source Term and Uncertainty Estimates (Critique of Phase I and Recommendations for Phase II of the Historical Public Exposures Studies on Rocky Flats).* Final Task 2 Report. *Radiological Assessments Corporation*, Neeses, South Carolina. September.

McGavran, P.D**., K.R. Meyer,** and P. Voillequé. 1995. *Task 2c. An Analysis of Historical Source Term Estimated for Carbon Tetrachloride at the RFP*. Technical Memorandum for the Rocky Flats Dose Reconstruction. *Radiological Assessments Corporation*, Neeses, South Carolina. November.

Meyer, K.R., P.D. McGavran, P.G. Voillequé, H.A. Grogan, L.W. Bell, H.R. Meyer, S.K. Rope, and J.E. Till. 1995. *Savannah River Site Dose Reconstruction Project, Task 3, Evaluation of Materials Released from the SRS. RAC* Report #1 CDC-SRS-95-Final. *Radiological Assessments Corporation*, Neeses, South Carolina. June.

Stetar, L.A., M.J. Case, L.W. Bell, H.A. Grogan, **K.R. Meyer**, H.R. Meyer, S.K. Rope, D.W. Schmidt, and J.E. Till. 1995. *Savannah River Site Dose Reconstruction Project, Task 4, Identifying Sources of Environmental Monitoring and Research Data. RAC* Report #2 CDC-SRS-95-Final. *Radiological Assessments Corporation*, Neeses, South Carolina. March.

Voillequé, P.G., **K.R. Meyer**, D.W. Schmidt, S.K. Rope, G.G. Killough, R.E. Moore, M.J. Case, B. Shleien, and J.E. Till. 1995. *The Fernald Dosimetry Reconstruction Project, Tasks 2 and 3, Radionuclide Source Terms and Uncertainties.* Report CDC-5. Final Report. *Radiological Assessments Corporation*, Neeses, South Carolina. June.

Killough, G.G., M.J. Case, **K.R. Meyer**, R.E. Moore, S.K. Rope, D.W. Schmidt, B. Shleien, W.K. Sinclair, P.G. Voillequé, and J.E. Till. 1996. *Task 6: Radiation Doses and Risk to Residents from FMPC Operations from 1951–1988. RAC* Report No. 4-CDC-Fernald-1996-DRAFT (Volumes I and II). *Radiological Assessments Corporation*, Neeses, South Carolina.

Grogan, H.A, P.D. McGavran, H.R. Meyer, **K.R. Meyer**, H.J. Mohler, A.S. Rood, W.K. Sinclair, P.G. Voillequé and J.M. Weber. 1999. *Technical Summary Report for the Historical Public Exposures Studies for Rocky Flats Phase II.* RAC Report No. 14-CDPHE-RFP-1999-DRAFT. *Radiological Assessments Corporation*. Neeses, South Carolina. August.

G. G. Killough, A.S. Rood, J. Weber, and **K.R. Meyer**. 1999. *Task 2: Computer Models*. Radionuclide Soil Action Level Oversight Panel. *RAC* Report No. 4-RSALOP-RSAL-1999-FINAL. *Risk Assessment Corporation*, Neeses, South Carolina. July.

J. Weber, G. G. Killough, **K.R. Meyer,** A.S. Rood. 1999. *Task 3: Inputs ad Assumptions.* Radionuclide Soil Action Level Oversight Panel. *RAC* Report No. 15-RSALOP-RSAL-1999-FINAL. *Risk Assessment Corporation*, Neeses, South Carolina. October.

G. G. Killough, A.S. Rood, J.W. Aanenson, **K.R. Meyer**, H.A. Grogan, W.K. Sinclair, and J.E. Till. 2000. *Task 5: Independent Calculation*. Radionuclide Soil Action Level Oversight Panel. *RAC* Report No. 16-RSALOP-RSAL-1999-FINAL. *Risk Assessment Corporation*, Neeses, South Carolina. February.

K.R. Meyer, J. Mohler, J.W. Aanenson, and J.E. Till. 2000. *Identification and Prioritization of Radionuclide Releases from the Idaho National Engineering and Environmental Laboratory.* Task Order 5-Center for Disease Control and Prevention. *RAC* Report No. 3-CDC Task Order 5-2000-Draft. *Risk Assessment Corporation*, Neeses, South Carolina. September 30.

Aanenson, J.W., P.J.Boelter, M.J. Case, M. Dreicer, H.A. Grogan, M.O. Langan, P.D. McGavran, **K.R. Meyer**, H.R. Meyer, H. J. Mohler, A.S. Rood, R.C. Rope, S.K. Rope, L.A. Stetar, P.G. Voillequé, T.F. Winsor, W. Yang, and J.E. Till. 2001. Savannah River Site Environmental Dose Reconstruction Project Phase II: Source Term Calculation and Ingestion Pathway Data Retrieval-Evaluation of Materials Released from the Savannah River Site. *RAC* Report No.1-CDC-SRS-1999-Final. *Risk Assessment Corporation*, Neeses, South Carolina. April 30.

Mohler, H.J., **K.R. Meyer**, J.W. Aanenson, and H A. Grogan. 2002. *Analysis of Exposure and Risks to the Public from Radionuclides and Chemicals Released by the Cerro Grande Fire at Los Alamos. Task 3: Calculating and Communicating Risks: Observations and Recommendations.* RAC Report No.15-NMED-2002-FINAL(Rev.1). *Risk Assessment Corporation*, Neeses, South Carolina. June 12.

Rocco, J.R., **K.R. Meyer**, H.J. Mohler, J.W. Aanenson, L. Hay Wilson, A.S. Rood, and P.D. McGavran. 2002. Analysis of Exposure and Risks to the Public from Radionuclides and Chemicals Released by the Cerro Grande Fire at Los Alamos. Task 2.7: Estimated Risks from Releases to Surface Water. Final Report, RAC Report No.4-NMED-2002-FINAL(Rev.1). Risk Assessment Corporation, Neeses, South Carolina. June 12.

Aanenson, J.W., J. Goldberg, H.A. Grogan, L. Hay-Wilson, G.G. Killough, **K.R. Meyer,** H.J. Mohler, S. Mohler, J.R. Rocco, A.S. Rood, P. Shanahan, W.K. Sinclair, C. Slack, .A. Stetar, P. G. Voillequé, J. Wilson, and J.E. Till. 2004. *Risk Analysis, Communication, Evaluation, and Reduction at Los Alamos National Laboratory. Contemporary Risk Assessment: Demonstration of an Integrated Methodology*. RAC Report No. 11-RACER LANL-2004-DRAFT. http://www.racteam.com/RACERatLANL.htm. July.

Grogan, H.A., J.E. Till, **K.R. Meyer,** and J. Mohler. 2004. "Involving Stakeholders and Tailoring Environmental Databases for Shared Analysis of a Contaminated Site." *Proc. EnviroInfo*

2004. 18th International Conference Informatics for Environmental Protection. October 21-23, 2004. Sh@ring. CERN, Geneva, Switzerland.

J. E. Till, G. G. Killough, **K. R. Meyer,** J. W. Aanenson, and A.S. Rood. 2004. "Technical Basis and Public Process for Deriving Cleanup Levels at Rocky Flats. *Proc. Workshop on Solutions to Security Concerns about Radioactive Legacy of the Cold War that Remain in Urban Environments.* International Institute for Applied System Analysis at Vanderbilt University. Nashville, TN. November 14-16, 2004.

Book Reviews

Till, J.E. and **K.R. Meyer.** 1989. Book review of *Living Without Landfills: Confronting the 'low-level' Radioactive Waste Crisis,* by Marvin Resnikoff. *Health Physics* 57 (1): pp. 217–218. July.

Meyer, K.R. 1998. Book review of *Handbook of Radiobiology*, second edition, by Kedar N. Prasad, CRC Press. *Health Physics* 74 (1): p. 218. March.