

**Arthur S. Rood**  
**K-Spar, Inc.**

**Education**

M.S., Health Physics, Radioecology, Colorado State University, 1987

B.S., Geology, Mesa State College, 1982

AA, Mathematics, Santa Monica College, 1978

**Professional Experience**

Thirty years experience in multimedia contaminant fate and transport modeling, dose and risk assessment. Developed and implemented mathematical models for contaminant fate and transport in environment systems, conducted numerical uncertainty analysis, and designed and implemented environmental sampling and monitoring programs.

**K-Spar, Inc.**

*President/Owner*, Idaho Falls, Idaho (July 1994–present)

Develop and implement mathematical and computer models for assessment of multimedia transport of contaminants (radionuclides and other) in the environment. Quantify uncertainty and sensitivity of model predictions using Monte Carlo sampling techniques. Validate models using environmental monitoring data and compute health risk associated with predicted environmental media concentrations. Specific projects include evaluation of environmental air monitoring network at the Idaho National Laboratory; atmospheric transport of radionuclide and chemicals from the former Rocky Flats Plant for the Historical Public Exposures Studies at Rocky Flats; establishment of plutonium clean up levels at the former Rocky Flats Plant; fluvial transport of radionuclides at the Hanford Reservation; performance assessment of the U.S. Ecology low-level waste site in Richland, Washington; analysis of air quality impacts from the Cerro Grande Fire in Los Alamos, New Mexico; reconstruction of atmospheric concentrations and doses from the former Uravan uranium mill; development of contaminant transport models for contaminated soils at Los Alamos National Laboratory; and development of radionuclide limits in waste water and sediments for Waste Control Specialists low-level waste site.

Instructor for Risk Assessment Corporation courses on radiological risk assessment held in Washington, D.C. (2009, 2012, 2013), Bristol, U.K. (2009), and Nuclear Regulatory Commission (2015, 2017). Member of Task Group 98 of the International Commission on Radiation Protection.

**Idaho National Laboratory**

*Advisory Scientist* (Retired), Modeling and Measurements Group, INL, Idaho Falls, Idaho (May 1994–January 2013)

Research, develop, and apply state-of-the-art techniques for assessment of environmental transport and impacts associated with release of radioactive material and hazardous chemicals. Specific modeling expertise includes chronic and accident air dispersion, food-chain transport, groundwater flow and transport, dose and risk assessment, thermodynamic chemical vapor models, shielding and external exposure calculations, and first order kinetic models. Major efforts were directed toward low-level waste performance assessment at the three Idaho National Laboratory low-level waste disposal sites and near-field and long-range atmospheric dispersion calculations

for evaluation of toxic pollutants emitted to the air from INL facilities using the AERMOD and CALPUFF dispersion models.

Provide lead technical guidance and funding management for INL and Department of Energy-wide programs requiring complex environmental assessments and safety analyses. Provide technical guidance for an international study on uncertainty estimates in reactor consequence code evaluation. Assist the National Low-Level Waste program in providing technical assistance to waste compact states and foreign countries. Instructor for the University of Idaho graduate-level course, "Environmental Modeling" (INTER 504) from 1991 to 1999.

Principal Investigator for a national survey of naturally occurring radioactive material (NORM) in oil and gas production equipment. Member of the Health Physics Society/ANSI working group on NORM.

### **Idaho National Laboratory (INL)**

*Senior Scientist*, Integrated Earth Science/Geotechnologies, INL, Idaho Falls, Idaho (May 1990–May 1994)

Provided lead technical guidance and funding management for Idaho National Engineering Laboratory (INEL) and DOE-wide programs requiring complex environmental assessments and safety analyses. Developed groundwater transport models and computer codes (GWSCREEN) for assessment of CERCLA sites and performance assessment of low level waste disposal facilities at the INEL. Performed the groundwater modeling and dose assessment section for the Radioactive Waste Management Complex Performance Assessment at the Idaho National Engineering Laboratory. Co-author of the food-chain model (COMIDA) for the MAACS reactor consequence code, an internationally recognized reactor accident assessment code.

Participated in four "AIRDOS/CAP-88" radiological assessment courses for another DOE laboratory, INEL contractor, and state personnel. Conducted performance assessment workshops and provided technical assistance to the low-level waste compact states for the National Low-Level Waste Management Program.

### **UNC Geotech**

*Staff Scientist*, Radon Laboratory, Grand Junction, Colorado (August 1989–April 1990)

Performed indoor radon assessments and developed instrumentation for measurement of radon progeny using alpha and beta spectroscopy. Conducted quality control experiments of radon measuring devices and wrote software for data acquisition systems and computer controlled instrumentation.

### **Idaho National Laboratory (INL)**

*Environmental Scientist*, Environmental Sciences and Engineering Unit, INL, Idaho Falls, Idaho (September 1987–July 1989)

Researched, developed, and applied state-of-the-art techniques assessing the environmental transport and impacts associated with release of radioactive material and hazardous chemicals. Specific modeling experience includes chronic and accident air dispersion, food-chain transport, groundwater contaminant transport, and dose and risk assessment.

### **Oak Ridge National Laboratory**

*Senior Health Physics Technician*, Grand Junction, Colorado (November 1984–September 1986)

Coordinated gamma spectroscopy laboratory for gamma spectral analysis of soil samples contaminated with uranium mill tailings. Wrote and implemented spectral analysis algorithms, multichannel analyzer control programs, and database software. Designed, constructed, and calibrated an activated charcoal radon measurement device. Developed and implemented laboratory quality control procedures.

### **Plateau Resources, LTD**

*Associate Mine Geologist*, Grand Junction, Colorado (August 1982–December 1983)

Supervised uranium mine long-hole drilling program for ore body fringe development and preparation for full-scale production. Evaluated drilling results for ore trend production and ore reserve calculations.

### **Bendix Field Engineering**

*Geoscientist I*, Grand Junction, Colorado (January 1981–July 1982)

Assisted in researching uranium ore body development and exploration indicators and writing results published in Department of Energy reports. Tasks included interpretation of electric drill-hole logs and generation of isopleth maps and cross-sections from the data.

### **U.S. Department of Energy Physical Science Aide**

*Physical Sciences Aide*, Grand Junction, Colorado (May 1980–September 1980)

Assisted staff geologist in reviewing resource maps and assessment data for the 1980 National Uranium Resource Evaluation Report.

## **Affiliations**

Member of the Health Physics Society Working Group on Naturally Occurring Radioactive Material

Member of the Health Physics Society

Member of the International Commission on Radiation Protection (ICRP) Task Group 98

## **Honors, Awards, and Leadership Positions**

Licensed Invention, GWSCREEN Software System, Lockheed Martin 1996

President and Executive Board Member, Desert Eagles Model Airplane Club, 2008–2010, 2015–2017

## **Courses Taught**

Environmental Risk Assessment and Analysis, Training Course H-420. Prepared and presented by Risk Assessment Corporation for the Nuclear Regulatory Commission. Three White Flint North, Maryland, May 8–12, 2017, 22 attendees.

Environmental Risk Assessment and Analysis, Training Course H-420. Prepared and presented by Risk Assessment Corporation for the Nuclear Regulatory Commission. Three White Flint North, Maryland, April 27–May 1, 2015, 9 attendees.

Radiological Risk Assessment and Environmental Assessment. Crystal City Marriott, Arlington, Virginia. Risk Assessment Corporation. March 4–8, 2013, 42 attendees.

- Radiological Risk Assessment for Decision Making, Compliance, and Emergency Response. Crystal City Marriott, Arlington, Virginia. Risk Assessment Corporation. March 5–9, 2012, 37 attendees.
- Radiological Risk Assessment and Environmental Analysis Course. ITC School of Underground Waste Storage and Disposal. University of Bristol Risk Centre, Bristol, United Kingdom. June 22–26, 2009, 17 attendees.
- Environmental Risk Assessment Analysis Training Course H-401. Prepared and presented by Risk Assessment Corporation for the U.S. Nuclear Regulatory Commission at the NRC's Professional Development Center, Bethesda, Maryland. January 26–30, 2009, 23 attendees.

### Text Book Chapters

- Whicker, F.W. and **A.S. Rood**. 2008. "Terrestrial Food Chain Pathways: Concepts and Models" In *Radiological Risk Assessment and Environmental Analysis*." Edited by J.E. Till and H.A. Grogan. Boca Raton, Florida: CRC Press.
- Grogan, H.A., J.W. Aanenson, P.D. McGavran, K.R. Meyer, H.J. Mohler, S.S. Mohler, J.R. Rocco, **A.S. Rood**, J.E. Till, and L.H. Wilson. 2006. "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. American Chemical Society, Washington, D.C.

### Peer-Reviewed Publications

- Rood, A.S.**, A.J. Sondrup, and P.D. Ritter, 2016. "Quantitative Evaluation of an Air Monitoring Network using Atmospheric Dispersion Modeling and Frequency of Detection Methods" *Health Physics* 110(4).
- Till, J.E., **A.S. Rood**, C.D. Garzon, and R.H. Lagdon, 2014. "Comparison of the MACCS2 Atmospheric Transport Model with Lagrangian Puff Models as Applied to Deterministic and Probabilistic Safety Analysis." *Health Physics*, 107(2): 213–230.
- Rood, A.S.**, 2014. "Performance Evaluation of AERMOD, CALPUFF, and Legacy Air Dispersion Models using the Winter Validation Tracer Study Dataset." *Atmospheric Environment*, 89: 707–720.
- Till, J.E., H.A. Grogan, J.H. Mohler, J.R. Rocco, **A.S. Rood**, and S.S. Mohler. 2011. "An Integrated Approach to Data Management, Risk Assessment, and Decision Making." *Health Physics*, 102(4): 367–377.
- Rood, A.S.**, P.G. Voillequé, S.K. Rope, H.A. Grogan, and J.E. Till. 2008. "Reconstruction of Atmospheric Concentrations and Deposition of Uranium and Decay Products Released from the Former Uranium Mill at Uravan Colorado USA." *Journal of Environmental Radioactivity* 99: 1258–1278.
- Rood, A.S.** 2004. "A Mixing-Cell Model for Assessment of Contaminant Transport in the Unsaturated Zone under Steady-State and Transient Flow Conditions." *Environmental Engineering Science* 21 (6): 661–677.
- Abbott, M.L., D.D. Susong, D.P. Krabbenhoft, and **A.S. Rood**. 2002. "Mercury Deposition in Snow near an Industrial Emission Source in Southeastern Idaho and the Teton Range, Wyoming." *Water, Air, and Soil Pollution* 139: 95–114.

- Rood, A.S.**, H.A. Grogan, and J.E. Till. 2002. "A Model for a Comprehensive Evaluation of Plutonium Released to the Air from the Rocky Flats Plant, 1953–1989." *Health Physics* 82 (2).
- Till, J.E., **A.S. Rood**, P.G. Voilleque, P.D. McGavran, K.R. Meyer, H.A. Grogan, W.K. Sinclair, J.W. Aanenson, H.R. Meyer, H.J. Mohler, 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." *Journal of Exposure Analysis and Environmental Epidemiology* 12 (5): 355–372
- White, G.J. and **A.S. Rood**. 2001. "Radon Emanation from NORM-Contaminated Pipe Scale and Soil at Petroleum Industry Sites." *Journal of Environmental Radioactivity* 54: 401–413.
- Rood, A.S.**, P.D. McGavran, and J. Aanenson. 2000. "Stochastic Estimates of Carcinogenic Risk with Uncertainty from Carbon Tetrachloride Released from the Rocky Flats Plant." *Risk Analysis* 21 (4): 675–696.
- Rood, A.S.**, G.G. Killough, and J.E. Till. 1999. "Evaluation of Atmospheric Transport Models for use in Phase II of the Historical Public Exposure Studies at the Rocky Flats Plant." *Risk Analysis* 19 (4) 559–576.
- McGavran, P.D., **A.S. Rood**, and J.E. Till, 1999. "Chronic Beryllium Disease and Cancer Risk Estimates with Uncertainty for Beryllium Released to the Air from the Rocky Flats Plant." *Environmental Health Perspectives* 107 (8): 731–744.
- Rood, A.S.**, G.J. White, and D.T. Kendrick. 1998. "Measurement of  $^{222}\text{Rn}$  Flux,  $^{222}\text{Rn}$  Emanation, and  $^{226}\text{Ra}$  Concentration from Injection Well Pipe Scale." *Health Physics* 75 (2): 187–192.
- Rood, A.S.** 1994. "GWSCREEN: A Model for Assessment of the Groundwater Pathway from Surface or Buried Contamination." *The Environmental Professional* 16 (3): 196–210.
- Nguyen, H.D., S. Paik, and **A.S. Rood**. 1994. "Effects of Thermally Generated Convection on the Migration of Radionuclides in Saturated Geologic Formations." *International Journal Engineering Science* 32 (10): 1605–1614.
- Abbott, M.L. and **A.S. Rood**. 1994 "COMIDA: A Radionuclide Food-Chain Model for Acute Fallout Deposition." *Health Physics*, 66 (1): 17–29.
- Martz, D.E., **A.S. Rood**, J.L. George, M.D. Pearson, and G.H. Langner. 1991. "Year-to-Year Variations in Annual Average Indoor  $^{222}\text{Rn}$  Concentrations." *Health Physics* 61 (3): 409–413.
- Walton, J.C., **A.S. Rood**, R.G. Baca, and M.D. Otis. 1989. "Model for Estimation of Chlorinated Solvent Releases from Waste Disposal Sites." *Journal of Hazardous Materials* 21: 15–34.

### Company Technical Publications

- Rood, A.S.** 2017. *DOSEMM: A Model for Assessment of Airborne Releases and Multimedia Terrestrial Transport and Dose Assessment*. RAC Report No. 01-2017-FINAL. Risk Assessment Corporation, Neeses South Carolina.
- Electric Power Research Institute (EPRI). 2016. *Batch and Continuous Releases to the Atmosphere from Nuclear Power Plants: Comparison of Environmental Concentrations and Doses*. Report prepared by H. Grogan and **A. Rood**. Technical Report 3002008166. Electric Power Research Institute, Palo Alto, California. November.
- Rood, A.S.**, and A.J. Sondrup. 2015. **Application of Frequency of Detection Methods in Design and Optimization of the INL Site Ambient Air Monitoring Network**. INL/EXT-15-36544. Idaho National Laboratory, Idaho Falls, Idaho.

- EPRI. 2014. *EPRI Recommendations for the National Academies' Pilot Study of Cancer Risks in Populations around Nuclear Facilities*. Report prepared by H. Grogan and **A. Rood**. Technical Report 3002003163. Electric Power Research Institute, Palo Alto, California.
- Rood, A.S.**, and A.J. Sondrup. 2014. *Development and Demonstration of a Methodology to Quantitatively Assess the INL Site Ambient Air Monitoring Network*. INL/EXT-14-33194. Idaho National Laboratory, Idaho Falls, Idaho.
- Rood, A.S.**, H.J. Mohler, H.A. Grogan, and J.E. Till. 2014. *Methodology and Example Calculations for Effluent Discharge Limits and Sediment Concentration Limits for the LLRW Federal Waste Facility Discharge Evaporation Pond*. RAC Report No. 1-WCS-TO2-2014. Risk Assessment Corporation, Neeses, South Carolina.
- U.S. Department of Energy (DOE). 2012. *Performance Assessment for the Idaho National Laboratory Remote-Handled Low-Level Waste Disposal Facility*. DOE/ID-11421. Idaho National Laboratory, Idaho Falls, Idaho.
- DOE. 2011. *Performance Assessment for the Idaho CERCLA Disposal Facility Landfill*. DOE/ID-10978. Idaho National Laboratory, Idaho Falls, Idaho.
- Grogan, H.A., B. Jacobs, and **A.S. Rood**. 2010. *Source Term and Transport Modeling for Single-Shell Tanks at the Hanford Site*. RAC Report No. 1-WA-2009-FINAL. Risk Assessment Corporation, Neeses, South Carolina.
- DOE. 2008. *Composite Analysis for the RWMC Active Low-Level Waste Disposal Facility at the Idaho National Laboratory Site*. DOE/NE-ID-11244. Idaho National Laboratory, Idaho Falls, Idaho.
- Rood, A.S.** and B.L. Jacobs. 2008. *Response Surface Model User Documentation*. 32-RACER LANL 2008 FINAL. Risk Assessment Corporation, Neeses, South Carolina.
- DOE. 2007. *Performance Assessment for the RWMC Active Low-Level Waste Disposal Facility at the Idaho National Laboratory Site*. DOE/NE-ID-11243. Idaho National Laboratory, Idaho Falls, Idaho.
- Rood, A.S.** 2005. *Mixing Cell Model: A One-Dimensional Numerical Model for Assessment of Water Flow and Contaminant Transport in the Unsaturated Zone*. ICP/EXT-05-00748. Idaho National Laboratory, Idaho Falls, Idaho. March .
- Grogan, H.A., **A.S. Rood**, J.W. Aanenson, and E.B. Liebow. 2002. *A Risk-based Screening Analysis for Radionuclides Released to the Columbia River from Past Activities at the U.S. Department of Energy Nuclear Weapons Site in Hanford, Washington*. RAC Report No. 3-CDC Task Order 7-2000 FINAL. Risk Assessment Corporation, Neeses, South Carolina.
- Case, M.J., **A.S. Rood**, J.M. McCarthy, S.O. Magnuson, B.H. Becker, and T.K. Honeycutt. 2000. *Technical Revision of the Radioactive Waste Management Complex Low-Level Waste Radiological Performance Assessment for Calendar Year 2000*. INEEL/EXT-2000-01089. Idaho National Engineering and Environmental Laboratory, Idaho Falls, Idaho.
- White, G.J. and **A.S. Rood**. 1999. *Radon Emanation from NORM-Contaminated Pipe Scale, Soil, and Sediment at Petroleum Industry Sites*. DOE/ID/13223-2. National Petroleum Technology Office, U.S. Department of Energy, Tulsa, Oklahoma.
- Rood, A.S.** and H.A. Grogan. 1999. *Estimated Exposure and Lifetime Cancer Incidence Risk from Plutonium Released from the 1969 Fire at the Rocky Flats Plant*. 07-CDPHE-RFP-1999. Radiological Assessments Corporation, Neeses, South Carolina. August.
- Rood, A.S.** and H.A. Grogan. 1999. *Comprehensive Assessment of Exposure and Lifetime Cancer Incidence Risk from Plutonium Released from the Rocky Flats Plant*. 13-CDPHE-RFP-1999. Radiological Assessments Corporation, Neeses, South Carolina. September.

- Rood, A.S.** and H.A. Grogan. 1999. *Estimated Exposure and Lifetime Cancer Incidence Risk from Plutonium Released from the 1957 Fire at the Rocky Flats Plant*. 02-CDPHE-RFP-1999. Radiological Assessments Corporation, Neeses, South Carolina. August.
- Rood, A. S.** and H.A. Grogan. 1999. *Estimated Exposure and Lifetime Cancer Incidence Risk from 903 Area Plutonium Releases at the Rocky Flats Plant*. 01-CDPHE-RFP-1999. Radiological Assessments Corporation, Neeses, South Carolina. August.
- Rood, A.S.** 1999. *Performance Evaluation of Atmospheric Transport Models*. 3-CDPHE-RFP-1996 (Rev. 1). Radiological Assessments Corporation, Neeses, South Carolina. August.
- Rood, A.S.** 1999. *Estimated Exposure and Lifetime Cancer Incidence Risk from Routine Plutonium Releases at the Rocky Flats Plant*. 08-CDPHE-RFP-1997 (Rev. 1). Radiological Assessments Corporation, Neeses, South Carolina. August.
- Grogan, H.A., P.D. McGavran, K.R. Meyer, H.R. Meyer, J. Mohler, **A.S. Rood**, W.K. Sinclair, P.G. Voillequé, and J.M. Weber. 1999. *Technical Summary Report of the Historical Public Exposures Studies for Rocky Flats Phase II*. 14-CDPHE-RFP-1999-DRAFT. Radiological Assessments Corporation, Neeses, South Carolina. August.
- McGavran, P.D. and **A.S. Rood**. 1999. *Estimated Exposure and Cancer Risk from Beryllium Released to the Air from the Rocky Flats Plant*. 02-CDPHE-RFP-1997 (Rev. 1). Radiological Assessments Corporation, Neeses, South Carolina. August.
- McGavran, P.D. and **A.S. Rood**. 1999. *Estimated Exposure and Cancer Risk from Carbon Tetrachloride Released to the Air from the Rocky Flats Plant*. 04-CDPHE-RFP-1997 (Rev. 1). Radiological Assessments Corporation, Neeses, South Carolina. August.
- Weber, J.M., **A.S. Rood**, and H.R. Meyer. 1999. Development of the Rocky Flats Plant 903 Area Plutonium Source Term. 08-CDPHE-RFP-1998 (Rev. 1). Radiological Assessments Corporation, Neeses, South Carolina. August.
- White, G.J. and **A.S. Rood**. 1998. *Characterization of the National Petroleum Reserve NO. 3 (NPR-3) Site for Naturally Occurring Radioactive Material (NORM)*. DOE/5AC304. National Petroleum Technology Office, U.S. Department of Energy, Tulsa, Oklahoma.
- Brown, J., L.H.J. Goossens, B.C.P. Kraan, R.M. Cooke, J.A. Jones, F.T. Harper, F.E. Haskin, M.L. Abbott, M.L. Young, S.C. Hora, and **A.S. Rood**. 1997. *Probabilistic Accident Consequence Uncertainty Analysis: Food Chain Uncertainty Assessment*. NUREG/CR-6523 U.S. Nuclear Regulatory Commission, Washington, D.C.
- Abbott, M.L. and **A.S. Rood**. 1996. *Source Group Optimization Program (SGOP): A Program the Groups Emission Sources for Input into Air Dispersion Models*. INEL-96/0376. Idaho National Engineering Laboratory, Idaho Falls, Idaho.
- Maheras, S.J., **A.S. Rood**, S.O. Magnuson, M.E. Sussman, and R.N. Bhatt. 1994. *Radioactive Waste Management Complex Low-Level Waste Radiological Performance Assessment*. EGG-WM-8773. Idaho National Engineering Laboratory. May.
- Rood, A.S.** 1994. *GWSCREEN: A Semi-Analytical Model for Assessment of the Groundwater Pathway from Surface or Buried Contamination: Theory and Users Manual Version 2.0*. EGG-GEO-10797, Revision 2. Idaho National Engineering Laboratory. June.
- Abbott M.L. and **A.S. Rood**. 1993. *COMIDA: A Radionuclide Food-Chain Model for Acute Fallout Deposition*. EGG-GEO-10367. Idaho National Engineering Laboratory. November.
- Abbott, M.L. S.L. Harms, and **A.S. Rood**. 1993. *Dose Calculations for Accidental Airborne Releases of ITER Activation Products*. EGG-EEL-10994. Idaho National Engineering Laboratory. December.

- Rood, A. S.** and M.L. Abbott. 1991. *Comparison of Dose and Dose-rate Conversion Factors from the Soviet Union, United Kingdom, U.S. Department of Energy and the Idaho National Engineering Laboratory Fusion Safety Program*. EGG-FSP-9865. Idaho National Engineering Laboratory. December.
- Seitz, R.R., **A.S. Rood**, G.A. Harris, S.J. Maheras, and M. Kotecki. 1991. *Sample Application of Sensitivity/Uncertainty Analysis Techniques to a Groundwater Problem*. DOE/LLW-108. U. S. Department of Energy, National Low Level Waste Program. June.
- Rood, A.S.** 1991. *Assessment of Impacts at the Advanced Test Reactor as a Result of Chemical Releases at the Idaho Chemical Processing Plant*. EGG-EST-9523. Idaho National Engineering Laboratory. February, 1991.
- Abbott, M.L. and **A.S. Rood**. 1990. *Concentration Factors for Fusion-Related Radionuclides Calculated Using the Food-Chain Model FUSEMOD*. EGG-EST-9223. Idaho National Engineering Laboratory. September.
- Rood, A.S.**, J.L. George, and G.H. Langner. 1990. *Variation in the Annual Average Radon Concentration Measured in Homes in Mesa County, Colorado*. DOE/ID/12584-57 UNC/GJ-50(TMC). U. S. Department of Energy, Grand Junction, Colorado. April.
- Rood, A.S.**, R.C. Arnett, and J. Barraclough. 1989. *Contaminant Transport in the Snake River Plain Aquifer: Phase 1, Part 1: Simple Analytical Model of Individual Plumes*. EGG-ER-8623. Idaho National Engineering Laboratory. May.
- Rood, A.S.** 1988. *Environmental Transport Concentration Factors for the FUSECRAC Fusion Reactor Safety Code*. EGG-ESE-8033. Idaho National Engineering Laboratory. May.

### **Presentations and Symposium Proceedings**

- Rood, A.S.**, and A.J. Sondrup. 2017. "Quantitative Assessment of Air Monitoring Networks: A Method to Verify How We Know They Work." Annual Site Environmental Report and Environmental Monitoring Workshop. Idaho Falls, Idaho. October 18.
- Shubbar, R.M., D.Lee, H.A. Gzar, and **A.S. Rood**. 2016. "Analysis of CALPUFF Model Performance for Pollutants at Urban Area in Baghdad, Iraq." Korean Meteorological Society annual meeting. Busan, South Korea. October 31 – November 2.
- Rood, A.S.** 2016. "Exposure Pathways from TENORM in Unconventional Oil and Gas Production." Health Physics Society 49th Midyear Meeting, NCRP TENORM in Unconventional Oil and Gas Production Workshop. Austin, Texas. February 1–3.
- Rood, A.S.**, A.J. Sondrup, and A.L. Schafer. 2011. "An Evaluation of Long-Term Performance of Liner Systems for Low-Level Waste Disposal Facilities." Waste Management 2011, Phoenix, Arizona, February 28 – March 4.
- Rood, A.S.**, B.L. Jacobs, P. Shanahan, H.J. Mohler, J.W. Aannenson, J.R. Rocco, L.Hay-Wilson, H.A. Grogan, and J.E. Till. 2009. "Overview of Environmental Transport Models Contained in the Risk Analysis Communication, Evaluation, and Reduction (RACER) Software Tools at Los Alamos National Laboratory." Waste Management 2009, Phoenix, Arizona, March, 1–5.
- Rood, A.S.** 2008. "Sensitivity and Uncertainty Analysis for Low-Level Waste Performance Assessment." Probabilistic Workshop on Performance Assessment, Augusta, Georgia, March 10–11.
- Rood, A.S.** 2007. "Distilling Complex Models into Simpler Models for Assessment of Performance of Waste Facilities." Waste Management 2007, Tucson, Arizona, February.



- Rood, A.S.** 2005. "Response Surface Modeling Activities to Simulate Transport in the Snake River Plain Aquifer at the Idaho National Laboratory." Great Rift Symposium, Idaho State University, Pocatello, Idaho, October 6.
- Rood, A.S.** 2003. "A Mixing-Cell Model for Assessment of Water Flow and Solute Transport in the Unsaturated Zone." INRA 2003 Subsurface Science Symposium, Salt Lake City, Utah, October 7.
- Rood, A.S.** 2001. "Spatial and Temporal Variations in Exposure and Risk at the Rocky Flats Plant: 1953–1989." Society for Risk Analysis Annual Meeting, Seattle, Washington, December 5.
- Rood, A.S.** 2001. "Estimating Uncertainty in Groundwater Modeling for a Performance Assessment of the Radioactive Waste Management Complex." John Horan Memorial Symposium on Radioactive Waste Management Issues, Greater Salt Lake Chapter of the Health Physics Society, Salt Lake City, Utah, April 28.
- Rood, A.S.** 1996. "Measurement of  $^{222}\text{Rn}$  Flux,  $^{222}\text{Rn}$  Emanation, and  $^{226}\text{Ra}$  Concentration from Injection Well Pipe Scale." 29th Midyear Topical Meeting of the Health Physics Society, Scottsdale, Arizona, January 7–9.
- Rood, A.S.** 1983. "GWSCREEN, A Model for Assessment of the Groundwater Pathway from Surface or Buried Contamination." American Nuclear Society, 1993 Winter Meeting, San Francisco, California, November 14–18.
- Rood, A.S.** 1992. "A Performance Assessment of Radioactive Waste Encapsulated in Iron-Enriched Basalt and Disposed at the Idaho National Engineering Laboratory's, Radioactive Waste Management Complex." Spectrum 92, International Topical Meeting for Nuclear and Hazardous Waste Management, Boise, Idaho, August 23–27.
- D.J. Thorne and **A.S. Rood**. 1990. "Contaminant Fate and Effects in Ground and Surface Water at a Remediated Dioxin Site." Hazardous Material Control, January.
- R.G. Baca, J. C. Walton, **A.S. Rood**, M.D. Otis. 1987. "Organic Contaminant Release from a Mixed Waste Disposal Site: A Computer Simulation Study of Transport through the Vadose Zone and Site Remediation." 10th Annual DOE Low Level Waste Conference, Denver Colorado, August.
- Rood, A.S.** and M. J. Case. 1987. "The Role of Performance Assessment in the Evaluation of Remedial Action Alternatives for the Radioactive Waste Management Complex (RWMC) at the Idaho National Engineering Laboratory." 10th Annual DOE Low Level Waste Conference, Denver Colorado, August.