

# Randall Craig Shaw

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Brackish Groundwater  
National Desalination  
Research Facility  
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## Education and Licenses

May 1977 | Bachelor of Science, Agriculture Engineering, New Mexico State University, Las Cruces, NM  
December 2006 | Licensed as a Professional Civil Engineer in the State of NM

## Societies, Honoraries, Memberships

National Honor Society in 1972; Hobbs High School; Hobbs, NM  
Academy of Civil, Agricultural, and Geological Engineering, New Mexico State University; Member  
Board Member of Christ Community Church; Alamogordo, NM; 2011  
Leadership Otero, Alamogordo Chamber of Commerce; Alamogordo, NM; 2016  
Vice Chairman of the Leadership Otero Legacy Project; Alamogordo, NM; 2016

## Employment History

Facility Manager of the Brackish Groundwater National Desalination Research Facility (BGNDRF);  
Alamogordo, NM, 2010 – Present

BGNDRF is a one-of-a-kind, 43-acre, federal research facility which opened in 2007. Its clients consist of private sector companies and universities. Private sector companies include large well-known companies such as General Electric, Evoqua, LG and Veolia. Universities include New Mexico State University, University of Texas at El Paso, Texas Tech University, University of Nevada at Reno, Cal Poly Pomona, University of North Texas and MIT. Responsibilities include oversight of operation and maintenance of the facility, marketing the facility to clients, educating the public regarding desalination and BGNDRF and supervising a staff of three employees.

Accomplishments: I was a major planner of Reclamation's first grand prize challenge, The Desal Prize, in 2015. This was an international competition in which BGNDRF served as the finalist competition site for the event. The event was reported by press from around the world. I received an Excellence in Service Award from the United States Agency of International Development in recognition of my leadership and service to The Desal Prize. Additionally, I received a cash award from the Bureau of Reclamation for the work I did in planning and preparing BGNDRF for The Desal Prize event. Additionally, I have received cash awards each year for performance related to my responsibilities. I was a keynote speaker in June 2016 at the "Workshop for Developing the Structure of a National Energy Positive Water Resource Recovery Facility Test Bed Network" in Denver Colorado. I was the keynote speaker at the American Society of Agriculture and Biological Engineers (ASABE) New Mexico Chapter in Las Cruces, NM in March 2017.

Program Analyst for the Six Middle Rio Grande Pueblo, Bureau of Indian Affairs (BIA); Albuquerque, NM, 2006 – 2010

Though the official title of the position was Program Analyst, I was referred to as the “Designated Engineer (DE)”, a title from an old statute regarding water deliveries to the Pueblos. Responsibilities included serving as a technical advisor to the six Middle Rio Grande Pueblos regarding water used for irrigation, interfacing with the Middle Rio Grande Conservation District (MRGCD) regarding their conveyance facilities and appurtenances on Pueblo lands, providing daily input for management of the Pueblo’s water flowing in the Rio Grande water shed, and calculation and management of the Pueblo’s “prior and paramount (P&P)” water in El Vado Reservoir. Agencies and organizations that I interfaced with included the Bureau of Reclamation, the Army Corp of Engineers, the Interstate Stream Commission, the Office of the State Engineer, the Rio Grande Compact Commission and others.

Accomplishments: Among my accomplishments were improving the work output of the MRGCD within the Pueblos based on a more structured adherence to the existing contract; performing a detailed review of billing data from the MRGCD and discovering a large number of discrepancies resulting in a savings to the BIA of over \$700,000. A total of 5 monetary awards were received for the work done with developing a P&P release tool in MS Excel and other related work.

Transportation Engineer for the Mescalero Agency, BIA; Mescalero Apache Reservation, 2003 – 2006

As Transportation Engineer, responsibilities included overseeing BIA road maintenance and road construction of over 500 miles of paved, gravel and unimproved roads on the Mescalero Apache Reservation; supervising 6 employees including a foreman, technician and equipment operators; reviewing road construction drawings; monitoring contract compliance of contractors during road construction projects; performing other responsibilities of a contracting officer’s technical representative; and, assisting the tribe in short range and long range planning for road construction projects. Responsibilities also included performing minor work related to the Safety of Dams program and Irrigation program.

Accomplishments: Initiated and successfully completed a 5-mile road construction project on the major access route to the tribe’s resort and casin. The project incorporated reuse of asphalt material in place rather than total reconstruction. This was a technique not normally used by the BIA. The design used along with close monitoring by BIA personnel saved approximately \$2,500,000 in construction costs by the Mescalero Apache Tribe. The project earned a smooth pavement award by the New Mexico Division of Transportation, the first outside of NMDOT to a tribal entity. I received a Public Service Award from the Federal Executive Board for this work. Two monetary awards for superior work were received for performance of the above described duties.

Irrigation Division Manager of the San Carlos Irrigation Project, BIA; Coolidge, AZ, 1999 – 2003

As the Irrigation Division Manager, responsibilities included managing the Irrigation Division of the San Carlos Irrigation Project (SCIP) which is a power and irrigation project; overseeing all administrative, operational and maintenance aspects of delivering water to 100,000 acres of SCIP land; managing Irrigation facilities consisting of 3 dams (including Coolidge Dam, a large concrete structure), 2 reservoirs, 50 miles of large unlined canals, and 98 irrigation wells; ensuring environmental compliance with all activities; using Microsoft Excel to perform complex calculations related to water apportionments, well utilization, and water disputes; writing a monthly progress report for presentation to Indian and non-Indian farm boards; providing testimony related to litigation; providing input and engineering analysis of complex water rights issues as a member of the Gila River Commissioner's Technical Committee; conducting meetings with various levels of management and tribal leaders and attorneys; participating in annual salary negotiations with the Union; supervising over 20 employees including the foreman of the Water Operations group, foreman of the Maintenance group, foreman of the Well Shop, foreman of the Mechanic Shop, and a professional civil engineer.

Accomplishments: I set an annual apportionment of water for the severest drought in SCIP history (i.e. since 1928) with highly conflicting views of the parties and threats of lawsuits. I successfully mitigated a wetland disturbance issue with the United States Army Corp of Engineers. Monetary awards were received for performance on the job.

Supervisory Agriculture Engineer, San Carlos Indian Works, BIA; Sacaton, AZ, 1989 – 1999

Responsibilities included performing the functions of the Land Operations Officer and the Supervisory Agriculture Engineer; supervising 30 employees, overseeing the operation and maintenance of the San Carlos Indian works (50,000 acre irrigation district); participating on the Gila Water Commissioner Technical Committee for dealing with technical issues stemming from current court cases related to the Gila River; assisting government and tribal lawyers in the technical analysis of various water rights issues such as the Gila River common water supply, division of SCIP stored water between Indian and non-Indian lands; performing water accounting of diversions of SCIP stored and natural flow water, Central Arizona Project water, and drought relief well water; assisting the tribal council on the irrigation district planning committee; making presentations of water issues to the tribal council, tribal committees and water users; developing software for the analysis of technical water issues and water accounting; and performing subordinate contracting officer's representative duties for the Public Law 93-638 contract of the tribal Irrigation Rehabilitation Program.

Accomplishments: I established a set of irrigation policies for delivery of irrigation water and a system for tracking water use and apportionments of each water user with the Indian Works which are still largely in place at the present time.

Design Engineer, Franzoy Corey Engineers and Architects; Phoenix, AZ, 1985 – 1989

Responsibilities included the design of farmland and irrigation delivery facilities. Assembled construction drawings and specifications for construction bids. Performed various hydraulic calculations. Wrote numerous reports.

Accomplishments: Designed over 10 miles of irrigation facilities and appurtenances that were constructed on the west side of the Ak-Chin Indian Reservation. Designed a small irrigation conveyance system using an innovative “notched ditch” design for the farmland around San Xavier Mission on the Tohono O’odham Reservation.

Project Engineer, Lockheed Engineering and Management Services Company; NASA White Sands Test Facility, Las Cruces, NM 1979 – 1985

Responsibilities included the management of research and development projects in the area of oxygen compatibility of materials used in NASA’s space program. Management of projects covered everything from conception to completion of the project including writing test plans; designing pneumatic and cryogenic test systems; creating machine shop and system drawings; performing a failure modes and effects analysis; writing test procedures; and conducting data acquisition and analysis .

Accomplishments: I developed a standardized test published in the American Society of Testing and Materials (ASTM); obtained a patent along with a team of 2 other inventors on a friction testing apparatus for ranking metals according to their ignition susceptibility due to friction in a high pressure oxygen environment; publication of an article in the “NASA Tech Briefs”; obtained 4 group achievement awards and 2 NASA certificates of recognition.