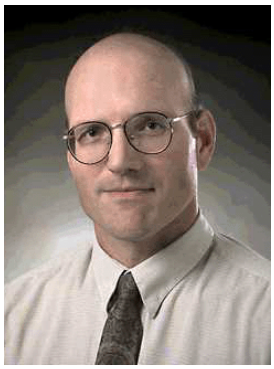

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Education - Bachelors - Geology, University of California-Berkeley (1984); Ph. D. Geochemistry, Northwestern; 1990. Post-doc, Swiss Federal Institute of Technology Institute for Water Resources and Water Pollution Control (ETH-EAWAG), Dübendorf, Switzerland.

Background

Brady is a Senior Scientist at Sandia National Laboratories and has authored or co-authored several dozen peer-reviewed journal articles, 9 patents (with 5 or 6 pending), in the fields of water treatment, contaminant chemistry, enhanced oil recovery, nuclear waste disposal, and climate change. He's been at Sandia since 1993 while serving as adjunct Assistant Professor of Civil and Environmental Engineering at New Mexico Institute of Mining and Technology, Socorro, New Mexico since 1998. Before Sandia he was an Assistant Professor in the Department of Geological Sciences at SMU in Dallas, Texas. Brady has written, edited, or co-edited books on Soil Radiochemistry, Desalination and Water Treatment, Mineral Surface Chemistry, and Natural Attenuation of Groundwater Contaminants. He is on the Research Advisory Committee of the WateReuse Foundation, the Editorial Board of Chemical Geology, and the Science Advisory Board of the Association for the Environmental Health of Soils.

Awards

Football scholarship to the University of California at Berkeley (Pac-10 Conference). 3 year letterman (1980-1982), 2-year starter at Center, 1981 and 1982.

Recent Projects

- Lead of Sandia's Deep Borehole Radioactive Waste Disposal effort (websearch "brady borehole disposal" to find links to documents, meeting reports, presentations to the NWTRB and Princeton and so on that aren't listed below. Download President Obama's Blue Ribbon Commission report at http://brc.gov/sites/default/files/documents/brc_draft_report_29jul2011_0.pdf to read their recommendations for further research and a pilot hole).
- Using surface complexation models to design algae coagulation strategies for biofuels and to enhance oil recovery.
- Finding new ways to prevent silica fouling of oilfield process streams and cooling towers.
- Enhancing silicate weathering for carbon capture and climate control with Columbia University (ARPA-E; see http://arpa-e.energy.gov/ProgramsProjects/IMPACCT/ChemicalandBiologicalCatalyticEnhancementofW.aspx).
- Technical Leader of Sandia's Advanced Water Treatment & Desalination Programs (websearch "p. v. brady" and "desalination")

- Lead Geochemist for Yucca Mountain Nuclear Waste Repository/Near Field (2006-2009) - wrote the waste package degradation/radionuclide transport chapter of the Yucca Mountain license application that was submitted to NRC in Spring, 2008; and that was approved by the NRC in Summer, 2011 (see http://pbadupws.nrc.gov/docs/ML1119/ML111990436.pdf).
- Technical Advisor to US EPA (2001-2003). Wrote, co-wrote several chapters of EPA's guidelines for natural attenuation of contaminant metals and radionuclides in soils and groundwaters (find them at EPA's Ada, OK website).

Selected Publications:

BOOKS/BIG DOCUMENTS

Brady P. V. Section 2.3.7 of The Yucca Mountain Nuclear Waste Repository License Application (Safety Analysis Report) - Waste Form Degradation and Mobilization and Engineered Barrier System Flow and Transport (202 pages).

Brady P. V. Editor. Implementing the National Desalination and Water Purification Roadmap: Structuring and Directing the Development of Water Supply Solutions. Published jointly by the American Water Works of America Research Foundation, the WateReuse Foundation, and Sandia National Laboratories (http://www.sandia.gov/water/docs/DesalImplementRoadmap1-26-2010_c_web.pdf)

Khandaker, N. R., Brady P. V., and Krumhansl, J. L. (2009) Arsenic Removal from Drinking Water: A Handbook for Communities. Sandia National Laboratories Report (http://www.sandia.gov/water/docs/NRK_PVB_JLK_As_Book.pdf).

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Brady P. V.- Editor (1996) Physics and Chemistry of Mineral Surfaces. CRC Press 352p.

Brady P. V., Spalding B. P., Krupka K. M., Borns D. J., Waters R. W., and Brady W. D. (1999) Site-screening and technical guidelines for implementation of monitored natural attenuation at DOE sites. Sandia National Laboratories. SAND99-0464.

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1. *Arsenic Removal in Conjunction with Lime Softening* U.S. Patent 6802980 B1, Oct. 12, 2004, by N.R. Khandaker, P.V. Brady, D.M. Teter, J.L. Krumhansl.
2. *In Situ Remediation Process Using Divalent Metal Cations* U.S. Patent 683695 B1, Dec. 14, 2004, by P.V. Brady, N.R. Khandaker, J.L. Krumhansl, D.M. Teter.
3. *Inorganic Ion Sorbents and Methods for Using the Same* U.S. Patent 7074336 B1, July 11, 2006, by D.M. Teter, P.V. Brady and J.L. Krumhansl.
4. *Inorganic Ion Sorbents* U.S. Patent 7122502 B1, Oct. 17, 2006, by D.M. Teter, P.V. Brady and J.L .Krumhansl.
5. *Method of Removing Arsenic and Other Anionic Contaminants from Contaminated Water Using Enhanced Coagulation* U.S. Patent 7138063 B1, Nov. 21, 2006, by D.M. Teter, P.V. Brady, J.L. Krumhansl and N.R. Khandaker.
6. *Inorganic Ion Sorbent Method* U.S. Patent 7244359 B1 July, 17, 2007, by D.M. Teter, P.V. Brady and J.L. Krumhansl.
7. *Cask Weeping Mitigation* U.S. Patent 7271301 B1, Sept. 18, 2007, by J.L. Krumhansl, P.V. Brady, D.M. Teter, P. McConnell.
8. *In-tank Recirculating Arsenic Treatment System* US Patent # US 7,514,004 B1, April 7, 2009 by P. V. Brady, J. L. Krumhansl, B. P. Dwyer and J. D. Chwirka.
9. *In situ removal of contamination from soil* US Patent 5676819. October 14, 1997 By E. R. Lindgren and P. V. Brady.

10. *Process and Apparatus for Separation of Components of a Gas Stream* (Pending). C. R. Bryan, C. Brooks, J. Torczynski, M. Gallis, and P. V. Brady.
11. *Injection withdrawal tracer tests to assess proppant placement* (Pending) T. Dewers and P. V. Brady.
12. *pH adjustment of power plant cooling water with flue gas/fly ash* (Pending) P. V. Brady and J. L. Krumhansl.
13. *Green methods for in situ extraction of uranium (Pending)* J. L. Krumhansl and P. V. Brady.
14. *Surface Complexation Design of Oil Recovery Waterfloods* (Pending) P. V. Brady and J. L. Krumhansl.
15. *Retrievability of nuclear waste from deep boreholes (In prep)* J. L. Krumhansl and P. V. Brady.

PVB – And I think there's a couple more pending patent applications I need to add.

TECHNICAL PUBLICATIONS

PVB –'Need to add 2 radwaste solutions articles and all other borehole articles.

McKenna, E. Brady, P. V. and Krumhansl , J. L. Silica Removal by Metal Hydroxides: $Ni(OH)_2$ (in prep).

Wyatt, N. B., Gloe, L. M., Brady, P. V., Hewson, J. C., Grillet, A. M., Hankins, M. G., and Pohl, P. I. Critical Conditions for Ferric Chloride Induced Flocculation of Freshwater Algae. Biotechnology and Bioengineering (In press).

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