

**Curriculum Vitae**  
for  
**JOHN W. LONGWORTH, P.E.**

**WORK EXPERIENCE**

***Chief, Water Use and Conservation Bureau, Office of the State Engineer, Santa Fe, New Mexico***

***June 2004 to Current***

- Responsible for managing the Water and Conservation Bureau of the Water Resource Allocation Program to meet OSE statutory obligations, including statewide water use inventories, quantification of water right entitlements for adjudications, review of subdivision proposals to ensure compliance with the NM Subdivision Act and county regulations and evaluate 40-year plans and water conservations plans and conservation reports for water right applications.
- Engaged in the development of policies and rules/regulations related to water use and conservations issues.
- Qualified and testified as an expert witness on matters relating to water use and water conservation.
- Responsible for determining the consumptive irrigation requirement for the adjudication and other agency matters in the Lower Rio Grande, Upper Pecos, Zuni, Upper Rio Chama, Rio San Jose, and other systems.
- Developed and manage Bureau's budget.
- Approve Bureau staff's studies and work products.

***Engineer All Other, Advanced, Interstate Stream Commission, Santa Fe, New Mexico***

***July 2001 to May 2004***

**Project Leader**

- Provided the leadership role in developing the Request for Bids of Land and Water Rights. This effort included working within the ISC and OSE staff and the Commissioner's for two different administrations and working with Carlsbad Irrigation District (CID) and the Pecos Valley Artesian Conservancy District (PVACD) leadership to create a process that would receive the required amounts of land and water rights to meet the terms of the Pecos Adjudication Settlement.
- Provided the leadership role in developing the pricing strategy for the Land and Water Rights Acquisition Project. This required coordinating legal, economic, technical, and political areas of interest into a cohesive and comprehensive plan.
- Secured several key water lease agreements during the exceptional drought experienced during the 2002 and 2003 irrigation season, (Seven Rivers, Inc., Hagerman Irrigation Company, and the CID Leases).
- Lead the development of evaluation criteria that would be universally applied during the implementation of the ad hoc Consensus Plan. The results of this project is an evaluation process that exceeds any previously published by the Agency since the Lease/Purchase program was initiated in the early 1990's.

**NMISC Representation**

- Positioned the NMISC in the lead role in the Pecos ESA EIS Hydrology Work Group.
- Routinely assigned as Acting Program Manager during the Program Manager's leave.
- Successful representation of the agency for the implementation of the NMISC's work into the Fish and Wildlife Service's three year Biological Opinion (BO) on the Bureau of Reclamation's (BOR) Pecos River Operations.

Monitors and Evaluates Pecos River Operations and Compact Deliveries

- Provided critical review of the Program's state line projection methodology. Developed a method which accurately forecasts end-of-year conditions.
- Provided guidance to junior and legal staff to help them better understand the hydrology of the Pecos.

**Water Resource Engineer Specialist 1, Interstate Stream Commission, Santa Fe, New Mexico**

**February 1999 to June 2001**

Hydrological and technical investigations

- Performed a daily time step review of stream gage data related to the Fort Sumner Irrigation District (FSID) diversion and return flow. This analysis became the basis of the FSID return flow method of the Pecos River RiverWare model.
- Developed an annual analysis of the IMC Potash Company Willow Lake diversion and storage right that determined the estimated return flow from their irrigation practices.
- Developed unique methodology to determine ungaged flood inflows to the Pecos River from Sumner Dam to the Texas/New Mexico State line.
- Performed a daily time step review of individual reaches of the Pecos River to develop loss equations for low flows in losing reaches.
- Developed a mass balance analysis of the depletions associated with the Willow Lake water right for purchase negotiations.
- Implemented three versions of the Pecos River RiverWare model to compare to BOR's version. Ran variations and developed basis of comparison for model runs. Through my use of the software, I implemented additions to the model structure to better evaluate the Pecos River system.
- Developed a comprehensive analysis of the bank storage, seepage and new water effects at the Brantley Reservoir.
- Review and became technical expert on of the methodology to determine the FSID diversions right.
- Provided graphics and data related to components of the state line flow.
- Performed an environmental condition review of IMC's CID property purchase by the ISC.

Determined New Mexico's water delivery obligations to Texas under the Pecos River Compact and Decree.

- Wrote the Agency's Excel version of the United States Supreme Court (USSC) River Master's Manual. Task required a detailed review of previous accounting to ensure accuracy of spreadsheet.
- Developed a new method of compiling flow data and presenting that data with Excel as required by the USSC Pecos River Master.
- Responsible for review of Pecos River Master's (RM) preliminary report. Often identified significant errors in RM's report. Authored technical objection letter to RM. The RM accepted a majority of the comments and New Mexico's state line obligation was reduced.

Worked with members of the public, other local, state and federal agencies to carry out multi-agency projects.

Bureau of Reclamation

- Represented the ISC at the Pecos NEPA Researchers Team and the interim operations "Memorandum of Understanding" meetings. Was appointed as the Co-leader of the Hydrology Work Group.

- Corresponded with Bureau personnel in Denver regarding status of East Grande Plains Drainage Study. Status reports were completed as a result of this correspondence.
- Coordinated with the Bureau's consultants on matters related to the development of the Pecos River operations model. Presented ideas that were incorporated in to the model. Debated technical issues.

#### Carlsbad Irrigation District

- Coordinated meetings with representative from the District regarding water supply issues on the Black River. Meetings covered conceptual concepts of the operations of the Black River. Field inspections were performed with District personnel to evaluate water supply conditions and the potential of illegal diversions.
- Performed field inspections with District personnel to identify appropriate locations of an irrigation canal return for the Black River Diversion Canal.
- Performed field inspections with District representatives at Sumner Dam and at the Fort Sumner Irrigation District. Purpose of inspections was to observe reservoir operations for conservation of the Pecos bluntnose shiner

#### United States Geological Survey

- Coordinated stream gage activities. Performed field inspections to locate stream gage locations at Blue Springs, the convergence of the Black River with the Pecos River, and along the Rio Penasco. Reviewed cost estimate proposals provided by the USGS. Developed construction alternatives with cost savings in mind.
- Worked with regional personnel to ensure proper equipment was installed at key gages for OSE personnel use.
- Met with staff from the Carlsbad office to obtain historical information on Blue Springs and to review field measurement procedures at gaging stations below Avalon Dam

#### Army Corps of Engineers (ACE)

- Coordinated with ACE staff to ensure stream gages maintained by the ACE were equipped with the proper equipment so OSE personnel could obtain require access to gaging information.
- Communicated reasoning for the continuation of the Pecos River Above Santa Rosa Lake stream gage to ACE Senior management.
- Worked with ACE staff to obtain historical data from their operation of the Santa Rosa Dam. This information was required for the Pecos River operations model.

#### Office of the State Engineer, Roswell

- Performed inspections of the Black River system with the Pecos River Water Master. This provided an overview of the River Master's duties and a visual observation of the area for inclusion in recommendations of the Willow Lake water right purchase.
- Obtained key data for the Willow Lake analysis from the Water Master and his staff.

#### ***Water Resource Specialist III, New Mexico Interstate Stream Commission, Santa Fe, NM September 1998 to January 1999***

- Performed hydrologic studies of the Pecos and Rio Grande River systems. These analyses were generally based on mass balance approaches. Some advanced hydrological principles were employed to develop better understanding of groundwater and surface water interactions.
- Responsible for preliminary calculations on the Rio Grande Compact.

**Graduate Assistant, New Mexico State University, Las Cruces, NM  
January 1997 to August 1998**

- Responsible for the design and construction of a pilot scale, biphasic bio-reactor system. The design requirements included a leachate recirculation system from a solid phase (8 cubic yard) to an anaerobic filter system (two 10 ft x 1 ft columns), design and install a closed loop leachate transfer system, and develop inline sampling for flow rate, pH, temperature, and ORP.
- Developed sampling strategies to monitor the system's pH, ORP, COD/BOD, volatile fatty acids, gas production rate, temperature, and gas composition.
- Designed and implemented a solid waste characterization of Las Cruces residential MSW, including composition and chemical analysis.
- Developed and implemented daily operation procedures to increase gas production and purity, as well as control system from souring.

**Staff Environmental Engineer, Environmental Planning and Management, Lake Success,  
New York  
May 1996 to December 1996**

- Conducted Phase I Environmental Site Assessments at industrial and commercial sites throughout the New York City metropolitan area. This required a thorough knowledge of environmental, health, and safety regulations at the Federal, State and Local Level. The work included performing a site inspection, developing historical information of the site and surrounding area and preparation of final reports.
- Project manager for Phase II projects. These projects consisted of subsurface soil investigations, bulk storage tank closures and management programs, hazardous material management and soil/groundwater remediation projects. Responsible for site characterization, project design and implementation.
- Responsible for developing format of Phase I reports.
- Provided review of junior staff's Phase I work.

**Staff Engineer, Eder Associates, Locust Valley, New York  
August 1995 to May 1996**

- Conducted Phase I Environmental Site Assessments at industrial and commercial sites throughout the New York City metropolitan area as well as through out the United States and at a few selected sites in Europe. Additionally, was tasked with reviewing more complex sites, including heavy industrial and mining facilities. This required a thorough knowledge of environmental, health, and safety regulations at the Federal, State and Local Level and international approaches to these issues. The work included performing a site inspection, developing historical information of the site and surrounding area and preparation of final reports. Additionally, some of the more complex sites required managing a team of inspectors.
- Preparing a template for multi-state Phase I projects. This required a full understanding of liability issues within many jurisdictions.
- Project manager for Phase II projects. These projects consisted of subsurface soil investigations, bulk storage tank closures and management programs, hazardous material management and soil/groundwater remediation projects. I was responsible for site characterization, project design and implementation. Worked on projects associated with characterizing active rail yards for CSX Rail Road. These responsibilities included developing sampling plans, developing data tracking and managing systems.
- Responsible for inspection and recording of tracking documentation of hazardous material transport vehicles leaving remediation sites.

**Staff Environmental Engineer, Environmental Planning and Management, Lake Success,  
New York**

**January 1995 to August 1995**

- Conducted Phase I Environmental Site Assessments at industrial and commercial sites throughout the New York City metropolitan area.
- Project manager for Phase II projects. These projects consisted of subsurface soil investigations, bulk storage tank closures and management programs, hazardous material management and soil/groundwater remediation projects. I was responsible for site characterization, project design and implementation. Worked on projects associated with characterizing active rail yards for the Long Island Rail Road. These responsibilities included developing sampling plans, developing data tracking and managing systems.
- Developed format of Phase I reports.
- Provided review of junior staff's Phase I work.

**Staff Environmental Engineer, EE&G, Yonkers, New York  
December 1992 to December 1994**

- Conducted Phase I Environmental Site Assessments at industrial and commercial sites throughout the New York City metropolitan area.
- Project manager for Phase II projects. These projects consisted of subsurface soil investigations, bulk storage tank closures and management programs, hazardous material management and soil/groundwater remediation projects. I was responsible for site characterization, project design and implementation.

**EDUCATION**

Bachelor of Science in Civil Engineering (1992), Concentration – Environmental Engineering, State University of New York at Buffalo

Master of Science in Environmental Engineering (1999), New Mexico State University

**CERTIFICATIONS**

Professional Engineer, License # - 17161

**EXPERT TESTIMONY**

State of New Mexico, County of Chaves, Fifth Judicial District Court – Berrendo Cooperative Water Users Association v. New Mexico State Engineer – Testified on subject matter of Water Use and Conservation, including deposition testimony.

Before The New Mexico State Engineer -- In The Matter Of The Application By New Mexico Utilities, Inc., For Permit To Adjust The Appropriation Of The Underground Waters Within The Rio Grande Underground Water Basin In The State Of New Mexico, H.U. No. 06-021, OSE File No. RG-4462 S-14 Thru RG-4462-S-82 – Testified on subject matter of Water Use and Conservation.

**RECENT PUBLICATIONS**

Memorandum, April 19, 2006 -- Berrendo Cooperative Water User's Association, OSE File No. RA-130 et al

Rebuttal Memorandum, May 17, 2006 -- Berrendo Cooperative Water User's Association, OSE File No. RA-130 et al

Memorandum, February 5, 2007 -- City of Alamogordo Desalination Application

Memorandum, July 3, 2007 – New Mexico Utilities, Inc., Water Conservation Plan 2007

Memorandum, July 3, 2007 – New Mexico Utilities, Inc., Franchise Agreement

Memorandum, undated, circa February 2007 – Review of New Mexico Utilities 40-year Water Development Plan

John Longworth and John Carron, Surface Water Hydrology of the Pecos River, Water Resources of the Lower Pecos Region, NM, Decision Makers Field Conference 2003

John Longworth and John Carron, Overview of Water Operations in the Pecos River Basin, Water Resources of the Lower Pecos Region, NM, Decision Makers Field Conference 2003

Peggy Barroll, Eric Keyes, John Longworth, and Bhasker Rao, Modeling Hydrologic and Water Operations in the Pecos River Basin, Water Resources of the Lower Pecos Region, NM, Decision Makers Field Conference 2003

Longworth, John, et. al (2008). New Mexico Water Use by Categories 2005, Technical Report 52. NM Office of the State Engineer

Maritza Macias-Corralla, Zohrab Samania, Corresponding Author Contact Information, E-mail The Corresponding Author, Adrian Hanson<sup>a</sup>, Geoffrey Smith<sup>b</sup>, Paul Funk<sup>c</sup>, Hui Yua and John Longworth, *Anaerobic digestion of municipal solid waste and agricultural waste and the effect of co-digestion with dairy cow manure*, Bioresource, Vol. 99, issue 17, scheduled for publication Nov. 2008

Samani. Bawazir, Bleiweiss, Skaggs, Longworth, Tran, Pinon, 2009. Using Remote Sensing to Evaluate the Spatial Variability of Evapotranspiration and Crop Coefficient in the Lower Rio Grande Valley, New Mexico. J. Irrig Sci