

RIO GRANDE CITIZENS FORUM
City of Las Cruces Council Chambers
Las Cruces, NM
October 11, 2018
*** Tentative Meeting Notes**

Board Members in attendance:

Walton Low, Retired, U.S. Geological Survey
Danny Chavez, Hudspeth County Conservation and Reclamation
Blanca Trout, Canutillo Independent School District
Mark Calamia, National Park Service
Kirk Clifton, National Hispanic Cultural Center
John Unruh, Retired, U.S. Geological Survey
Danny Chavez, Hudspeth County Conservation and Reclamation
Philip Partridge, Outdoor recreation enthusiast
Desiree Loggins, Audubon New Mexico (Alternate to Paul Tashjian)

USIBWC Staff in attendance:

Rosie Montes, Upper Rio Grande Area Operations Manager
Sally Spener, Foreign Affairs Officer, USIBWC
Lori Kuczanski, Public Affairs Officer, USIBWC
Dr. Apurba Borah, Lead Hydrologist, USIBWC

Members of the public in attendance:

29 members of the public were in attendance.

Welcoming Remarks:

At 6:30 PM, Walton Low made opening remarks. The meeting began with the first presentation by Dr. Phil King, Professor and Associate Department Head, Department of Civil Engineering, New Mexico State University (NMSU)

[Presentation One – Desalination of Brackish Water in the Southern Mesilla Valley: Preliminary Planning– Dr. King, PE, Ph.D., Professor and Associate Department Head, Department of Civil Engineering, New Mexico State University](#)

Dr. King explained the reason for this study of brackish water: persistent drought and a permanent shift to a more arid climate, highly interactive surface water and groundwater, long term policy issues, water is necessary for economic development, and litigation: Texas vs. New Mexico on the Rio Grande Project.

Dr. King explained the complication factor of the court case: Texas has filed suit against New Mexico in the U.S. Supreme Court claiming that withdrawal of ground water that is hydrologically connected to the Rio Grande has intercepted Texas water.

The groundwater is the supply source for most of the Lower Rio Grande municipal and industrial uses. The U.S. federal government has intervened on Texas' side, and New Mexico's Lower Rio Grande must diversify its water supply.

The U.S Bureau of Reclamation is funding \$400,000 plus there is a \$478,000 cost share with New Mexico Water Resources Research Institute from Jan. 2019 to Dec. 2020. Dr Pei Xu, Dr. Sam Fernald, and Dr. KC Carroll will be working on this project. The Geohydrologist is Dr. John Hawley, PG, and the hired consultant is Ed Archuleta, PE.

The overall project objectives are: Assess potential for brackish water desalination in the Santa Teresa area; Characterize source water and geohydrology, treatment technologies, and disposal alternatives; Explore binational potential for water supply to San Jeronimo in Mexico; and produce a Preliminary Engineering report and plan next steps. For the binational aspect, there is no groundwater treaty with Mexico. The binational aspect presents a unique dynamic for this project.

Collaborative Activities:

Advanced dialog with Universidad Autónoma de Chihuahua's Department of Civil Engineering colleagues as project collaborators, USIBWC collaboration, Seminar on hydrogeologic framework of the Mesilla Basin Region of New Mexico, Texas, and Chihuahua presented by Dr. John Hawley, January 9, 2018

Groundwater salinity is in the range of 1000 to 10,000 mg/l. They are looking to desalinate brackish groundwater of 2500 mg/l salinity. The research team believes there are 50 million to 60 million acre-feet of economically recoverable brackish water in the greater Santa Teresa region. They will also work through USIBWC, trying to build on the Transboundary Aquifer Assessment Program (TAAP) relationship.

There is a Mexican wellfield near Santa Teresa that sends water to Ciudad Juarez. It started around 2009. Salinity is increasing for the wellfield; also, the water is high in arsenic. With the operation of the Mexican wellfield, they saw immediate impact on groundwater on the U.S. side. A desalination plant would also remove arsenic.

He showed a map of geological features, including one area of groundwater that may be hydrologically separated from the river itself due to a high area in between this part of the aquifer and the river.

Pilot testing and demo updates:

Acquired pilot-scale test units from NMSU and they are planning to test a pilot-scale desalination system using reverse osmosis (RO) and nanofiltration (NF) membranes.

Walton Low: How deep are the wells?

Phil King: There are monitoring wells, stock wells, and railroad wells, about 350 feet total depth. Depth to water is a couple hundred feet.

Low: What are current recharge rates?

King: Extremely limited. This would essentially be a "mining" operation since the pumped groundwater would not be naturally recharged.

Low: What are the brine disposal alternatives?

King: Re-injection, possibly mining minerals from the reject water (El Paso Water is doing this). Evaporation ponds in the United States or at the nearby Mexican playa are other options.

It was discussed that the water produced would be too expensive for irrigation so it would be used for industrial purposes. There is industrial development on both sides of the border that could justify a desalination plant that could have a treatment capacity of 20 million gallons per day. The desalinated water would be blended with saline water to achieve an overall salinity of 500 mg/liter. For the testing phase, the researchers will use 4 gallons per minute over three months. The report will be produced in about two years and will be available to the public.

Presentation Two: Design and Construction of Rio Grande Channel Maintenance Alternatives for Sediment Control—Dr. Apurba Borah, Ph.D., PE, CFM, PMP, Lead Hydraulic Engineer, IBWC

The USIBWC's Rio Grande Canalization Project covers the area from Percha Dam, New Mexico to American Dam at El Paso, Texas. In this part of the Rio Grande, 486,000 to 500,000 cubic yards of sediment accumulate per year. The USIBWC removes about 180,000 cubic yards per year; nonetheless, the channel aggrades a few inches per year. Sediment accumulation can cause sediment plugs, islands, increased water surface elevation and flood risk, and impede agricultural return flows. One thing you can do is to dredge the riverbed. Because of environmental considerations, the USIBWC has restrictions on removing trees that grow on islands in the river channel. Most of the USIBWC's sediment control projects are in the area of Hatch, New Mexico.

A 2015 Tetra Tech study performed for USIBWC looked at sediment control alternatives with the following objectives:

1. Control the inflow of sediment into the Rio Grande mainstream
2. Conduct a pilot study for channel maintenance alternatives
3. Be accessible for maintenance and require little operational costs

Alternatives considered included long and short excavation at arroyo mouths, low-elevation spur dikes, sediment traps, screens, and others.

We selected two for our pilot project – Thurman I and Thurman II Arroyos. The problem is sediment accumulation in the Rio Grande downstream of the arroyo confluences. These two arroyos are tributaries of the Rio Grande, located within a portion of the Rio Grande Canalization Project protective levee system in Hatch, Dona Ana County, New Mexico. This is a 9,500-linear foot section of the Rio Grande, and construction of sediment basins with erosion protection, concrete walls, and drilled piers is planned.

Dr. Borah stated USIBWC has selected alternatives which are the sediment traps at the Thurman I and Thurman II arroyos and the localized channel excavation in the Rio Grande at the Thurman I and II arroyos.

The project objectives:

1. Prevent future sediment from entering the Rio Grande at Thurman I and II arroyos
2. Remove exiting accumulated sediment in the Rio Grande downstream of the confluence with the two arroyos

The size of the sediment traps/basins will be 5.3 acre-feet for Thurman I and 5.43 acre-feet for Thurman II with 9,000 cubic yards of capacity. USIBWC can only do construction in its right-of-way. There will be mitigation for any vegetation removed in the project area. The construction work was awarded to

Kirkland Construction from Rye, Colorado, in Sept. 2018 for \$4,843,651. The period of performance is 240 calendar days after the notice to proceed is issued.

In addition, the USIBWC is looking at a design-build contract for channel maintenance alternatives at the Placitas Arroyo mouth near Hatch. Another project is design and construction of long excavation of the Rio Grande from Rincon to Bignell Arroyos (3.46 miles) and channel maintenance structures at the Rincon and Reed Arroyos. These contracts are still pending.

It was explained that the USIBWC cannot do work outside of its right-of-way. For the Hatch area, the Village of Hatch is doing its own planning for the area upstream from the USIBWC right-of-way, which is at the arroyo mouth.

In response to a question about what the USIBWC does with the sediment, it was noted that it needs to be removed and deposited somewhere else. The USIBWC enters into no-cost agreements with landowners for sediment disposal sites. Interested landowners with property near the Rio Grande should contact USIBWC.

More details are available on the slides, or by contacting Dr. Borah.

Public Comment:

None

Board Discussion/Suggested Future Agenda Items

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Suggested Future Agenda Items:

- Lead in drinking water we consume and, in the Rio Grande, possibly by El Paso Water or Las Cruces Water
 - Environmental Issues along the river such as water quality, river channel, banks, vegetation, threatened and endangered species, habitats due to climate change)
- It was noted that USIBWC as an environmental mitigation program that could be discussed.
- Citizens Forum Board Members requested a field trip of various areas in El Paso and Las Cruces

The next meeting will be January 10, 2019 at USIBWC Headquarters in El Paso, Texas.

8:35 meeting adjourned.

*Meeting notes are tentative and summarize in draft the contents and discussion of Citizens Forum Meetings. While these notes are intended to provide a general overview of Citizens Forum Meetings, they may not necessarily be accurate or complete, and may not be representative of USIBWC policy or positions.