

**V. Steve Reed, P.G.
Principal Scientist**

Professional Profile

Mr. Steve Reed is a Principal Scientist in Exponent's Environmental Sciences practice. Mr. Reed has 34 years experience in the environmental and groundwater resource consulting arena, serving in both technical and senior management roles. He has performed hydrogeologic studies throughout the United States. He has performed projects under a wide variety of environmental regulatory programs including RCRA, CERCLA, and TSCA.

Mr. Reed provides litigation support and expert testimony, as well as regulatory agency negotiations. He has testified in cases before both state and federal courts, before several state agencies and has been involved in negotiations with numerous state agencies and several EPA regions. Mr. Reed has also served as Office Manager, Regional Vice President and Director of National Accounts for ARCADIS.

Academic Credentials and Professional Honors

M.S., Geology, Northern Arizona University, 1976
B.S., Geology, Northern Arizona University, 1970

Licenses and Certifications

Certified Professional Geologist: Arizona, #10842; Mississippi, #0710; Missouri, #0904; Oregon, #G1673; Texas, #123; Washington, #492

Registered Professional Hydrogeologist, Washington, #492

Certified Professional Geological Scientist, #CPG-05194

Publications

Batson RM, Larson KB, Reed VS, Sutton RL, Tyner RL. Apollo 16 lunar surface photography in Apollo 16 final report. U.S. Geological Survey Professional Paper, 1982.

Reed VS. Geology of South Ray and Baby Ray Craters, Apollo 16 in Apollo 16 Final Report. U.S. Geological Survey Professional Paper, 1982.

Reed EL, Reed VS. Disposal well design for in situ uranium operations. Proceedings, South Texas Uranium *In Situ* Seminar by Society of Mining Engineers of AIME, 1980.

Reed VS. Stratigraphy and depositional environment of the Hakatai Shale, Grand Canyon, Arizona. Master's Thesis, Northern Arizona University, Flagstaff, AZ, 1976.

Reed VS, Wolfe EW. Origin of the Taurus Littrow Massifs. Proceedings, 6th Lunar Science Conference, *Geochim. et Cosmochim. Acta* 1975; 3(6):2443-2462.

Reed, Steve V. Stratigraphy of the Hakatai Shale, Grand Canyon, Arizona (abs). Proceedings, Geological Society of America 1974; 6(5):469.

Beus SS, Rawson RR, Dalton RO, Stevenson GM, Reed VS, Daneker TM. Preliminary report on the Unkar Group (Precambrian) in Grand Canyon, Arizona. Karlstrom TNV, Swann GA, and Eastwood RL, (eds), *Geology of Northern Arizona, Part I*, pp. 34-53, 1974.

Swann GA, Reed VS. A method for estimating the absolute ages of small Copernican craters and the application to the determination of copernican meteorite flux. Proceedings, 5th Lunar Science Conference, *Geochim. et Cosmochim. Acta* 1974; 1(5): 151-158.

Wolfe EW, Reed VS. Geologic setting of the South Massif, Apollo 17 site. Interdisciplinary studies of samples from Boulder 1, Station 2, Apollo 17. Vol. 2, Sec. I, Smithsonian Astrophysical Observatory, Cambridge, MA 1974.

Larson KB, Batson RM, Reed VS, Wolfe EW. Preliminary catalog of pictures taken on the lunar surface during the Apollo 17 mission. U.S. Geological Survey Report: *Astrogeology* 1973; 70.

Muehlberger WR, Batson RM, Cernan EA, Freeman VL, Hait MH, Holt HE, Howard KA, Jackson ED, Larson KB, Reed VS, Rennilson JJ, Schmitt HH, Scott DH, Sutton RL, Stuart-Alexander D, Swann GA, Trask NJ, Ulrich GE, Wilshire HG, Wolfe EW. Preliminary geologic analysis of the Apollo 17 site. Apollo 17 Preliminary Science Report: NASA SP-330; 1973; 6-1-6-91.

Muehlberger WR, Batson RM, Cernan EA, Freeman VL, Hait MH, Holt HE, Howard KA, Jackson ED, Larson KB, Reed VS, Rennilson JJ, Schmitt HH, Scott DH, Sutton RL, Stuart-Alexander D, Swann GA, Trask NJ, Ulrich GE, Wilshire HG, Wolfe EW. Preliminary geologic analysis of the Apollo 17 site. U.S. Geological Survey Report: *Astrogeology* 1973; 72.

Muehlberger WR, Batson RM, Boudette EL, C.M. Duke, Eggleton RE, Elston, England AW, Freeman VL, Hait MH, Hall TA, Head JW, Hodges CA, Holt HE, Jackson ED, Jordan JA, Larson KB, Milton DJ, Reed VS, Rennilson JJ, Schaber GG, Schafer JP, Silver LT, Stuart-Alexander D, Sutton RL, Swann GA, Tyner RL, Ulrich GE, Wilshire HG, Wolfe EW, Young JW. Preliminary geologic investigation of the Apollo 16 Landing Site. Apollo 16 Preliminary Science Report, NASA SP-315, 1973.

Sutton RL, Hait MH, Larson KB, Swann GA, Reed VS, Schaber GG. Documentation of Apollo 15 Samples. U.S.G.S. Interagency Report: Astrogeology 1972; 47.

Batson RM, Larson KB, Reed VS, Tyner RL. Preliminary catalog of pictures taken on the lunar surface during the Apollo 16 mission. U.S. Geological Survey Report: Astrogeology 1972; 50.

Batson RM, Larson KB, Reed VS, Rennilson JJ, Sutton RL, Tyner RL, Ulrich GE, Wolfe EW. Preliminary catalog of pictures taken on the lunar surface during the Apollo 15 mission. U.S. Geological Survey Interagency Report 1971; 35.

Prior Experience

Senior Vice President, Senior Advisor, ARCADIS, 1975–2009
Geologist, U.S. Geological Survey, Branch of Astrogeology, 1967–1975

Project Experience

Mining

Participated in several surface and underground mining projects, including dewatering studies for underground mines, tailing pond investigations and permitting, including investigation and testimony in contested Part B hearings.

TSCA

Performed site investigations involving suspected or known PCB contamination. Designed and implemented PCB remediation programs and testified in state court concerning PCB remediation costs. Evaluated occurrence, source, and remediation of PCB contamination on an industrial site.

Landfills

Performed studies on municipal and industrial landfills including CKD disposal sites, some of which involved litigation, to determine the actual or potential impact on surface and ground waters. Provided technical support for landfill closure design. Involved in a study to determine the feasibility of various reuse scenarios for a closed municipal landfill.

Water Resources Evaluations/Development

Evaluated groundwater resources for municipalities and private concerns. Assessed reservoir performance, obtained water rights and designed and constructed municipal well fields. Estimated reserves, safe yields and well efficiencies for both municipal and private clients.

Environmental Permitting

Prepared applications for Part B RCRA permits, and Class I and Class III injection permits. Successfully permitted several *in situ* uranium operations and the only *in situ* sodium sulfate mine in the United States. Testified before state agencies in support of permit applications.

In Situ Mining Projects

Evaluated and designed several *in situ* mining projects, including reservoir studies, and extraction well system design and construction. Supplied expert testimony for several permit applications.

Deep Well Injection

Performed siting studies, and designed, permitted, and constructed Class I disposal wells. Disposal well projects have included both industrial and commercial facilities. Designed and supervised mechanical integrity tests and well rehabilitation programs, and evaluated the performance and feasibility of Class II disposal wells.

Non-Litigation Testimony

Administrative Hearings Testimony

Railroad Commission of Texas

- Class II injection well-pressure limitations
- Drilling mud disposal permit
- Hydrocarbon free-phase recovery program
- Water flood fresh water makeup

Texas Natural Resources Conservation Commission

- Landfill permit
- Class I industrial disposal well applications
- Class III *in situ* uranium mine applications
- Part B permit application

New Mexico Oil Conservation Division

- Commercial salt water disposal application
- Waste disposal permit application

New Mexico Environment Improvement Division

- Waste disposal permit application

Administrative Testimony (includes, but is not limited to, the following cases)

- Testimony in support of Class III uranium mining permits. On at least four occasions, following detailed hydrologic studies and groundwater modeling, testimony was provided showing that the proposed in situ uranium mines could be safely operated with no adverse groundwater impact. Permits were granted. Testimony was before Texas and New Mexico agencies.
- Testimony has been provided in support of Class I industrial waste disposal wells. Testimony included opinions as to the nature of the disposal and confining zones and the ability of the operator to inject wastewater without adverse impact on health or to the environment. Testimony was before a Texas state agency and permits were granted.
- Testimony for original permits and permit modifications was provided on two proposed commercial brine disposal operations in New Mexico, the first two permits of this type to be granted in the state. Testimony on at least five occasions resulted in permits or modifications to permits.
- Testimony was provided in a show-cause hearing on overpressuring caused by injection well activity. The state agency modified operational requirements that eliminated overpressuring problems.
- Testimony before Texas state agency regarding impact from SWMUs. Testimony supported lack of impact to soils and offsite groundwater.

Agency Negotiations

Many of these negotiations have resulted in hundreds of thousands to millions of dollars in savings to the client. As an example, during consent decree negotiations, a state agency proposed a surface water monitoring program that would have cost the company in excess of ten million dollars. The agency was convinced that monitoring was unnecessary based on the dynamics of the surface water system.

Negotiations with state and federal agencies include the following:

- Colorado Department of Health
- EPA Regions III, VI and VII
- Kentucky EPA
- Louisiana Department of Environmental Resources
- Minnesota Pollution Control
- Missouri Department of Natural Resources
- New Mexico Environment Improvement Division
- New Mexico Oil Conservation Division

- Pennsylvania Department of Environmental Resources
- Texas Department of Health
- Texas Natural Resources Conservation Commission
- Texas Railroad Commission
- Washington Department of Ecology
- Wyoming Department of Environmental Quality

Professional Affiliations

- Geological Society of America
- National Ground Water Association

Depositions (2000-2009)

Duane & Carol Ankney, et al. v. PPL Montana LLC, et al., Montana 16th Judicial District Court, Rosebud County, 2008.

Sotero Carrillo, et al, v. Reichhold, Inc. et al., District Court of Travis County Texas, 98th Judicial District, 2007.

Harbor Square Associates, LLC v. Port of Edmonds v. Union Oil Company of California, Superior Court of the State of Washington, Snohomish County, 2006.

Mayo Ranch LTD v. North Central Oil Corporation and POGO Producing Company, District Court Zapata County Texas, 49th District, 2005.

State of California v. Underwriters at Lloyd's London and other London Market Insurers, et al., Superior Court of the State of California for the County of Riverside, 2004.

Eva Reyna Ayala, et al. v. Phillips Properties, et al., 93rd Judicial District Court of Hidalgo, County, Texas, 2004.

Elementis Chromium L.P., et al. v. Coastal States Petroleum Company, et al. v. Amerada Hess Corporation, et al., United States District Court for the Southern District of Texas, Houston Division, 2003.

Five ACS Inc. v. J.M. Huber Corporation, et al., District Court of Hutchinson County, Texas, 84th Judicial District, 2002.

Ervin and Joanne Saathoff, et al. v. Kitsap County, Superior Court of State of Washington for Kitsap County, 2001.

Trial Testimony (2000–2009)

State of California v. Underwriters at Lloyd's London and other London Market Insurers, et al., Superior Court of the State of California for the County of Riverside, 2004

Elementis Chromium L.P., et al. v. Coastal States Petroleum Company, et al. v. Amerada Hess Corporation, et al., United States District Court for the Southern District of Texas, Houston Division, 2003.

Plemons v. Devon Energy, et al., New Mexico State District Court, Carlsbad, New Mexico, 2003.

Depositions (1978–1999)

Gabriela C. Aquirre, et al. v. Browning Ferris Industries Inc., et al., 156th Judicial District Court, San Patricio County, Texas.

Mike Adalis, et al. v. Neighborhood Development Corporation, et al., State of Texas District Court, Harris County.

Valley Isle Produce, Inc. d.b.a. VIP Food Service v. Shell Oil Company, et al., United States District Court, District of Hawaii.

The Southland Corporation v. Occidental Petroleum and Oxy USA, United States District Court, Texas.

Ken Gronvold Construction, Inc. v. Time Oil Company, Superior Court of Washington, King County

Washington Water Power Company v. Underwriters at Lloyds, State of Washington, Superior Court, Spokane County.

Proctor v. Lockheed, California Superior Court, Santa Clara County.

Snyder General Corporation v. The Continental Insurance Company, et al., United States District Court, Texas.

FMC v. Liberty Mutual, et al., State of California Superior Court, Santa Clara County. (two cases)

Barnes Ranch v. Mid-Continent Pipeline, State of Oklahoma District Court.

Michael and Linda Odem v. Ciba Geigy Corporation, Reichold Inc. and Lamar Harrison, United States District Court, Southern District of Alabama.

Pocol Holdings Limited v. Texas, Instruments Inc., United States District Courts, District of Colorado.

Gust Tsevas v. Travelers et. al., State of Wisconsin Circuit Court.

Grady Weeks, et al. v. T.J. Guido, et al., State of Louisiana State Court, and United States District Court Western District of Louisiana.

A.A.F. McQuay s.k.a. Snyder General Corporation v. Northbrook Property and Casualty Insurance Company, et al., United States District Court, Eastern District of Texas, Texarkana Division.

Trafalgar Holding Ltd., Inc., et al. v. Stop N Go Market, et al. v. Conoco Inc., et al., 151st Judicial District Court, Harris County, Texas.

Merritt Tool Company v. United States Fire Insurance Company and James Keith, District Court of Gregg County, Texas, 188th Judicial District.

International Paper Timberlands Operating Company, Limited, and International Paper Company v. Denmiss Corporation, et al., State of Louisiana District Court.

United States v. Interco, United States District Court, Texas

Vanderberg v. Phillips Petroleum, et al., State of Texas District Court.

State of Texas v. Liberty Waste, et al., State of Texas District Court.

Charles Johnson v. Diamond Shamrock, United States District Court, Texas.

Trial and Arbitration Testimony (1978–1999)

State of California v. Underwriters at Lloyd's London and other London Market Insurers, et al., Superior Court of the State of California for the County of Riverside.

Plemons v. Devon Energy, et al., New Mexico State District Court, Carlsbad, New Mexico.

Gabriela C. Aquirre, et al. v. Browning Ferris Industries Inc., et al., 156th Judicial District Court, San Patricio County, Texas.

Mike Adalis, et al. v. Neighborhood Development Corporation, et al., State of Texas District Court, Harris County.

The Southland Corporation v. Occidental Petroleum and Oxy USA, United States District Court, Texas.

FMC v. Liberty Mutual, et al., State of California Superior Court, Santa Clara County. (two cases).

Barnes Ranch v. Mid-Continent Pipeline, State of Oklahoma District Court.

Industrial Metals v. Mangus, et al., State of Texas District Court.