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Peter W. Burck, CGWP

Regional Hydrologist
U.S. Fish & Wildlife Service
Division of Water Resources
P.O. Box 1306
Albuquerque, NM 87103-1306
(505) 248-7961
peter_burck@fws.gov

EDUCATION

M.S. Hydrology 1993
New Mexico Institute of Mining and Technology
Socorro, NM

A.B. Geology 1985
Princeton University
Princeton, NJ

Basic Management Certificate 2001
University of New Mexico
Albuquerque, NM

CERTIFICATION

National Ground Water Association - Certified Groundwater Professional (CGWP) No. 3000566

WORK HISTORY

Hydrologist GS-12
U.S. Fish & Wildlife Service
Division of Water Resources
Albuquerque, New Mexico
2/2011 to present

Provide hydrologic and water resources support to managers within the National Wildlife Refuge System. Develop Water Resources Inventories and Assessments for national wildlife refuges. Assist refuge managers with water rights, water quality, water quantity, and water infrastructure projects. Review and comment on refuge Comprehensive Conservation Plans.

Engineering Specialist, All Other (Not Licensed) - Advanced
New Mexico Interstate Stream Commission - Pecos River Bureau
Santa Fe, New Mexico
7/2004 to 2/2011

Pecos River Bureau: Provided advanced technical services in hydrology and water resources management to support compliance with the requirements of the Pecos River Compact and U.S. Supreme Court Amended Decree in Texas v. New Mexico. Developed and completed water resources related projects and studies in the Pecos River Basin. Supported Pecos River Bureau water management, NEPA, and Endangered Species Act activities. Responsible for management of Pecos River Stream Gaging Program including supervision of contract stream gaging staff and data synthesis and data management. Responsible for major water rights acquisition under the Strategic Water Reserve. Experience completing water rights applications and hydrologic effects analyses (such as drawdown in nearby wells of other ownership and effects to surface and groundwater). Experience collecting groundwater level and geochemical data in field. Directed year-long flow and water quality study on the Pecos River in the reach between Santa Rosa and Sumner Reservoirs to determine suitability for reintroduction of threatened Pecos bluntnose shiner. Involved in the hydrologic aspects of environmental assessments and impact statements.

Engineer, All Other - Advanced
New Mexico Office of the State Engineer, Hydrology Bureau
Santa Fe, New Mexico
1/2000 to 6/2004

Hydrology Bureau: Assessed the hydrodynamics of various declared underground water basins in NM to determine availability of water for appropriation & impacts due to transferring water rights. Represented State of NM as expert witness in protested water rights application. Conducted groundwater hydrology studies in NM. Developed & calibrated a Regional Groundwater Flow Model for Taos, NM, using MODFLOW. Evaluated, correlated, and synthesized water level, hydraulic gradient, transmissivity, & storage coefficient data for use in the Taos groundwater flow model. Member of Taos Technical Team during Abeyta Adjudication Settlement Negotiations responsible for running MODFLOW model to evaluate variety of proposed settlement scenarios. Member of Pecos River Hydrology Workgroup responsible for developing a daily timestep surface water model using RiverWare. Contributed to method RiverWare uses to represent return flow from an irrigation district. GIS training & experience using ArcMap. Routinely involved in the analysis and evaluation of varied technical problems and issues. Occasionally involved in collection of water level data during aquifer performance tests.

Project Hydrogeologist
INTERA/Duke Engineering & Services
Albuquerque, New Mexico
6/1993 to 1/2000

Performed various surface water, vadose zone and groundwater hydrology studies for U.S. Department of Energy, Sandia National Laboratories/NM, State of NM and private clients. Member of Sandia's Site-Wide Hydrogeologic Characterization Project, which was responsible for characterizing the hydrogeology of contaminated or potentially contaminated sites on Kirtland Air Force Base. Performed modeling to simulate transport under ambient fluxes using one-dimensional advection-dispersion equation. Member of team involved in instrumenting & monitoring an infiltration experiment at Sandia for purpose of determining vadose zone hydrologic properties. Conducted vadose zone modeling of infiltration ponds at Sandia's Technical Area V using VS2DT. Completed ground-water hydrology studies using MODFLOW and contaminant travel time estimates & flow path analyses using MODPATH. Performed post-processing of simulated hydrologic data involving saturation vs. elevation and liquid flux vs. elevation data for the proposed Yucca Mountain nuclear water repository. Conducted volcanic ash dispersion modeling for the proposed Yucca Mountain nuclear water repository.

Graduate Student/Research Assistant/Teaching Assistant
New Mexico Institute of Mining and Technology
Socorro, New Mexico
8/1990 to 5/1993

Performed basic research to investigate effect of wettability on capillary pressure vs. saturation relationship. Served as teaching assistant for graduate level Laboratory and Field Methods course.

Staff Geologist
ENVIRON Corporation
Princeton, New Jersey
10/1985 to 6/1990

Facilitated client compliance with NJ's Environmental Cleanup Responsibility Act & other environmental regulations by characterizing soil & groundwater conditions at industrial sites. Conducted water-quality hydrology studies at various sites to evaluate the occurrence of chemical contaminants in streams, ponds, & aquifers. Planned and carried out the collection of varied and extensive hydrologic data. Developed project proposals, work plans, and results reports that included summarizing critical information relating to the objective results of proposed investigations. Conducted ground-water hydrology studies including slug and aquifer tests. Assisted with development of geologic cross-sections for use with a groundwater flow

model. Responsible for evaluating the occurrence of chemical contaminants in aquifers.
Responsible for using water level data to determine groundwater flow direction and gradient.

AFFILIATIONS

Albuquerque Gem and Mineral Club (Regular Member)
American Geophysical Union (Member of Hydrology Section)
Los Alamos Geological Society (Regular Member)
National Ground Water Association (Member of Association of Ground Water Scientists & Engineers)
New Mexico Floodplain Managers Association (Member Number 224)
New Mexico Geological Society (Regular Member)
Western New Mexico Geology Club (Regular Member)

PUBLICATIONS and PRESENTATIONS

Muleshoe National Wildlife Refuge – Hydrologic Monitoring Program, 2011, Poster presented at the US Fish & Wildlife Service Conserving the Future Conference (I am the first author).

An Assessment of Pecos River Flow and Water Quality between Santa Rosa and Puerto de Luna, 2011, Proceedings of the USCID (I am the first author and I made the presentation).

Acoustic Doppler Current Profiler (ADCP) Experiences in New Mexico, 2011, Proceedings of the USCID (I am the first author and I made the presentation).

Taos New Mexico: Water Resources Modeling, NGWA 2007 Ground Water Summit (I am a coauthor).

Overview of Pecos River Basin, 2006, Proceedings of the USCID (I am the first author).

Carlsbad Project Water Operations and Water Supply Conservation Environmental Impact Statement, 2006, Published by U.S. Bureau of Reclamation and NMISC (I am a coauthor).

Long-Term Miscellaneous Purposes Contract Environmental Impact Statement, 2006, Published by U.S. Bureau of Reclamation and NMISC (I am a coauthor).

Red Bluff Gage Site Enhancement and Improvement of Stream Flow Measurement Accuracy, June 2005, Proposal submitted to US Bureau of Reclamation's Water 2025 Challenge Grant Program. Proposal was accepted and funded (I am coauthor).

Taos Regional Groundwater Flow Model, 2004, Published in Geology of the Taos Region, New Mexico Geological Society (I am the first author and presented the paper during the field conference).

Application of Pecos River Decision Support System for Analysis of Alternatives for River Operations Evaluated in the NEPA Process, 2004, Poster presentation at New Mexico Water Research Symposium (I am a coauthor).

Hydrologic Evaluation of Application, RG-37303-S/Town of Taos, April 2001, Memorandum from Hydrology Bureau to Water Rights Division. (I am the sole author).

Regional Groundwater Flow Model for Taos, NM, December 2000, Poster presentation at Fall American Geophysical Union Meeting. Abstract published in EOS, Vol. 81, No. 48, p. F475. (I am first author; I made the presentation).

Modeling Volcanic Ash Deposition at Yucca Mountain, NV, December 1999, Poster presentation at Fall American Geophysical Union Meeting. Abstract published in EOS, Vol. 80, No. 46, p. F1187. (I am first author; I made the presentation).

Igneous Consequence Modeling for the TSPA-SR (Total System Performance Assessment - Site Recommendation), December 1999, Report prepared for US Department of Energy, Yucca Mountain Site Characterization Office (ANL-WIS-MD-000017 Rev. 00a). (I am a coauthor).

Mass Flux Calculation for Use in Defining Saturated Zone Stream Tubes for Engineering Design Alternatives I, II, and V (Document # B00000000-01717-0210-00088 Rev 00), October 1999, Calculation performed for the US Department of Energy's Yucca Mountain Project (I am the sole author).

Transient Infiltration Study at Yucca Mountain, NV, December 1998, Oral presentation at Fall American Geophysical Union Meeting. Abstract published in EOS, Vol. 79, No. 45, p. F391. (I am first author; I made the presentation).

Feature, Event, and Process Screening and Scenario Development Plan for Department of Energy Spent Nuclear Fuel for The Yucca Mountain Total System Performance Assessment: November 4, 1998, November 1998, Published in the Proceedings of the NEA Workshop on Scenario Development, Madrid, Spain, May 10-12, 1999. Also Sandia National Laboratories/New Mexico Report Number SAND98-2831C. (I am a coauthor. A coauthor made the presentation).

Phase II Environmental Site Assessment, University of New Mexico, University Chevron, August 1998, Report prepared for the University of New Mexico. (I am the primary author).

TSPA-VA Total System Model Base Case Modified to Include Volcanic Direct Surface Release using ASHPLUME Version 1.3 (VA Supporting Data), August 1998, Report to Ralston Barnard, Sandia National Laboratories/New Mexico - part of Yucca Mountain Project. Accession # MOL.1998.1125.0032. (I am the sole author).

ASHPLUME Version 1.3 Documentation, July 1998, Documentation prepared for the Department of Energy's Yucca Mountain Project. Accession # MOL.19981125.0030. (I am the sole author).

TOUGH2 flux calculations for RIP, May 1998, Memorandum to G. Saulnier, et al. prepared for the Department of Energy's Yucca Mountain Project. (I am the sole author).

TOUGH2 Post-processing of Lawrence Berkeley Laboratory (LBL) November 14, 1997 and LBL December 12, 1997 TOUGH2 3-D Flow Fields: Plots of Saturation and Liquid Flow Versus Elevation at Boreholes SD9 and SD12, March 1998, Report to Cliff Ho, Sandia National Laboratories/New Mexico, part of Yucca Mountain Project Total System Performance Assessment - Viability Assessment. Accession # MOL.19990104.0204. (I am the sole author).

Soil Investigation Results Report, University of New Mexico, Transformer Site, March 1998, Report prepared for the University of New Mexico. (I am the primary author).

Soil Investigation Results Report, University of New Mexico, Ford Utilities Center, Phase 2, March 1998, Report prepared for the University of New Mexico. (I am the primary author).

Complete Draft VA UZ Abstraction/Test Document - Unsaturated-Zone Flow: Preliminary Draft Section 2.3 of TSPA-VA (Document # B00000000-01717-2200-00201), January 1998, Documentation prepared for the Department of Energy's Yucca Mountain Project. Accession # MOL.19980428.0202. (I am a coauthor).

Transient Infiltration Study at Borehole SD-9 for TSPA-VA, December 1997, Report to Cliff Ho, Sandia National Laboratories/New Mexico, part of Yucca Mountain Project Total System Performance Assessment - Viability Assessment. Accession # MOL.19980429.0951. (I am the sole author).

Initial Site Assessment, U.S. Highway 84/285, Pojoaque Corridor, September 1997, Report prepared for the New Mexico State Highway and Transportation Department Project NH-085-6(55156) CN 2606. (I am a coauthor).

Hydrogeologic Investigation Report, New Mexico State Highway and Transportation Department Gallup Patrol Yard, July 1997, Report prepared for the New Mexico State Highway and Transportation Department. (I am the primary author).

Technical Area 5 Seepage Pit Flow Modeling, May 1997, Report prepared for Sandia National Laboratories Environmental Restoration Project (I am a coauthor).

Underground Storage Tank Removal Report, University of New Mexico, Automotive Service Center, January 1997, Report prepared for the University of New Mexico (I am primary author).

100% Sandia National Laboratories/New Mexico Corrective Action Management Unit (CAMU) Design Report, July 1996, Report prepared for Sandia National Laboratories/New Mexico (I am a contributor).

80% Sandia National Laboratories/New Mexico Corrective Action Management Unit (CAMU) Design Report, May 1996, Report prepared for Sandia National Laboratories/New Mexico (I am a contributor).

Tijeras Arroyo Infiltration Experiment - Attachment 3 of Sandia National Laboratories Site-Wide Hydrogeologic Characterization Project Calendar Year 1995 Annual Report, March 1996, Report number SANDIA-ER-5 v.5 for Sandia National Laboratories Environmental Restoration Project (I am a coauthor).

Sandia National Laboratories Site-Wide Hydrogeologic Characterization Project Calendar Year 1995 Annual Report, March 1996, Report number SANDIA-ER-5 v.3 for Sandia National Laboratories Environmental Restoration Project (I am a coauthor).

50% Design Calculations and Drawings Package for the IT Team Containment Cell Vadose Zone Monitoring System for the Sandia National Laboratories/New Mexico Site 107 Corrective Action Management Unit (CAMU) Permitting/Design Project, January 1996, Calculations and Drawings Package prepared by INTERA Inc for Sandia National Laboratories/New Mexico Corrective Action Management Unit (CAMU). (I am a coauthor).

Vadose Zone Flow Processes and Effective Properties: An Intermediate-Scale Cyclically Pondered Infiltration Experiment, December 1995, Oral Presentation at Fall AGU Meeting. Abstract published in EOS, Vol. 76, No. 46, p. F265. Also SAND95-2240A. (I am a coauthor; A coauthor made the presentation).

Chemical Waste Landfill Recharge Study in Chemical Waste Landfill Ground-Water Assessment Report, October 1995, Report sections prepared for Sandia National Laboratories/New Mexico (I am a coauthor of the report and am the primary author of the sections covering the recharge study methods and results).

Sandia National Laboratories Site-Wide Hydrogeologic Characterization Project Calendar Year 1994 Annual Report, March 1995, Report number SANDIA-ER-12 for Sandia National Laboratories Environmental Restoration Project. (I am a coauthor).

Probabilistic Analysis of Vadose Zone Contaminant Transport Under Ambient Fluxes, May 1994, Oral presentation at Spring AGU Meeting. Abstract published in EOS, Vol. 75, No. 16, p. 171. (I am a coauthor; I made the presentation).

Sandia National Laboratories Site-Wide Hydrogeologic Characterization Project Calendar Year 1993 Annual Report, March 1994, Report number SANDIA-ER-11 for Sandia National Laboratories Environmental Restoration Project (I am a coauthor).

The Influence of Wettability on Scaling the Capillary Pressure-Saturation Relationship, May 1993, MS Thesis in Hydrology at NM Tech.

The Influence of Wettability on Scaling the Capillary Pressure-Saturation Relationship, December 1992, Oral presentation at Fall American Geophysical Union Meeting. Abstract published in EOS, Vol. 73, No. 27, p. 164. (I am a coauthor; I made the presentation).

The Effects of Wetting on Transport of Organics in Groundwater, August 1992, Technical Completion Report published by New Mexico Water Resources Research Institute, WRRRI Report No. 268 (I am a coauthor).

Scaling Capillary Pressure-Saturation Curves for Hydrophilic and Surface-Treated Glass Bead Packs, April 1992, Poster presentation at AGU 12th Annual Hydrology Days Conference. (I am a coauthor; I made the poster presentation).

Numerous unpublished ENVIRON reports, October 1985 to June 1990.

An Archaeomagnetic Paleointensity Study of Amerindian Hearth Specimens, April 1985, unpublished undergraduate senior thesis.