CURRICULUM VITAE

Dr. David L. Barnes. August, 2020

CURRENT POSITION

Professor of Civil and Environmental, Interim INE Director and Associate Dean for Research
Department of Civil & Environmental Engineering
Institute of Northern Engineering (INE)
University of Alaska Fairbanks
Fairbanks, Alaska 99775-5900

EDUCATION:

Colorado State University, Fort Collins, CO. Ph.D. in Chemical and Bioresource Engineering (Emphasis on Groundwater Dynamics and Contaminant Fate and Transport). Chairman: Dr. David B. McWhorter. Degree Conferred May, 1997.

New Mexico State University, Las Cruces NM. M.S. Civil Engineering (Emphasis in Environmental Engineering) 1987. B.S. Civil Engineering, 1985.

ACCREDITATION:

Registered Professional Civil Engineer (New Mexico certificate number 11480 – *Lapsed status*)

PROFESSIONAL EXPERIENCE:

July 2008 – Present: PROFESSOR, *University of Alaska Fairbanks*, Department of Civil and Environmental Engineering and Water and Environmental Research Center. Responsibilities include:

- Teaching three undergraduate or graduate classes per year,
- Conducting research on applied and theoretical aspects of environmental engineering and science, and
- Performing professional and university service.

January 2019 – Present: Interim INE Director and Associate Dean for Research.

- Managing a research institute with approximately $20M in annual expenditures and an operating budget of approximately $1M.
- Supervising staff, research professionals, and research faculty.
- Setting research direction and advancing research.

October2016 – January 2019: Associate INE Director. Responsibilities include:

- Assisting the Director with advancing research
- Mentoring junior faculty in research and teaching

January 2015 – July 2016: INTERIM DIRECTOR of the Water and Environmental Research Center. Responsibilities include:

- Managing the Water and Environmental Research Center.

July 2006 – September 2012: DEPARTMENT CHAIR, *University of Alaska Fairbanks*, Department of Civil and Environmental Engineering and Water and Environmental Research Center. Responsibilities include:

- Managing the teaching and service activities of 13 faculty members,
- Coordinating ABET accreditation activities,
- Managing annual department budget,

- Assuring that a quality batchelor of science degree and seven masters of science degrees are offered, and
- Mentoring junior faculty.

July 2004 – June 2008: ASSOCIATE PROFESSOR, *University of Alaska Fairbanks*, Department of Civil and Environmental Engineering and Water and Environmental Research Center. Responsibilities include:

- Teaching three to four undergraduate or graduate classes per year,
- Conducting research on applied and theoretical aspects of environmental engineering and science,
- Coordinating Environmental Engineering and Environmental Science Graduate Program,
- Conducting assessment of the CEE graduate programs for accreditation, and
- Performing professional and university service.

August 1999 – June 2004: ASSISTANT PROFESSOR, *University of Alaska Fairbanks*, Department of Civil and Environmental Engineering and Water and Environmental Research Center. Responsibilities include:

- Teaching four undergraduate or graduate classes per year,
- Conducting research on applied and theoretical aspects of environmental engineering and science,
- Coordinating UAF's participation with the US Department of Energy funded Inland Northwest Research Alliance, and
- Performing professional and university service.

January 1997 - July 1999: RESEARCH PROGRAM MANAGER, *University of Texas Austin*, Amarillo National Resource Center for Plutonium. Adjunct Assistant Professor at Texas Tech University and West Texas A&M University. Responsible for:

- Developing, directing and performing research conducted at the University of Texas System, Texas A&M University System, and Texas Tech University on contaminated ground-water and soil restoration, nuclear waste management, and on the environmental aspects of the disposition of weapons plutonium,
- Managing a $2.5 million per year research budget,
- Conveying the facts on the disposition of weapons plutonium to the general public,

July 1996 - December 1996: ENGINEERING CONSULTANT, *CH2M HILL*.

- Assisted in the preparation of a proposal for engineering services in the recovery of free product released to the environment at a petroleum refinery.

January 1995 - June 1996: RESEARCH ASSISTANT, *Colorado State University*, Chemical and Bioresource Engineering Department. Responsible for:

- Developing design procedures for soil vapor extraction using stochastic hydrology methods and decision theory to take into account the heterogeneous nature of porous media,
- Assisting in the development of an analytical mathematical model for the removal of free product from the subsurface by vacuum enhanced liquid recovery,
- Assisting with teaching a graduate level ground-water hydrology course,
- Teaching an undergraduate level soil-water laboratory and assisting with the lecture.

January 1993 - September 1994: RESEARCH ASSISTANT, *Colorado State University*, Colorado Water Resources Research Institute. Responsible for:

- Conducting research on the Department of Energy's regulatory training requirements as it applied to environmental restoration,
- Performing a technology effectiveness assessment of soil vapor extraction that involved examination of the theory underlying the technology, and
- Assisting in the development of a short course on ground-water restoration technologies, which was presented to the New Mexico Environment Department.

September 1992 - December 1992: ENGINEERING CONSULTANT, *Geoscience Consultants, Ltd*. Responsible for:

- Evaluating the progress of a ground-water treatment system and provided suggestions on how to alter the system to optimize its performance, and
- Assisting in developing work plans for the installation of ground-water treatment systems.

July 1989 - August 1992: PROJECT ENGINEER, *Geoscience Consultants, Ltd*. Responsible for:

- The design, operation, maintenance and project management of several treatment systems for the remediation of contaminated ground water and soil,
- A study of the Cape Canaveral Air Force Station's domestic and industrial wastewater treatment system and sanitary sewers to determine the best method of updating and expanding its aging system,
- Sizing and preparing specifications for domestic wastewater evaporation lagoons at an Army demilitarization facility,
- Construction oversight of four large hazardous waste management units.

August 1987 - July 1989: STAFF ENGINEER, *Geoscience Consultants, Ltd*. Responsible for:

- Assisting with a US Environmental Protection Agency assessment of background hydrocarbon contamination levels at several gasoline service stations across the United States,
- Assisting in the design of four hazardous waste management units, and
- Supervision of the removal and closure of numerous leaking underground storage tanks.

May 1986 - August 1986: RESEARCH ASSISTANT, *Battelle Pacific Northwest Laboratories*. Responsible for:

- Assisting in the development of field tests to determine optimum natural covers for low level radioactive waste sites and for simulating subsidence in low level radioactive waste repositories.

May 1985 - June 1987: GRADUATE RESEARCH ASSISTANT, *New Mexico State University*, Civil and Geological Engineering Department. Responsible for:

- Determining the accuracy and developed the operational parameters for a pneumatic biochemical oxygen demand respirometer developed at New Mexico State University.

August 1983 - December 1983: STUDENT ENGINEER, *Army Corp. of Engineers*. Responsible for:

- Assisting in the regulation of stream flow.

COURSES TAUGHT

CE 341: Environmental Engineering I – An undergraduate level course focusing on the fundamentals of environmental engineering. Semesters taught: Spring 2008.

CE 438: Design of Engineered Systems – An undergraduate level course focusing on system design principles for large-scale constructed facilities. Semesters taught: Spring 2001, 2002, 2003, 2004, 2006.

CE 442: Environmental Engineering II – Advanced topics in environmental engineering focusing on design of pollution control and remediation systems. Semesters taught: Fall 2000, 2007, 2008, 2010, 2012.

CE 663: Groundwater Dynamics – A graduate level course focusing on the engineering aspects of groundwater hydrology. Semesters taught: Fall 2001, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016, 2018.

CE 684: Arctic Utility Distribution – Practices and considerations of utility distribution in Arctic regions. Semester taught: Spring 2012.

ENVE 641: Aquatic Chemistry – A graduate level lecture focusing on the aspects of physical, colloid and equilibrium chemistry applied to environmental engineering and science problems. Semesters taught: Fall 1999, 2000, 2001, 2002, 2003.

ENVE 642: Contaminant Hydrology – A graduate level course focusing on the theoretical and applied aspects of the movement of contaminants through saturated and unsaturated soil. Semesters taught: Spring 2000, 2002, 2003, 2005, 2007, 2009, 2011, 2013, 2015, 2017.

ENVE 648: Solid Waste Management – A graduate level course focusing on waste reduction/reuse, waste collection, and on landfill design. Semesters taught Spring 2001, 2004, 2010.

EQS 201: Environmental Management – An undergraduate level course focusing on the social aspects, and engineering and science principles involved in decisions that concern the environment. Semester taught: Spring 2000.

ES 101: Introduction to Engineering – An undergraduate course introduces freshmen engineering students to the engineering discipline. Semester taught: Fall 2003, 2004, 2005, 2006, 2009, 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2019; Spring 2004, 2005, 2006, 2007, 2010, 2012, 2014, 2015, 2016, 2017, 2018, 2019, 2020.

ESM 422: Engineering Decisions – An undergraduate course on basic applied probability and statistics, data analysis, regression analysis, and time series. Semester taught: Spring 2013, 2014, 2016.

GRADUATE STUDENTS ADVISED

Amber Mandt (Co-Advisor with Dr. Dan White), MS Environmental Engineering. Project Title: Analysis of Demand Variability for Alaska's Small Drinking Water Treatment Systems. Graduated May 2002.

Karin Johansson and Stina Stjärnström. Thesis Title: Soil Vapor Extraction in Cold Climate Regions. Graduated June 2002 (Luleå University of Technology, Sweden in association with the University of Alaska Fairbanks).

Stephanie Gould, MS Environmental Engineering. Project Title: Preliminary Analysis of Fairbanks, AK Stormwater. Graduated May 2003.

Trevor White, MS Environmental Engineering. Thesis Title: Estimation of the Operation Time for Soil Vapor Extraction Systems: Field Test. Graduated August 2003.

Ekaterina Matveeva (Co-Advisor with Dr. Dan White), MS Environmental Engineering. Project Title: Influence of an Oil Spill on Permafrost. Graduated December 2003.

Srinivas Rao Raghupatruni, MS Environmental Engineering. Thesis title: Diffusion of Radionuclides into Matrix Rock on Amchitka Island. Graduated May 2004.

Neil J. D'Cunha (Co-Advisor with Dr. Dabu Misra), MS Geological Engineering. Thesis title: An Experimental Investigation of the Application of a Combination of Natural Freezing and Biopolymers to Reduce the Volume of Residual DNAPL in Groundwater. Graduated August 2004.

Ameet Pinto (Co-Advisor with Dr. Dan White), MS Environmental Engineering. Thesis Topic: Use of BOD Respirometry for the Operation of Activated Sludge Systems. Graduated August 2005.

Hrishikesh Adhikari (Co-Advisor with Dr. Silke Schiewer), MS Environmental Engineering. Thesis Topic: Fate of Coliforms in Freezing Soils. Graduated August 2005.

Walter Fourie, MS Environmental Engineering. Thesis Topic: Formation of Pore Ice in Frozen Coarse Grained Soils. Graduated December 2005.

Anna Wagner, Ph.D. Engineering. Dissertation Topic: Measurement of Groundwater Recharge on Amchitka Island, Alaska. Graduated Summer 2007.

Hrishikesh Adhikari, Masters Civil Engineering. Project Topic: Flow of Spilled Diesel Through Layered Coarse Soil Under Freezing and Non Freezing Conditions. Graduated December 2007.

Andrea Carlson, MS Environmental Quality Science. Thesis Topic: Movement of Trichloroethylene and Benzene in Permafrost Affected Areas. Graduated Spring 2008.

William Rhodes, MS Environmental Engineering. Thesis Topic: Attenuation of Triclopyr in a Subarctic Environment. Graduated Summer 2008.

Jennifer Benning, Ph.D. Engineering. Dissertation Topic: Scale Dependency of Diffusion into Subsurface Rock. Gradauate Fall 2008.

David D. Fish, MS Environmental Engineering. Thesis Topic: Inhibition of Cellulose Sorbent Degradation By-Products, Substrates, and Contaminants. Graduated August 2008.

Stacey Fruitiger, MS Environmental Engineering. Thesis Topic: Attenuation of 2,4-D in a Subarctic Environment. Graduated Spring 2009.

Lisa Minnear, MS Environmental Engineering. Project Topic: Use of Permeable Reactive Barriers on Contaminated North Slope Gravel Pads. Graduated Spring 2009.

Susan Underbakke, MS Arctic Engineering. Thesis Topic: Assessment of Dust Control Palliatives used in Arctic and Subarctic Environments. Graduated Summer 2010.

Benjamin Hostetler. MS Environmental Engineering. Project Topic: On-Site Effluent Treatment of Wastewater and Process Optimization of Small-Scale Wool Processing Facilities. Graduate Summer 2010.

Cornellia Ballou, MS Evironmental Engineering. Thesis Topic: Attenuation of the Herbicides Glyphosate in Subarctic Environments. Graduated Spring 2011.

Walter Fourie, Ph.D. Engineering. Dissertation Topic: Formation of Preferential Flow Pathways in Freezing Soils. Graduated Spring 2012.

Dinara Tamabayeva (co advisor with Dr. Larry Duffy), MS Environmental Quality Science. Project Topic: A Differential Approach in Determining Maximum Admissible Concentrations of Mecury for the Nura River Clean-up Project. Graduated Spring 2012.

Travis Eckhoff, MS Environmental Engineering. Thesis Topic: Evaluating Dust Palliative Performance and Longevity Using the UAF-DUSTM. Graduated Fall 2012.

Michelle Barnes, MS Environmental Engineeriing. Thesis Topic: Macro Dispersion Processes in Suprapermafrost Aquifers in Discontinuous Permafrost Zones. Graduated Fall 2014

Sara Janda (co adivisor with Dr. Mary Beth Leigh), MS Biology. Thesis Topic: Adsorption and microbial degradation of sulfolane on granular activated carbon. Graduated Spring 2016.

Sai Ravi Chand Paturi, MS Environmental Engineering. Thesis Topic: Vertical groundwater gradients in a discontinuous permafrost aquifer. Graduated Fall 2017

Michael (Ori) Miller, MS Civil Engineering. Project Topic: Modeling groundwater flow through North Slope Gravel Pads. Graduated Summer 2019.

Bridget Eckhardt, MS Civil Engineering. Thesis Topic: Groundwater dynamics in south facing hillslope and valley discontinuous permafrost aquifers. Graduated Summer 2020

Molly Tedesche, Ph.D. Engineering, Dissertation Topic: Perrenial Snowfields.

Sai Ravi Chand Paturi (co-advised with Dr. William Schnabel), PhD Engineering, Dissertation topic Flood Predictions in Regions with Sparse Hydrologic Monitoring.

PROFESSIONAL ORGANIZATIONS, HONORS, AND SERVICE:

- Associate Editor of *Soil Science Society of America Journal* (2016-2019)
- Associate Editor of *Cold Regions Science and Technology* (2011-2014).
- Receipent of the Robert Piacenza Award for Excellence in Teaching (2013)
- US Delegate to the Arctic Council Emergency Prevention, Preparedness and Response Working Group Meeting, 2004, 2007, 2009, 2010.
- Australian Antarctic Division Visiting Scientist, January 2008.

- Contaminants in Freezing Ground International Steering Committee (Co-Chair 2002-2004)
- Runner up for Faculty of the Year award by the Associated Students of University of Alaska Fairbanks
- American Society of Civil Engineers (UAF student chapter faculty advisor 1999-2003, 2006- 2007).
- National Society of Professional Engineers (Vice President of local chapter 2000-2001 and 2002-2003)
- American Society of Civil Engineers Technical Council on Cold Regions, Environmental and Public Health Engineering Committee
- Consulted to the World Bank on the cleanup and disposal of waste mercury (1999-2000).
- Appointed to a technical advisor committee advising the State of Alaska on animal waste management issues (1999-2000).
- Review of University of Sasskatchewen engineering research program (2016)
- Petroleum Migration through Permafrost Working Group (2019-present)
- Faculty Athletics Representative (2017-present)

JOURNAL, THESIS, AND PROPOSAL REVIEW

Journals

- Soil Science Society of America Journal (*Associate Editor 2016-2019*)
- Environmental Science and Technology
- Journal of Soil Contamination
- Canadian Geotechnical Journal
- Polar Record
- Cold Regions Science and Technology (*Associate Editor 2011-2014*)
- Environmental Management
- Ground Water Monitoring and Remediation
- Science for the Total Environment
- Environmental Engineering Science

Research Proposals and Manuscripts

- National Science Foundation
- U.S. Civilian Research and Development Foundation (U.S. Department of State)
- Natural Science and Engineering Research Council of Canada
- Australia Antarctic Division

External Ph.D. and Masters Thesis Review

- The University of Melbourne
- University of Alberta

RESEARCH INTERESTS

- Groundwater flow in discontinuous and continuous permafrost aquifers,
- Groundwater dynamics,
- Contaminant fate, transport, and remediation,
- Fugative dust control, and
- Rural sanitation in cold climates.

RESEARCH TOPICS AND FUNDING SOURCES

Groundwater Dynamics .

Groundwater Monitoring and Source Identification for CCHRC. 2017 to present. Cold Climate Housing Research Center (PI).

Eielson Air Force Base Basewide Groundwater Hydrology Model. 2017 to present. U.S. Air Force Civil Engineering Center, through Ahtna Engineering Services, LLC (PI).

Characterization of Groundwater hydrology in two Thermokarst Lake Systems. 2016 – 2017. USGS-National Institutes of Water Resources graduate student funding (PI).

Methane Release from Thermokarst Lakes: Thresholds and Feedbacks in the Lake to Watershed Hydrology-Permafrost System. 2015 to present. National Science Foundation (Co-PI).

Measurement of Pad Pore-Water in North Slope Gravel Pads. 2009 – 2012. Funded by BP Exploration Alaska (PI).

Infiltration in Coarse Soils and Formation of Infiltration Ice. 2004 – 2005. Funded by the United States Geological Survey (PI).

Editorial and Scientific Support for Alaska Water Quality Standards Hyporheic Zone Literature Review. 2006. Funded by the Alaska Department of Environmental Conservation (CO-PI).

Alaska Railroad Gold Creek Spill Panel Review. 2000. Funded by the Alaska Railroad (CO-PI).

Spatial Based Integrated Assessment of Bedrock and Ground Motions, Fault Offsets, and Their Effects for the October-November 2002 Earthquake Sequence on the Denali Fault, Alaska. 2003 – 2004. Funded by the National Science Foundation (Researcher).

Anderson Flooding. 2007. Funded by AK Homeland Security and Emergency Prepardness.

Contaminant Fate, Transport, and Remediation

Transportation, Biodegradation, and Treatment of Sulfolane-Contaminated Groundwater in North Pole, Alaska. 2013 - 2017. Funded by the Alaska Department of Environmental Conservation. (Co-PI)

Natural Attenuation of a Sulfolane Plume in Discontinuous Permafrost. 2012 – 2014. Funded by the Alaksa Department of Environmental Conservation (PI, 2012-2013; Co-PI, 2013-2014).

Migration of Petroleum Hydrocarbons Through Gravel Foundations in the Continuous Permafrost Zone of the North Slope, Alaska. 2005-2008. Funded by the Alaska Department of Environmental Conservation (PI).

The Formation of Preferential Pathways in Permeable Reactive Barriers in Cold Climates due to Ice Formation, Funded by the United States Geological Survey, National Institutes of Water Resources (PI).

Amchitka Underground Nuclear Test Area. 2000 – 2002. Funded by the US Department of Energy through the Consortium for Risk Evaluation with Stakeholder Participation (PI).

Amchitka Independent Assessment. 2004-2005. Funded by the US Department of Energy through the Consortium for Risk Evaluation with Stakeholder Participation (PI).

Amichtka Longterm Stewardship. 2008-2009. Funded by the Alaska Department of Environmental Conservation (CO-PI).

Investigation of Immiscible Fluids Through Frozen Porous Media. 2002 – 2004. Funded by the United States Geological Survey, National Institutes of Water Resources (PI).

Monitoring of Arctic Fuel Spills. 2005 – 2009. Funded by the National Park Service (PI).

Treatment of Petroleum Contaminated Soil in Remote, Cold, Wet Regions. 2000 – 2001. Funded by the US Department of Agriculture - Forest Service (PI).

Measure of Volatile Organic Vapor Instrusion into Buildings. 2008-2012. Funded by the Alaksa Department of Environmental Conservation (PI).

Modeling Vapor Intrusion into Buildings in Cold Regions. 2012 – 2016. Funded by the Alaksa Department of Environmental Conservation (PI).

Estimation of Operation Time for Soil Vapor Extraction Systems. 2000 – 2003. Funded by the Alaska Science & Technology Foundation and U.S. Army Alaska. (PI).

Petroleum Cleanup Levels Technical and Policy Research. 2009 - 2011. Funded by the Alaksa Department of Environmental Conservation (PI).

Vegetation Management Along Alaska Rights-of-Way. 2006-2008. Funded by Alaska University Transportation Center and the Alaska Department of Transportation and Public Facilities (PI).

Control of Invasive Plants at Points Sources in Alaska. 2008-2009. Funded by the US Fish and Wildlife Service. (PI).

Attenuation of Herbicides in Sub Arctic Environments. 2008 – 2013. Funded by the Alaska Railroad and the Alaska University Transportation Center (PI).

Amchitka Research Outreach Monitoring Center. 2009. Funded by UA Foundation.

Fugative Dust Control

Development of a Tabletop Dustfall Column and Test Procedure for Chemical Dust Suppressant Performance Testing. 2019-2020. Funded by the U.S. Department of Transportation, University Transportation Center Program, Center for Safety Equity in Transportation.

Development of Laboratory Methodology for Determining Dust Palliative Performance. 2015-2017. Funded by PacTrans, University of Washington. (PI)

Low Cost Dust Management for Remote and Rural Commmunities. 2015 to 2017. Funded by the Federal Highway Administration. (PI)

Laboratory Analysis of Product Performance. 2014-2016. Funded by Midwest Industrial Supply, Inc. (PI)

Development of Engineering Guidelines for Synthetic Fluid Dust Control Palliative Application. 2013-2015 Funded by University Transportation Center for Environmentally Sustainable Transportation in Cold Climates (PI)

Dust Palliative Performance on Eleven Rural Runways. 2013-2015. Funded by Alaska Department of Transportation & Public Facilities (PI).

Dust Control in Rural Villages. 2007-2014. funded by the the Alaska University Transportation Center and Alaska Department of Transportation and Public Facilities (PI).

Longevity Analysis of Palliative Performance. 2011-2014. Funded by the Alaska University Transportation Center and Midwest Industrial Supply, Inc. (PI).

Performance of Dust Palliatives on Unpaved Roads in Rural Alaska. 2010-2014. Funded by Alaska University Transportation Center, Alaska Department of Transportation & Public Facilities, Alaska Department of Environmental Conservation, Freedom Industries, 3-M, Matanuska-Susitna Borough (PI).

Dust Palliative Performance on Eleven Rural Airports. 2013 - 2015. Funded by the Alaska Department of Transportation & Public Facilities (PI).

Dust Palliative Performance on Nine Rural Airports. 2009 – 2012. Funded by Alaska Department of Transportation & Public Facilities (PI).

Alaska Rural Airport Inspection Program. 2009-2012. Funded by the Alaska University Transportation Center and Alaska Department of Transportation and Public Facilities (PI).

Evaluation of Dust Control Palliatives in Eagle, Alaska. 2008 – 2012. Funded by Alaska Department of Transportation and Public Facilities (PI).

Rural Sanitation in Cold Regions

Communities at Risk – Protecting Family Drinking Water in Rural Alaska. 2003 - 2006. Funded by US Department of Agriculture Cooperative State Research, Education, and Extension Service (CO-PI).

Partitioning Behavior of Pathogen Indicator Microbes in Snowmelt. 2008-2009. Funded by the US Department of Agriculture. (Co-PI).

Fairbanks Stormwater Model. 2000 – 2002. Funded by the U.S. Environmental Protection Agency through the Alaska Department of Environmental Conservation (CO-PI).

An ET Cap Pilot Study at Elemendorf Air Force Base, Alaska. 2004 – 2006. Funded by Weston Solutions, Inc. (PI).

Road Salt Usage for the Fairbanks Metropolitan Area. 2007-2009. Funded by the Alaska University Transportation Center and the Alaska Department of Transportation and Public Facilities (Co-PI).

Synthesis of Best Management Practices for Snow Storage Areas. Funded by the Alaska Department of Transportation and Public Facilities (CO-PI). 2002 – 2003.

PUBLICATIONS

Dissertation and Thesis

1. Barnes, D.L. 1997. Design of Soil Vapor Extraction Systems Under Conditions of Uncertainty, Ph.D. Dissertation. Colorado State University.
2. Barnes, D.L. 1987. The Correlation of COD and BOD to Oxygen Uptake Rate Obtained From a Computerized Pneumatic Respirometer, M.S. Thesis. New Mexico State University.

Books

1. Filler, D.M., I. Snape, and D.L. Barnes (editors). 2008. *Bioremediation of Petroleum Hydrocarbons in Cold Regions*. Cambridge University Press.

Articles In Peer Review and Preparation.

1. Kadir, A., S. Aggarwal, D.L. Barnes. In preparation. Impact of Wildfire Smoke on Indoor Air Quality in Interior Alaska: A Case Study. To be submitted to *Atmospheric Environment*.
2. Barnes. D.L. and M.L. Barnes. In preparation. Stable isotopes as an indicator of open taliks in a discontinuous degrading permafrost aquifer. To be submitted to *Applied Geochemistry*.

Peer Reviewed Publications

1. Barnes, D.L., B. Connor, B. Trost, E. McTigue, K. Krauss, B. Bluehorse. *In Press*. Managing Alaska's Road Dust Problem: A Model for Remote Dusty Locations. *Journal of Transportation Engineering, Part A: Systems*.
2. Barnes, D.L. and M.F. McRae. 2017. The Predictable Influence of Soil Temperature and Barometric Pressure Changes on Vapor Intrusion. *Atmospheric Environment,* 150: 15-23.
3. Barnes, D.L. 2016. Soil Thermal Regime after Fuel Spill Cleanup Response in a Continuous Permafrost Zone. *Polar Record*, 52(1): 98-107.
4. Tamabayeva, D., L Duffy, P. Loring, D. Barnes. 2013. Mitigation History of the Industrial Hg Contamination in Nura River Watershed of the Republic of Kazakhstan: Evaluation of an Adaptive Management Approach. *Environmental Management and Sustainable Development*, 2(1): 183-194.
5. Seefeldt, S.S., R.A. Boydston, P.N. Kaspari, M. Zhang, E. Carr, J. Smeenk, D.L. Barnes. 2013. Aminopyralid Residue Impacts on Potatoes and Weeds. *American Journal of Potato Research*, 90(3): 239-244.
6. Schnabel, W.E., J. Munk, D.L. Barnes, W. Lee. 2012. Four-Year Performance Evaluation of a Pilot-Scale Evapotranspiration Landfill Cover in Southcentral Alaska. *Cold Regions Science and Technology,* 82: 1-7.
7. Schnabel, W.E., T. Abichou, D. Barnes, W. Lee, J. Munk, B. Pape. *2012.* Assessing the Performance of a Cold Region Evaportranspiration Landfill Cover Using Lysimetry and Electrical Resistivity Tomography. *International Journal of Phytoremediation*, 14, sup1: 61-75
8. Munk, J., W.E. Schnabel, D.L. Barnes, and W. Lee. 2011. Atmospheric Loading Effects on Free Draining Lysimeters. *Water Resources Research*, 47, Wo5541, doi:10.1029/2010WR009784.

9. Carlson, A.E. and D.L. Barnes. 2011. Movement of Trichloroethene in a Discontinuous Permafrost Zone. *Journal of Contaminant Hydrology,* 124, no.1-4: 1-13.
10. Ranft, R.D., S.S. Seefeldt, M. Zhang, and D.L. Barnes. 2010. Development of a Soil Bioassay for Triclopyr Residues and Comparison with a Laboratory Extraction. *Weed Technology,* 24, no.4: 538-543.
11. Benning, J.L. and D.L. Barnes. 2009. Comparison of Methods for the Determination of Diffusion Coefficients and Effective Porosities in Through-Diffusion Tests. *Water Resources Research*. 45, W09419, doi:10.1029/2008WR007236.
12. Benning J.L. and D.L. Barnes. 2009. The Effects of Scale and Spatial Heterogeneities on Diffusion in Volcanic Breccias and Basalts: Amchitka Island, Alaska. *Journal of Contaminant Hydrology*, 106, no. 3-4: 150-165.
13. Benning, J.L., D.L. Barnes, J. Burger, and J.J. Kelley. 2009. Amchitka Island, Alaska: Moving Towards Long-Term Stewardship. *Polar Record,* 45 no. 233: 133-146.
14. Chambers, M.K., M.R. Ford, D.M. White, D.L. Barnes, and S. Schiewer. 2009. Transport of Fecal Bacteria by Boots and Vehicle Tires in a Rural Alaskan Community. *Journal of Environmental Management,* 90, no. 2: 961-966.
15. Chambers, M.K., M.R. Ford, D.M. White, D.L. Barnes, S. Schiewer. 2008. Distribution and Transport of Fecal Bacteria at Spring Thaw in a Rural Alaskan Community. *Journal of Cold Regions Engineering,* 22, no 1: 16-37.
16. Barnes, D.L. and E. Chuviline. 2008. Petroleum Migration in Permafrost Affected Regions. In Margesin, R. (ed) *Permafrost Soils*, Springer Verlag: 263-278. (Invited chapter).
17. Barnes, D.L. and S.M. Wolfe. 2008. Influence of Ice on the Infiltration of Petroleum into Frozen Coarse Grain Soil. *Petroleum Science and Technology*, 26, no.7&8: 856-867.
18. Snape, I, L.A. Acomb, D.L. Barnes, S. Brainbridge, D. Filler, N. Plato, J. Poland, T. Raymond, J. Rayner, M.J. Riddle, A.G Rike, A. Rutter, A. Schafer, S. Siciliano, J. Walworth. 2008. Contamination, Regulation, and Remediation: an Introduction to Bioremediation of Petroleum Hydrocarbons in Cold Regions. Filler, D.M., I. Snape, and D.L. Barnes (Eds) *Bioremediation of Petroleum Hydrocarbons in Cold Regions*, Cambridge University Press: 1-37.
19. Barnes, D.L. and K. Biggar. 2008. Movement of Petroleum Hydrocarbons Through Freezing and Frozen Soils. *In* Filler, D.M., I. Snape, and D.L. Barnes (Eds) *Bioremediation of Petroleum Hydrocarbons in Cold Regions*, Cambridge University Press: 55-68.
20. Filler, D.M., D.L. Barnes, I. Snape, and R.A. Johnson. 2008. Thermally Enhanced Bioremediation and Integrated Engineered Designs. *In* Filler, D.M., I. Snape, and D.L. Barnes (Eds) *Bioremediation of Petroleum Hydrocarbons in Cold Regions*, Cambridge University Press: 190-211.
21. Adhikari. H., D.L. Barnes, S. Schiewer, and D.M. White. 2007. Survivability of Coliforms in Soils at Subzero Temperatures. *Journal of Environmental Engineering*, 133, no. 12: 1098-1105.
22. Burger, J., M. Gochfeld, C.W. Powers, D. Kosson, J. Halverson, A. Morkill, R. Patrick, P. Sanders, L. Duffy, and D. Barnes. 2007. Scientific Research, Stakeholders, and Policy: Continuing Dialogue During Research on Radionuclides on Amchitka Island. *Journal of Environmental Management,* 85, no. 1*: 232-244.*
23. Børresen, H.M., D.L. Barnes, and A.G. Rike. 2007. Repeated Freeze-Thaw Cycles and Their Effects on Mineralization of Hexadecane and Phenanthrene in Cold Climate Soils. *Cold Regions Science and Technology,* 49, no. 3: 215-225.
24. Unsworth, M.. W. Soyer, V. Tuncer, A. Wagner, and D. Barnes. 2007. Hydrogeological Assessment of the Amchitka Island Nuclear Test Site (Alaska) with Magnetotellurics. *Geophysics,* 72 no 3: B47-B57.
25. Fourie, W., D.L. Barnes, and Y. Shur. 2007. The Formation of Ice From the Infiltration of Water in Frozen Coarse Grain Soils. *Cold Regions Science and Technology,* 28, no 2: 118-128 .

26. Barnes, D.L. and T.C. White. 2006. Application of A Simple Decision Model for Soil Vapor Extraction System Operation. *Ground Water Monitoring and Remediation,* 26, no. 4: 107-114.
27. Filler, D.M., C.M. Reynolds, I. Snape, A.J. Daugulis, D.L. Barnes, and P.J. Williams. 2006. Advances in Engineered Remediation for use in the Arctic and Antarctica. *Polar Record,* 42, no 221: 111-120.
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