

Southeast Arizona Citizens Forum  
Cochise County Board of Supervisors  
Tubac Community Center  
September 13, 2018  
\*Tentative Meeting Notes

**Board Members in Attendance:**

John Light, USIBWC Nogales Area Operations Manager and Citizens Forum Co-Chair  
Yolanda Soto, Santa Cruz County Resident  
Jenny Neeley, Program Manager, Conservation Science, Pima County Office of Sustainability and Conservation  
James Mesa, Arizona State Parks and Trails, Water Resources Specialist  
Jacob Petersen-Perlman, University of Arizona Water Resources Research Center, Research Analyst  
Chuck Graf, Tucson Resident  
Barbara Escobar, Pima County, Regional Wastewater Reclamation Dept, Compliance and Regulatory Affairs Manager  
Dr. Firat Sever, Quake Wrap Inc, Environmental Engineer

**USIBWC Staff in Attendance:**

Alison Lamb, Administrative Services Clerk, Nogales Field Office  
Lorenzo Ortiz, Assistant Area Operations Manager, Nogales Field Office

**Members of the Public in Attendance:**

There were approximately 25 members of the public in attendance.

**Welcoming Remarks:**

At 5:00 pm, John Light, Co-Chair, convened the Citizens Forum meeting and called it to order. Mr. Light began the meeting with introductions, Board members first and then audience attendees. Mr. Light introduced the first presenter, Hans Huth.

**Presentation One: Source Characterization of Metals in Ambos Nogales Wastewater, Hans Huth, Hydrologist, Arizona Department of Environmental Quality:**

The presentation will be a summary of a project facilitated by the EPA Border 2020 program. This project wouldn't have happened without the generous support of Barbara Escobar with Pima County Wastewater, the City of Phoenix, USIBWC, who conducted monitoring on the U.S. side, and of course OOMAPAS (Nogales Sonora potable water and wastewater utility).

The area we will be talking about is Ambos Nogales (Nogales, AZ and Nogales, Son.), located in the Ambos Nogales Watershed which feeds into the Santa Cruz Watershed. Because the Nogales International Wastewater Treatment Plant (NIWTP) discharges into a water of the United States, specifically the Santa Cruz River, they are required to have an Arizona Pollutant Discharge Elimination System (AZPDES) permit. Nogales, Sonora contributes the majority of the wastewater being treated at the NIWTP. The effluent discharge is a very valuable resource as it makes up about 37% of the recharge. The USGS did a study on the value of the effluent from Nogales Sonora and came up with the contribution of real estate values is estimated at \$11 million; value of effluent for domestic water supply at \$1.61 million and the value of recharge to the Santa Cruz Active Management Area (SCAMA) is estimated to be at \$513,000. If you take away the real estate values and just look at the domestic water

and recharge value, 12 million gallons per day (MGD) of effluent is valued at \$2.1 million dollars per year that we get in receiving this water from Mexico.

OOMPAS received a grant in order to conduct the sampling in June. They collected samples from six industrial parks including Nuevo Nogales, Colinas, California, Elias, Tecnologico and Jesus Garcia and samples were collected simultaneously at manhole 1 by the USIBWC. Manhole 1 is located in the United States at the international boundary; it provides access to sewage arriving in the United States from Mexico. Mexico used three autosamplers that were rotated between the six sites over the course of 30 days. Mr. Huth showed a brief video of how the samples were collected in Nogales, Sonora. Once the samples were collected, they sent duplicates to Pima County and the City of Phoenix for analysis. After testing, it was discovered that Nuevo Nogales and Colinas had the highest levels of chromium, copper and nickel. Colinas showed the highest levels of zinc. These lab results correlated with the results that were taken by the IBWC at Manhole #1.

**Conclusions:**

During the month of June, there were intermittent levels of metals that were close to or exceeded guidance for protecting the NIWTP biosolids, microbiology and the effluent quality taken from samples at Manhole 1 (MH1). At the same time, monitoring conducted by OOMAPAS identified source industrial parks whose discharges correlated the metal loadings at MH1. It is believed that increased visibility by OOMAPAS collecting samples may have contributed to the lowest Nickel loadings at MH1 since 2012. The priority areas that OOMAPAS needs to focus the sampling on is Nuevo Nogales, specifically for chromium, copper and nickel, Colinas for chromium and zinc and California for chromium. Some of the recommended actions would be to investigate options for providing laboratory support to OOMAPAS to continue monitoring. Now that the sites have been identified, there is a need to find a solution to keep the metal levels down. Mexico currently does not have funding to do continuous monitoring which makes it difficult to see any spikes. They sample once per year with funds provided by the companies for their discharge permits. They don't have the funding, mandates or resources to do any further monitoring. Samples must be analyzed by a Mexican certified lab, so one option would be to purchase credits for OOMAPAS to use at certified labs in Mexico. One of the solutions currently being looked at is possibly finding labs in the United States who would be willing to run the analysis for free. The drawback is these labs are not certified in Mexico, so the results would have no validity in Mexico so that can't be used for compliance. A possibility there would be for Mexico to certify the U.S. labs.

**Questions and Answers:**

Q) To find source of metals, do you have testing before and after the plant to see what's in the sludge?

A) Yes, at Manhole 1 and the effluent. In an ideal world the difference is what would be in the biosolids.

Q) Where does the sludge go?

A) To a municipal landfill. It is tested before going and is not a biohazard.

Q) What is the mechanism for monitoring outfall of the landfill?

A) A landfill is required to have an Aquifer Protection Permit (APP).

Q) Many maquiladoras are U.S. based, is there any way for the parent company to work with them to prevent discharge?

A) EPA has engaged the parent company. They have no regulatory authority in Mexico but can highlight to the parent company to show them what the issues are.

Q) How much does it cost to operate the treatment plant?

A) About \$5.5 million dollars.

Q) Is there a plan to upgrade the treatment plant in order to treat the metals?

A) No, it makes more sense to me to go after the source.

Q) Arizona law makes a distinction of surface waters and ground water. Is the effluent considered surface or ground water?

A) Surface.

Q) Are we monitoring storm water flows as they come across?

A) The City of Nogales takes isolated samples.

Q) How can we move the recommendation along? Can we ask IBWC to study those recommendations and facilitate then report back to the board on where it stands? And can we report back on that next quarter?

A) Ask Co-Chairs Ben Lomeli or Rosanna Gabaldon to present this proposal to USIBWC Public Affairs Officer Lori Kuczmanski and/or the Commissioner.

Mr. Light then introduced the next presenters, Ms. Claire Zugmeyer and Mr. Ian Dowdy.

**Presentation Two: Ensuring the Health of the Binational Santa Cruz River, Claire Zugmeyer, Ecologist, and Ian Dowdy, Director of Sustainable Landscapes and Communities, Sonoran Institute:**

Ms. Zugmeyer began the presentation by introducing her co-presenter, Mr. Ian Dowdy.

Today we are going to share with you some of the work that we have been doing. We are going to look at the ecosystem more as a whole. Specifically, with the Santa Cruz work, we are trying to do four main things: Retain, Restore, Revitalize, and Reconnect. So many people see this river as a lost resource, and we don't see it that way, we see it as a living resource. Referenced is a map that the Nature Conservancy did in 2010 that shows all the riparian areas and rivers in Arizona. It's a small fraction of our landscape and they are very important for our wildlife, about 80 % of our wildlife use these areas at some point in their life. The map shows perennial year-round flows, formerly perennial flows, regulated and finally effluent-dominated flows. On the Santa Cruz River, we have been giving back to the river with the effluent from the treatment plant. Why should we care about the Santa Cruz? We have this rich heritage with the river in this region. We have a 12,000-year history and we have the record of the longest, continuous agriculture in North America, at least in the United States. Ms. Zugmeyer showed a slide of an artist's rendition of what the river used to look like near "A" Mountain in Tucson, AZ and a photograph from 1904 of the river at the same location. Two other pictures show the river near Tumacacori AZ in 2015 and near Ina Road in Tucson, AZ in 2014. Both of these stretches of the river are supplied with our highly-treated urban wastewater effluent.

This project came about because trees were dying off along the river, so the Sonoran Institute wanted to develop ways to track the health of the river.

The living river focuses on three reaches of the river starting at the Nogales treatment plant: Rio Rico, Tubac, and then Amado stretching north. It has been expanded to include the Tucson area.

There are several indicators that are used to determine the health of the river. Some of those identifiers include ammonia, which has been greatly reduced after the upgrade to the treatment plants, including the Tres Rios and Agua Nueva Water Reclamation Facilities in Tucson as well as the Nogales treatment plant. Several graphs were presented showing ammonia results from before and after the plant upgrade, with after showing hardly any traces of ammonia at all.

Another indicator that was selected was dissolved oxygen, which is very important to aquatic life and again was increased after the plant upgrade.

There is an annual fish survey with a variety of different entities, which has also been expanded to the Tucson area. Starting in 2008, the fish started coming back almost immediately after the plant upgrade. In 2015, it was discovered that the Gila Topminnow was back in the river.

A graph was presented of the miles of flow in the three reaches of the river in the month of June along with a graph of the effluent discharge. Another indicator that was used was riparian vegetation. A graph showing the maximum depth of groundwater in Rio Rico, Tubac and Amado was displayed, indicating the depth needed to sustain mature cottonwood trees. The groundwater has also helped with the life of the trees along some of these stretches of the river.

In conclusion, thanks to the upgrade of the Nogales treatment plant, the river health has improved, the flow extent is reduced and what do we see as a community vision? We also need to look at binational solutions, so we can maintain the health of the river for the communities and wildlife.

Ian Dowdy, Director of Sustainable Landscapes and Communities team, presented where they are going with the work they are doing in the next few years. The Santa Cruz River is a bi-national river that crosses the border two times. It should be noted that in the drier months of the year, the only reason there is surface flow in the river is due to the effluent of the Nogales treatment plant. You can't sustain any aquatic life if you don't have continuous flow in the river. It is very important to maintain the flow coming into the U.S. within the Santa Cruz River and to recognize the value of that water in both countries. Water is a very limited resource; the Sonoran Desert is broad, and it goes across both sides of the border. Mexico has the same challenges with water resources that we do so it is important to figure out in a collaborative way in the binational community. Water is very important to the economic development; this water is very important on both sides of the border. In order to have a dependable water supply here in the United States, we need to have some type of binational dialogue about these issues, including water quality, water quantity and address them in some way that respects the values of both sides of the border. That is something that the Sonoran Institute is working on and looking to expand significantly in the next couple of years.

Mr. Dowdy talked briefly on the International Outfall Interceptor (IOI), a pipeline that conveys U.S. and Mexican wastewater to the Nogales International Wastewater Treatment Plant. He said it is a challenge and it is understood that there is ongoing dialogue to address that. It is old and there have been breaches to that system in the last few years, so it is important to keep the dialogue going. In the drier period of the year we're relying on the effluent to provide surface flows in the Santa Cruz River. If we can do a better job here in Arizona on water conservation, we may be able to address that and provide more surface flow from naturally-occurring groundwater.

Another real need is habitat restoration. As we see water flows change, we see areas with less water and there might be opportunities for us to work in that area to help restore the habitat. In the future, we see it in the best interest to continue working with IBWC and Mexican agencies to develop the solutions. Some of the solutions could include: addressing water quality and flooding concerns in the Nogales Wash, Resolving the IOI issue, water conservation and the restoration of habitat.

**Questions and Answers:**

Q) Do you work in Mexico at all? For the Santa Cruz River?

A) Historically yes, currently no.

Q) How many miles of river are you working?

A) Flowing stretches, really from Mexico to Marana, AZ.

Q) Are you interested in tributary health?

A) Interested yes, tracking, not at this time.

Q) Does the Sonoran Institute agree with the value of the effluent from the first presentation?

A) We haven't studied that at all.

Q) Slides of the flows – are Arizona flows really going down?

A) We are looking into that as we really don't know.

Q) is there a correlation between decreases in water level flows and surface flow measure:

A) I don't have the answers to that, we look at trends independently.

**Public Comment:**

None

**Board Discussion/Suggested future agenda items:**

Q) I'm curious about plans to upgrade the IOI.

A): The design is in place.

Q) Has the issue of funding been resolved?

A) Funding issues are being addressed through USIBWC Headquarters.

Next meeting will be held in Pima County on December 6 at 5:00 pm at Pima County Water and Energy Sustainability Center. Rosanna Gabaldon will be chairing the meeting.

**Future Agenda Items:**

Update on Naco sanitation issues.

Update on the IOI. What is the status of the funding and the design?

*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.**