

Steven E. Spayd, PhD, MPH, PG

Founder and President

Diagnosis Water, LLC

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Education

2009	Ph.D. in Environmental and Occupational Health University of Medicine and Dentistry of New Jersey and Rutgers University - School of Public Health, Piscataway, NJ
2004	M.P.H. in Environmental and Occupational Health University of Medicine and Dentistry of New Jersey and Rutgers University - School of Public Health, Piscataway, NJ
1979	B.S. in Geoscience Montclair State College, Upper Montclair, NJ

Work Experience - Synopsis

Dr. Spayd has extensive experience in environmental protection, drinking water quality, public health, and hydrogeology. He has been a research scientist, hydrogeologist, water treatment expert, educator, and manager.

- Designed, evaluated, and managed numerous ground-water pollution investigations and cleanups including sites with volatile organics, petroleum hydrocarbons, metals, pesticides, nitrates, bacteria, base neutrals, road salt, and radionuclides.
- Analyzed aquifer tests, delineated well head protection areas and investigated numerous contaminated well fields, including identification of natural (arsenic, radionuclides, manganese, boron, and lithium) and anthropogenic contaminant sources and responsible parties.
- Developed NJDEP policies, regulations, and standard operating procedures regarding drinking water, ground-water protection, pollution investigation, and cleanup.
- Managed research on the sources, mobilization, fate, transport, and effective water treatment of arsenic, radionuclides, and other naturally occurring contaminants in NJ aquifers.
- Provided technical support to the Department of Health and Human Services for the investigation of childhood cancers in Dover Township, Ocean County, New Jersey via membership on the NJDEP Toms River Work Group.
- Collaborated with CDC, NJ Department of Health, Columbia University, and Rutgers School of Public Health on public health aspects of contaminated well water.
- Assisted the public and state and local agencies with water quality, water treatment, contaminant transport, well hydraulics, and hydrogeologic issues.
- Authored technical reports, conducted and oversaw field work, developed and implemented public health outreach and research projects.
- Gained expert knowledge of state and federal environmental, ground-water, and drinking water regulations, and conducted public speaking, research, training staff, teaching, and educational activities.

Employment History

2022 - Present	Diagnosis Water, LLC Montgomeryville, PA Founder and President
1982 - 2021	NJ Department of Environmental Protection Trenton, NJ Research Scientist, Manager, Hydrogeologist
2017 - Present	The College of New Jersey Ewing, NJ Adjunct Professor of Geology
2011 - 2018	Delaware Valley University Doylestown, PA Adjunct Professor of Hydrogeology
1980 - 1982	Converse Ward Davis Dixon Roseland, NJ Staff Geologist, Consulting
1980	Northeast Geo-Consulting Wyckoff, NJ Chief Geologist, Environmental Consulting
1979 - 1980	Ramsey High School Ramsey, NJ Earth Science Teacher
1979	Century Geophysical Corp Casper, WY Field Geologist, Mineral Exploration

Certifications

Registered Professional Geologist (P.G.), Commonwealth of Pennsylvania, 1995 - Present
Certified Teacher of Science, State of New Jersey, 1979 - Present

Professional Affiliations

National Environmental Health Association, 2018 - Present.
Geology and Health Division, Geological Society of America, 2006 - Present.
Eastern Water Quality Association 2023 - Present.

Awards

Distinguished Alumni Award, Rutgers University School of Public Health, 2016.
Stuart D. Cook, MD, Student Public Health Research Award, UMDNJ, 2009.

Peer Reviewer for Scientific Journals

Environmental Health Perspectives
Science of the Total Environment
Journal of Human and Ecological Risk Assessment
Journal of Environmental and Public Health
Preventive Medicine Reports
Journal of Environmental Management
Water Resources Research

Publications

Water Treatment Media Breakthrough: Arsenic and Water Softener Media in Private Well Drinking Water.

Rockafellow-Baldoni M, Spayd SE, Robson MG. Submitted for Review. Available online at SSRN:

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4087105

Targeted Education and Outreach to Neighbors of Homes with High Gross Alpha Radioactivity in Domestic Well Water. Schwartz RI, Gleason JA, O'Neill HS, Procopio NA, Spayd SE. 2023. Journal of Environmental Radioactivity.

Available online at: <https://www.sciencedirect.com/science/article/abs/pii/S0265931X23000176>

Arsenic Water Treatment for Private Wells in New Jersey. Spayd S. 2023. New Jersey Geological and Water Survey

Information Circular. Available online at: <https://nj.gov/dep/njgs/enviroed/infocirc/ArsenicMainIC.pdf>

Arsenic Water Treatment for Private Wells in New Jersey - Frequently Asked Questions. Spayd S. 2023. New

Jersey Geological and Water Survey Information Circular. Available online at:

<https://nj.gov/dep/njgs/enviroed/infocirc/ArsenicFAQIC.pdf>

Investigation of Salt Contaminated Well Water, Village of Columbia, Knowlton Township, Warren County, New

Jersey. Lubenow B, Gagliano M, Spencer M, Bousenberry R, Spayd S. 2022. New Jersey Geological and Water Survey Technical Memorandum. Available online at: <https://nj.gov/dep/njgs/pricelst/tmemo/tm21-1.pdf>

Targeted Private Well Outreach Following a Change in Drinking Water Standard: Arsenic and the New Jersey Private Well Testing Act. O'Neill HS, Flanagan SV, Gleason JA, Spayd SE, Schwartz RL, Procopio NA. 2022. Journal of Public Health Management and Practice. Available online at:

https://journals.lww.com/jphmp/Abstract/9900/Targeted_Private_Well_Outreach_Following_a_Change.29.aspx

Evaluating the Impact of Free Private Well Testing Outreach on Participants' Private Well Stewardship in New

Jersey. Seliga A, Spayd SE, Procopio NA, Flanagan SV, Gleason JA. 2022. Journal of Water and Health Vol 20 No 1.

Available online at: <https://iwaponline.com/jwh/article/20/1/1/85322/Evaluating-the-impact-of-free-private-well-testing>

School-based Private Well Testing Outreach Event for Arsenic and Boron in New Jersey. Rockafellow-Baldoni M,

Lubenow B, Procopio NA, Gleason JA, Spayd SE. 2020. Journal of Environmental Health, Vol 83, No.2. Available online at: <https://www.neha.org/node/61486>

Leveraging Health Care Communication Channels for Environmental Health Outreach in New Jersey. Flanagan SV, Braman S, Puelle R, Gleason JA, Spayd SE, Procopio NA, Prosswimmer G, Navas-Acien A, Graziano J, Chillrud S. 2020.

Journal of Public Health Management and Practice, Nov/Dec, 26(6): E23-E26. Available online at:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7390665/>

Publications - Continued

Improve Private Well Testing Outreach Efficiency by Targeting Households Based on Proximity to a High Arsenic Well. Flanagan SV, Procopio NA, Spayd SE, Gleason JA, Zheng Y. 2020. Science of The Total Environment, Volume 738. Available online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7429275/>

Reduction in Drinking Water Arsenic Exposure and Health Risk Through Arsenic Treatment Among Private Well Households in Maine and New Jersey, USA. Qiang Y, Flanagan S, Chillrud S, Ross J, Zeng W, Culbertson C, Spayd S, Backer L, Smith AE, Zheng Y. 2020. Science of The Total Environment, Volume 738. Available online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7429269/>

Arsenic Exposure and Cancer Risk Reduction with Local Ordinance Requiring Whole-House Dual-Tank Water Treatment Systems. Rockafellow-Baldoni M, Spayd SE, Hong JY, Meng Q, Ohman-Strickland P, Robson MG. 2018. Human and Ecological Risk Assessment: An International Journal, 24: 1256-1267. Available online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6145128/>

Health Protective Behavior Following Required Arsenic Testing Under the New Jersey Private Well Testing Act. Flanagan SV, Gleason JA, Spayd SE, Procopio NA, Rockafellow-Baldoni M, Braman S, Chillrud SN, Zheng Y. 2018. International Journal of Hygiene and Environmental Health, 221: 929-940. Available online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6219474/>

Arsenic in Private Well Water Part 1: Impact of the Private Well Testing Act on Household Testing and Mitigation Behaviors. Flanagan SV, Spayd SE, Procopio NA, Chillrud SN, Braman S, Zheng Y. 2016. Science of the Total Environment, 562: 999-1009. Available online at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5204457/>

Arsenic in Private Well Water Part 2: Who Benefits the Most from Traditional Testing Promotion? Flanagan SV, Spayd SE, Procopio NA, Chillrud SN, Ross J, Braman S, Zheng Y. 2016. Science of the Total Environment, 562: 1010-1018. Available online at: <https://pubmed.ncbi.nlm.nih.gov/27142115/>

Arsenic in Private Well Water Part 3: Socioeconomic Vulnerability to Exposure in Maine and New Jersey. Flanagan SV, Spayd SE, Procopio NA, Marvinney RG, Smith AE, Chillrud SN, Braman S, Zheng Y. 2016. Science of the Total Environment, 562: 1019-1030. Available online at: <https://pubmed.ncbi.nlm.nih.gov/27118035/>

Whole-House Arsenic Water Treatment Provided More Effective Arsenic Exposure Reduction than Point-of-Use Water Treatment at New Jersey Homes with Arsenic in Well Water. Spayd SE, Robson MG, Buckley BT, 2015. Science of the Total Environment, 505: 1361-1369. Available online at: <https://pubmed.ncbi.nlm.nih.gov/24975493/>

Contribution of Naturally Occurring Radioisotopes to Gross Alpha-Particle Activity in Ground Water in Bedrock Aquifers of Northern New Jersey. Szabo Z, Louis JB, Spayd S, Kraemer TF, and Parsa B. 2015. New Jersey Department of Environmental Protection, Division of Science, Research, and Environmental Health, Research Project Report. Available: <https://nj.gov/dep/dsr/research/UNNJ-final-report.pdf>

Geologic Map of the Stockton Quadrangle, Hunterdon County, New Jersey. Donald H. Monteverde, Gregory C. Herman, Scott D. Stanford and Steven Spayd. 2015. Geologic Map Series GMS 15-1. New Jersey Geological and Water Survey. Available: <https://nj.gov/dep/njgs/pricelst/gmseries/gms15-1.pdf>

Importance of Arsenic Speciation in Populations Exposed to Arsenic in Drinking Water. Spayd SE, Robson MG, Xie R, Buckley BT. 2012. Human and Ecological Risk Assessment, 18:1271-1291. Available online at: <https://www.tandfonline.com/doi/abs/10.1080/10807039.2012.722824>

Publications - Continued

Sources, mobilization and transport of arsenic in groundwater in the Passaic and Lockatong Formations of the Newark basin, New Jersey. Serfes, M., Herman, G., Spayd, S., and Reinfelder, J. 2010. New Jersey Geologic Survey Bulletin 77. Chapter E., E1-E40. Available online at:

<https://www.state.nj.us/dep/njgs/enviroed/oldpubs/bulletin77.pdf>

Chapter 8 - Geological Sources of Radionuclides and Arsenic in Triassic Age Rift-Valley Sediments (Newark Supergroup) and in Mercer County, New Jersey, and Implications for Distribution in Ground Water. Zoltan Szabo, Julia L. Barringer, and Steve Spayd, 2010. In: Twenty Seventh Annual Meeting Geological Association of New Jersey October 8-9, 2010, Field Guide and Proceedings, Edited by Pierre Lacombe, Geological Association of New Jersey, p 89-91. Available online at: <https://www.ganj.org/PDF%20Proceedings/2010%20GANJ%20XXVII.pdf>

Northern New Jersey Radionuclide Investigation: Determination of Uranium, Radium and Radon in Ground Water with High Gross Alpha-Particle Activity, and Implications for Future Monitoring Efforts. Louis J, Szabo Z, Spayd S, Serfes M, Carter G, 2008. N J Department of Environmental Protection, Division of Science, Research and Technology. Research Project Summary. Available online at: <https://www.nj.gov/dep/dsr/dw/northernraad.pdf>

Determination of Total Toxic Arsenic Species in Human Urine Using Hydride Generation Inductively Coupled Plasma Mass Spectrometry. Xie R, Johnson W, Spayd S, Hall GS, Buckley B, 2007. Journal of Analytical Atomic Spectrometry 22: 553-560. Available online at: <https://pubs.rsc.org/en/content/articlelanding/2007/ja/b612979j>

Multiojective Analysis of a Public Wellfield Using Artificial Neural Networks. Coppola E, Szidarovszky F, Davis D, Spayd S, Poulton MM, Roman E. 2007. Ground Water 45(1):53-61. Available on line at: <https://ngwa.onlinelibrary.wiley.com/doi/10.1111/j.1745-6584.2006.00248.x>

Arsenic Water Treatment for Residential Wells in New Jersey. Spayd SE. New Jersey Geological Survey Information Circular. 2007. Available: http://www.state.nj.us/dep/pwta/Arsenic_Treatment.pdf.

Arsenic Speciation Analysis of Human Urine Using Ion Exchange Chromatography Coupled to Inductively Coupled Plasma Mass Spectrometry. Xie R, Johnson W, Spayd S, Hall GS, Buckley B. 2006. Analytica Chimica Acta 578(2):186-194. Available online at: <https://pubmed.ncbi.nlm.nih.gov/17723711/>

Chapter 13 - Arsenic Occurrence, Sources, Mobilization, and Transport in Groundwater in the Newark Basin of New Jersey. Serfes ME, Spayd SE, Herman GC. 2005. In: Advances in Arsenic Research Integration of Experimental and Observational Studies and Implications for Mitigation (O'Day PA, Vlassopoulos D, Meng X, Benning LG, eds). Washington, DC:American Chemical Society, 175-190. Available online at: <https://pubs.acs.org/doi/abs/10.1021/bk-2005-0915.ch013>

Guidelines for Delineation of Well Head Protection Areas in New Jersey. Spayd, SE, Johnson, SW, 2003. New Jersey Geological Survey Open File Report OFR 03-1. Available online at: <https://www.state.nj.us/dep/njgs/whpaguide.pdf>

Private Party Cleanups: A Success Story. Spayd, SE, 1985. Water Resource News, NJ Department of Environmental Protection.

Movement of Volatile Organics Through a Fractured Rock Aquifer. Spayd SE. 1985. Ground Water 23(4):496-502. Available online at: <https://ngwa.onlinelibrary.wiley.com/doi/abs/10.1111/j.1745-6584.1985.tb01499.x>

Selected Presentations

2022 - Association of Environmental & Engineering Geologists - New York and Philadelphia Chapter. Presented: Geogenic Contaminants in New Jersey with a Focus on Arsenic, Boron, Manganese, and Others.

2020 - Private Water Network for National Environmental Health Association and CDC. Presented: Private Well Water Treatment for Arsenic. Available: <https://www.youtube.com/watch?v=tMxoABoFDXU&t=1s>

2019 - Columbia University Superfund Research Program Seminar. Presented: Innovative Private Well Testing and Water Treatment for Arsenic, Boron, and Radionuclides in New Jersey. Available: <https://www.youtube.com/watch?v=eYDjx1zfFmY&t=1s>

2019 - Geological Society of America, Northeast Section Meeting. Presented: Elevated Boron Associated with Lithium, Sodium, Sulfate, and Arsenic in Newark Basin Private Wells.

2019 - Rutgers University Environmental and Occupational Health Sciences Institute, Clinical Research and Occupational Medicine Grand Rounds. Presented: Human Exposure to Arsenic from New Jersey Well Water.

2019 - New Jersey Groundwater Association Membership Meeting. Presented: Radioactive Isotopes in New Jersey Groundwater.

2019 - Private Well Conference, Harrisburg, PA. Presented: Private Well Water Treatment for Arsenic and Radioactive Elements. Available: <https://www.youtube.com/watch?v=xH8v2mZeVYQ>

2018 - National Environmental Health Association, Annual Education Conference, Anaheim, CA. Presented: New Jersey's Private Well Testing Act.

2018 - Hunterdon Healthcare Live Facebook Chat, Flemington, NJ. Q&A: Arsenic in Well Water.

2018 - Recent Advances in New Jersey Geology, Trenton, NJ. Presented: Innovative Private Well Testing for Geogenic Contaminants: Arsenic, Boron, and Radionuclides.

2018 - New Jersey Private Well Consortium, Lawrenceville, NJ. Moderator of Consortium Meeting and Presenter of: New Jersey CDC-Funded Private Well Testing & Outreach Events: Vernon Township.

2017 - Raritan Headwaters Seminar Series, Flemington, NJ. Presented: Arsenic Water Treatment Options for Private Well Owners.

2017 - Stevens Institute of Technology, Hoboken, NJ. Presented: New Jersey CDC-Funded Private Well Testing & Outreach Programs.

2016 - Knowlton Township Public Meeting, Knowlton, NJ. Presented: Well Water Salt Contamination Study Knowlton Township, Warren County, NJ.

2016 - Alexandria Township Environmental Commission, Hunterdon County, NJ. Presented: Well Water Testing Alexandria Township Summary of May 2016 Results.

2016 - Kingwood Township Environmental Commission, Hunterdon County, NJ. Presented: Well Water Testing Kingwood Township Summary of May 2016 Results.

Selected Presentations – Continued

2016 - Rutgers University Environmental and Occupational Health Sciences Institute, Clinical Research and Occupational Medicine Grand Rounds, Piscataway, NJ. Presented: Human Exposure to Arsenic from New Jersey Well Water.

2016 - Geological Society of America, Northeast Section Annual Meeting, Albany, NY. Arsenic Mobilization and Dispersion from an Arsenic-Sulfide Enriched Biotite Gneiss.

2012 - The 9th New Jersey Water Monitoring Summit, Bordentown, NJ. Presented: Geologically Based Framework for Ground-Water Sampling.

2011 - Northeast Private Well Water Symposium, Southbury, CT. Presented: Multiple Contaminant Private Well Water Treatment – Arsenic, Radionuclides, and More.

2011 - Eastern Water Quality Association, East Windsor, NJ. Presented: Radionuclides – Test Results to Treatment Results.

2010 - Alexandria Township Environmental Commission, Pittstown, NJ. Presented: Alexandria Township Well Water Testing.

2009 - American Public Health Association Annual Meeting, Philadelphia, PA. Presented: Point-of-Entry Arsenic Water Treatment Provided Greater Urinary Arsenic Reduction than Point-of-Use Water Treatment at New Jersey Homes with Arsenic in Well Water.

2009 - Federal-State Toxicology and Risk Analysis Committee Meeting, Princeton, NJ. Presented: Biomonitoring to Evaluate Effectiveness of Treatment Options for Arsenic in Private Wells.

2009 - Kingwood Township Board of Health, Kingwood, NJ. Presented: What is Down My Well? Recognizing Problems.

2008 - Hopewell Township Health Department Public Meeting “What’s in Your Water?” Presented: Arsenic and Radioactive Elements in Drinking Water.

2008 - Franklin Township Health Department Well Water Seminar, Somerset, NJ. Presented: Arsenic in Drinking Water.

2008 - NJ American Water Resources Association Meeting. Presented: Arsenic in New Jersey Well Water: Nature, Extent, Sources & Treatment.

2007 - NJ Environmental Health Association. Presented: Arsenic in New Jersey Drinking Water.

2006 - National Ground Water Association Naturally Occurring Contaminants Conference: Arsenic, Radium, Radon, and Uranium. Invited Special Guest Speaker. Presented: Arsenic Exposure Reduction for Residential Wells via Drinking Water Treatment Systems.

2005 - New England Private Drinking Well Symposium, Portsmouth, New Hampshire. Presented: Arsenic Water Treatment and Human Exposure.

2005 - Eastern Water Quality Association Annual Meeting, Princeton, NJ. Presented: Update on Nature, Extent, Sources, and Treatment of Arsenic in New Jersey Well Water.

Selected Presentations – Continued

2005 - National Ground Water Association Naturally Occurring Contaminants Conference: Arsenic, Radium, Radon, and Uranium. Invited Special Guest Speaker. Presented: Efficacy of Arsenic Exposure Reduction via Drinking Water Treatment Systems.

2004 - Arsenic Symposium, Rutgers EcoComplex, Burlington, NJ. Presented: Source, Nature, and Extent of Arsenic Contamination in New Jersey.

2004 - Private Well Testing Act – NJDEP Health Agency Training Seminar, Mt. Holly, NJ, Presented: Arsenic in New Jersey Well Water: Nature, Extent, Sources, and Treatment.

2003 - New Jersey Water Association Management/Technical Conference, Atlantic City, NJ. Presented: Geology, Aquifers & Threats to Wells in NJ.

2003 - 29th Annual Water Quality Association Convention, Las Vegas, Nevada. Presented: Arsenic Water Treatment for Residential Wells & Human Exposure Monitoring.

2001 - Geology in Service to Public Health, Joint Meeting of the Geological Association of New Jersey and the New Jersey Section-American Water Resources Association. Presented: Keynote Address - Arsenic, Geology & Public Health.

2001 - Protecting Source Water Quality, NJ Section, American Water Works Association, Princeton, NJ. Presented: Delineation of Well Head Protection Areas for New Jersey.

2001 - Ground Water Institute for Teachers, American Ground Water Trust, Parsippany, NJ. Presented: Summary of the Common Threats to the State's Ground Water – New Jersey Ground Water Protection Program.