

## WATER ADMINISTRATION OVERVIEW – NEW MEXICO - October 12, 2005

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### Background

New Mexico follows the prior appropriation doctrine,<sup>1</sup> and has separate codes that deal specifically with surface water and ground water. Despite this separation, the Office of the State Engineer (described below) enforces the water code based on conjunctive management in areas where it is established that both surface and ground water are connected. Typically, senior surface water users are protected from impairment by junior ground water users. Central to New Mexico's definition of prior appropriation is that all appropriated waters must be put to beneficial use,<sup>2</sup> and that priority shall give the better right.

### *Ground water*

Ground water development and use can only be administered by the State Engineer in basins that have been declared to have hydrologically distinct, or legally speaking, 'reasonably ascertainable' boundaries.<sup>3</sup> Outside those areas, the State Engineer has no jurisdiction. Once a basin is declared, the State Engineer can then create administrative guidelines that outline how ground water is to be appropriated, or close portions of the basins in order to limit future use to prevent impairment of existing uses. Ground water overdraft is a serious problem in all border states. New Mexico was the first state on the border to confront this issue with adoption of the ground water code in 1931, primarily due to the relative scarcity of both surface and ground water available for use.

West of the Rio Grande, ground water is the primary source of water along the border. There are seven hydrogeologic basins that have binational aquifers; four of these basins have binational aquifers with the New Mexico portion subject to administration by the State Engineer.<sup>4</sup> These aquifers are located within two separate planning regions as defined by the New Mexico State Water Plan. The State Engineer only has authority over administration of the U.S. portion of the aquifer.

### *Surface water*

New Mexico is party to eight interstate compacts for surface water<sup>5</sup> that are considered federal law, where delivery requirements have priority over state-issued water rights.<sup>6</sup> Two of the rivers, the Rio Grande and the Colorado, are also subject to international water sharing treaties between the U.S. and Mexico.<sup>7</sup> New Mexico is working hard to meet its compact requirements due to many factors, including drought, over-appropriation of its surface waters, and impacts from ground water users. To complicate matters further, only some of the many basins in New Mexico have been adjudicated, making it difficult to administer priority to meet compact requirements. To help New Mexico meet compact requirements, the State Engineer is in the process of implementing administrative rules<sup>8</sup> that will allow him to enforce priority. In addition, the State Engineer has used his authority to regulate the appropriation of water in

declared ground water basins where junior ground water pumping may potentially impair senior surface water rights and at the same time, reduce compact deliveries.<sup>9</sup>

## Institutions

### *State Engineer*

The State Engineer, who is appointed by the Governor and confirmed by the Senate, has statutory authority to administer ground water in New Mexico's border region. For surface water in the border region, there are many layers of administration that primarily revolve around the Rio Grande. The State Engineer administers ground water connected to the Rio Grande in both the Hueco Bolson and Mesilla Underground Water Basins. Surface water used in this area is stored in New Mexico at Elephant Butte reservoir, which is operated by the U.S. Bureau of Reclamation. This water is delivered to the Elephant Butte Irrigation District in New Mexico and El Paso County Water Improvement District #1 in Texas. The Rio Grande is also subject to an interstate water-sharing agreement between Colorado, New Mexico and Texas.<sup>10</sup> The New Mexico Interstate Stream Commission administers the New Mexico portion of the agreement. On the international level, the Rio Grande is subject to a water-sharing treaty between the U.S. and Mexico that requires delivery of 60,000 acre-feet of water to Mexico. The treaty does, however, allow for sharing of shortage in times of drought.<sup>11</sup>

### *Water Quality*

With respect to regulating water quality, the New Mexico Environment Department (NMED) sets water quality standards for surface water, ground water and drinking water as required by the EPA through the New Mexico Environmental Improvement Board (NMEIB) and the New Mexico Water Quality Control Commission (NMWQCC).<sup>12</sup> The NMED is in charge of regulating septic systems and agricultural wastes, which according to the NMED are the greatest threats to ground water quality in the border region.<sup>13</sup> The Surface Water Quality Board (SWQB) is in charge of regulating discharge permits and establishing total maximum daily load (TMDL) standards for impaired streams. There are no TMDLs established for the lower Rio Grande in New Mexico.

## Programs and Initiatives

### *Local*

Local programs and initiatives in the border region include the Paso del Norte Task Force, a non-governmental organization (NGO) that consists of many citizens and professionals from New Mexico, Texas and Chihuahua in the area where the Rio Grande defines the state and international boundaries. This group attempts to understand the complex surface and ground water issues facing their part of the border region.<sup>14</sup> The Southwest Center for Environmental Research and Policy (SCERP) is a non-governmental organization that has spent some time assessing ground water quality and socioeconomic conditions in New Mexico border towns. Their projects research areas on both sides of the border and bring in expertise from local, state and federal institutions to help in the assessment process.

### *State*

At the state level, there are many programs available to assist those in the border regions. One entity, the Water Trust Board, provides grants for water projects to state and local governments and non-governmental organizations. The New Mexico Border Health Council is another group that works with border communities to help determine and provide assistance for specific public health needs.<sup>15</sup> Issues such as drinking water quality and sanitation are addressed by this council. In addition, the New Mexico/Chihuahua Border Commission Water Table focuses on water issues shared by the two states.

### *Federal*

At the federal level, there are a variety of programs available to help border communities. The International Boundary Water Commission (IBWC) is the main body used to implement treaties and subsequent ‘minutes’ that describe formal agreements between both countries about water supply and water quality. The IBWC also provides funding for assessment studies. The environmental side agreement of the North American Free Trade Association (NAFTA) set up the Border Environmental Cooperation Commission (BECC) and helps fund infrastructure projects for water delivery and wastewater treatment for border communities through the North American Development Bank (NADB). The USDA Rural Development-Colonias program grants money to help border communities with their water supply and fund wastewater treatment projects. The EPA’s Border 2012 program attempts to work with border communities in both the U.S. and Mexico for many environmental needs, including surface and ground water quality. The implementing agency for Border 2012 in New Mexico is the NMED.<sup>16</sup> The emphasis in Border 2012 is for a more ‘decentralized’ process that is the latest iteration as the U.S. and Mexico are attempting to implement the 1983 La Paz Agreement. In addition, the Good Neighbor Environmental Board operates through the EPA and sends yearly reports to Congress and the President about environmental issues on the border. In 2005, the focus was on water resources management. In the years leading up to this report, the board would meet many of the local communities on the border and hear presentations about problems facing that particular border community.

### Issue Identification

#### *Mimbres Valley Basin*

The Mimbres Valley Basin is one of the largest ground water basins in southwestern New Mexico with an area of approximately 2.3 million acres.<sup>17</sup> The most recent research about this area was compiled in 2005 as part of the Southwest New Mexico Regional Water Plan. This basin extends south past the international border where the town of Palomas, in the State of Chihuahua, is located. Just north of the border is the U.S. town of Columbus, and underlying both towns is one of the largest transnational aquifers in southwestern New Mexico.<sup>18</sup> In 1997, the Southwest Consortium for Environmental Research and Policy (SCERP) conducted a binational study to understand the socio-economic status of both Columbus, New Mexico and Palomas, Chihuahua.<sup>19</sup> The study used surveys to gain information about demographic trends, water use, and to understand peoples’ attitudes towards water. In addition, the survey found that on both sides of the border, there was a high willingness to cooperate with

citizens from the neighboring country on water resource issues. The SCERP group found that besides gathering more data about water resources of the region, the main challenge for both communities is to figure out how to come up with an international water sharing plan that would include all levels of government and the local citizens.<sup>20</sup>

Much of the ground water in this alluvial aquifer that is not intercepted by pumping at the international border ends up discharging into ‘closed-basin’ shallow playa lakes in the Bolson de los Muertos, located at the southern end of the Mimbres Valley Basin in Mexico.<sup>21</sup> Most of the agricultural production in this basin is south of Deming near the Mimbres River where some surface water is utilized, although ground water accounts for over 75% of the water used for agriculture.<sup>22</sup> Regional ground water flow in the Mimbres Valley Basin is north to south, however ground water pumping near Columbus, New Mexico has changed flow in the border area from south to north.<sup>23</sup> Drawdown for the aquifer is currently estimated at 3 feet per year, and by 2040, the well-field will be unable to meet demand.<sup>24</sup> The most recent assessment about the ground water budget in the Mimbres Basin shows that there is almost 1/3 more outflow (use) than there is inflow (recharge).<sup>25</sup>

According to Cibas (2004), among other issues in the Mimbres Basin, the absence of a conjunctive surface water regime, similar economic issues, one shared source of ground water, and similar laws in New Mexico and Chihuahua that speak to the ‘public’ nature of ground water make this basin a good candidate for binational cooperation.<sup>26</sup> Currently, the only binational effort in this area that is attempting to address this transboundary aquifer is through the EPA’s Border 2012 initiative. This initiative is focused on decision making at the local level, and through it, the Mimbres Valley Task Force was created<sup>27</sup> to help border residents with transboundary water quality and infrastructure concerns.

Both communities are utilizing money from various federal funding sources to protect water quality by improving their water and wastewater systems. When this step is completed, the next logical step would be starting dialogue on how both countries can work together to protect the sustainability of this resource.

#### *Transboundary Aquifer Assessment Act*

An important tool that could help both Columbus and Palomas, as well as all the other border states including those in Mexico is The United States-Mexico Transboundary Aquifer Assessment Act S. 214 (H.R. 469). This bill was introduced to Congress by Senator Jeff Bingaman (D-NM), and co-sponsored by Jon Kyl (R-AZ) and Pete Domenici (R-NM). This bill will “authorize the Secretary of the Interior to cooperate with the States on the border with Mexico and other appropriate entities in conducting a hydrogeologic characterization, mapping, and modeling program for priority transboundary aquifers....”<sup>28</sup>

The main purpose of the bill is to gain a better understanding of the hydrogeology of the many transboundary aquifers on both sides of the border. Much of the assessment work has been done on the U.S. side but little is known about aquifers on the Mexican side.<sup>29</sup> The bill calls for setting up a priority system for each aquifer primarily based on “the proximity of the transboundary aquifer to areas of high population density,” “the extent to which the transboundary aquifer is used,” and “the susceptibility of the transboundary aquifer to contamination.”<sup>30</sup> This bill mentions three ‘priority

transboundary aquifers' that will receive immediate funding and research, and includes the Hueco Bolson and Mesilla aquifers that underlie New Mexico, Texas and Mexico, and the Santa Cruz River Valley and San Pedro aquifers that underlie both Arizona and Mexico.<sup>31</sup> The most recent markup of the bill calls for an appropriation of 50 million dollars for the fiscal years of 2006 to 2015, with half of the money likely going to the USGS and the other half going to the state water resources research institutes, which will in turn provide funding for research conducted by state agencies, Sandia National Laboratories, the Tri-Regional Planning Group, and agencies in Mexico.<sup>32</sup>

Eighteen transboundary aquifers underlie the international border between the U.S. and Mexico.<sup>33</sup> The current situation hindering our understanding of transboundary aquifers is due to a patchwork of studies that has focused most of the assessment on the U.S. side of the aquifer with little known about water quality or quantity on the Mexican side. These 18 aquifers will benefit greatly if this legislation is enacted. Once an assessment is complete, informed decisions could then be made to help protect sensitive aquifer recharge areas that are susceptible to contamination, and attempts could be made to coordinate ground water pumping between both countries based on realistic estimates of the transboundary aquifer's life-span. Sharing data between both countries would be a first step that allows decision makers on both sides of the border access to the same information.

An existing data-sharing tool which can be used is the Sandia National Laboratories water portal.<sup>34</sup> This platform could be used by both countries to post results of studies or current data that would be useful to decision makers, and to help inform the general public who wants to know more about border water issues. This could be an invaluable tool for those involved with implementation of the Act.

The Bingaman bill has the potential to help all U.S. and Mexico border states with the assessment of their transboundary aquifers. As population increases in the border areas, the need to understand and protect scarce water resources to the benefit of those on both sides of the border is great. A joint resolution in support of this bill by all ten border states may provide the needed impetus to ensure passage by Congress.

### **Institutions and web sites**

Border Environmental Cooperation Commission – <http://www.cocef.org/ingles.php>  
North American Development Bank – <http://www.nadbank.org/>  
U.S. Environmental Protection Agency: Border 2012 - <http://www.epa.gov/border2012/>  
USDA Rural Development Program – <http://www.rurdev.usda.gov/>  
Good Neighbor Environmental Board – <http://www.epa.gov/ocem/gneb-page.htm>  
New Mexico Office of the State Engineer and Interstate Stream Commission – <http://www.ose.state.nm.us>  
New Mexico Environment Department – <http://www.nmenv.state.nm.us/>  
New Mexico Water Resources Research Institute – <http://wrri.nmsu.edu/>  
New Mexico Border Health Council – <http://www.nmsu.edu/~bho/>  
Southwest Center for Environmental Research and Policy – <http://www.scerp.org/>  
Paso Del Norte Task Force – <http://www.sharedwater.org/>  
Sandia Water Portal – <https://waterportal.sandia.gov>

- <sup>1</sup> The New Mexico water code was enacted in 1907 when New Mexico was a U.S. Territory. Statehood was achieved later in 1912.
- <sup>2</sup> Beneficial use shall be the basis, the measure and the limit of the right to the use of water. N.M. Const. Art. XVI § 3., N.M. Stat. Ann. § 72-1-2., and NMAC § 19.26.2.7(D).
- <sup>3</sup> N.M. Stat. Ann. § 72-12-1.
- <sup>4</sup> The Mesilla basin aquifers are conjunctively administered by the State Engineer as part of the declared Lower Rio Grande Underground Water Basin. Surface water rights in this basin are currently being adjudicated. This basin extends into the state of Texas and also into Mexico. (Terracon, et. al., *The New Mexico Lower Rio Grande Regional Water Plan*, 5-56, 8-198. August 2004. Available at: <http://wrri.nmsu.edu/lrgwuo/rwp.html> Accessed 16 September 2005). The Hueco bolson aquifer extends across the U.S.-Mexico boundary and is used primarily by Alamogordo, New Mexico, El Paso, Texas and Ciudad Juarez, Chihuahua. The New Mexico portion of the basin has also been declared by the State Engineer as the Hueco Underground Water Basin. Currently, the guidelines regarding appropriation of ground water are not as strict as those in the neighboring Mesilla basin (*id.* at 8-198, 5-64). The Mimbres basin has a binational aquifer, with the New Mexico portion declared by the State Engineer as the Mimbres Valley Underground Water Basin. (Daniel B. Stephens & Associates, Inc. (2005) *Southwest New Mexico Regional Water Plan – Volume 1*, 5-52, -53. May 2005. Available at: <http://www.ose.state.nm.us/water-info/NMWaterPlanning/regions/SouthwestNM/southwestnm-menu.html>. Accessed 9 September 2005). The Hachita-Moscicos ground water basin includes the western portion of the Mimbres declared basin within its boundaries. The southern half of the Hachita-Moscicos is in Mexico. This aquifer has undergone little development (*id.* At 5-50, -52). The Playas-San Basilio basin has a binational aquifer, with the New Mexico portion declared by the State Engineer as the Playas Underground Water Basin. The southern extent in Mexico is called the San Basilio basin (*id.* at 5-49 to 51, 4-29). The Cloverdale sub-basin of the Animas ground water basin has a binational aquifer. The State Engineer has not declared any basins within the Cloverdale sub-basin that have a binational aquifer (*id.* at 5-46 to -48, 4-29). The State Engineer has not declared any portions of the San Simeon ground water basin that have a binational aquifer (*id.* at 5-45).
- <sup>5</sup> Information about Interstate compacts in New Mexico can be found at <http://wrri.nmsu.edu/wrdis/compacts/compacts.html> Accessed 25 August 2005.
- <sup>6</sup> *Hinderlider v. La Plata River & Cherry Creek Ditch Co.*, 304 U.S. 92 (1938).
- <sup>7</sup> Convention between the United States and Mexico, Equitable Distribution of the Waters of the Rio Grande (1906)
- <sup>8</sup> NMAC §§ 19.25.13 and 26.2. These rules are also termed by the State Engineer as “Active Water Resource Management.” Priority basins identified in these rules that have binational aquifers, and are declared underground water basins by the State Engineer include the Mimbres basin and Lower Rio Grande basin.
- <sup>9</sup> New Mexico State Engineer Middle Rio Grande Administrative Area Guidelines for Review of Water Right Applications (2000). Available at: <http://www.ose.state.nm.us/doing-business/mrgbasin/mrgbasin.html> (Accessed August 24, 2005). These guidelines are the result of litigation between the City of Albuquerque and the State Engineer dating back to 1956.
- <sup>10</sup> The Rio Grande Compact can be found at <http://wrri.nmsu.edu/wrdis/compacts/Rio-Grande-Compact.pdf> Accessed 30 September 2005.
- <sup>11</sup> See *supra*, note 7.
- <sup>12</sup> See <http://www.nmenv.state.nm.us/eib/index.html> and <http://www.nmenv.state.nm.us/wqcc/index.html> Accessed 30 September 2005.
- <sup>13</sup> Available at: <http://river.nmsu.edu/NMED/Ground%20Water.htm> Accessed 16 September 2005.
- <sup>14</sup> Paso del Norte Water Task Force. Information is available at <http://www.sharedwater.org/> Accessed 30 September 2005.
- <sup>15</sup> Information about the New Mexico Border Health Council is available at <http://www.nmsu.edu/~bho> Accessed 30 September 2005.
- <sup>16</sup> The NMED has a brief writeup about its role with Border 2012. Available at: <http://river.nmsu.edu/NMED/border2012.doc> Accessed 30 September 2005.
- <sup>17</sup> See *Southwest New Mexico Regional Water Plan*, *supra* note 10 at 5-44.
- <sup>18</sup> New Mexico Water Resources Research Institute, New Mexico State University, and California State University, Los Angeles *Trans-International Boundary Aquifers in Southwestern New Mexico*, 1-2. March 2000. Prepared for the U.S. EPA and IBWC-U.S. Section. Available at: <http://wrri.nmsu.edu/publish/otherrpt/swnm/pdf/downl.html>. Accessed 31 August 2005.
- <sup>19</sup> Southwest Center for Environmental Research and Policy, *Water Quality on the U.S.-Mexico Border: An Assessment of the Mimbres Basin Aquifer and the Region Surrounding Columbus, New Mexico, USA and Puerto Palomas, Chihuahua, Mexico*. Final Report – SCERP Project No. PP96II-19. 128pp. + appendices. Available at: <http://www.scerp.org/projects/Tanski.pdf> Accessed 30 September 2005.
- <sup>20</sup> *Id.* at 123.
- <sup>21</sup> See *supra* note 20 at 40.
- <sup>22</sup> *Id.* at 32.
- <sup>23</sup> *Id.* at 39. See *Southwest New Mexico Regional Water Plan*, *supra* note 10 at 5-75 (Figure 5-20). This figure illustrates the density of wells located on the U.S.-Mexico border.
- <sup>24</sup> *Id.* at 5-79.
- <sup>25</sup> *Id.* at ES-12, 7-8 (Table 7-1).
- <sup>26</sup> Cibas, Gedi, et. al., *Ground Water Management in the Mimbres Basin: A Possible Model for the U.S.-Mexico Border Region*, 2004. Unpublished. On file with author.
- <sup>27</sup> *Id.*
- <sup>28</sup> S. 214 Senate Report No. 109-17 at 1. United States-Mexico Transboundary Aquifer Assessment Act, March 7, 2005. Available at: <http://thomas.loc.gov/cgi-bin/cpquery/z?cp109:sr017>: Accessed 7 September 2005. This bill was originally introduced to the 108<sup>th</sup> Congress as S. 1957 (H.R. 469) on November 25, 2003 by Senator Jeff Bingaman, and co-sponsored by Senators Pete Domenici (R-NM) and Jon Kyl (R-AZ). The bill passed the Senate on September 15, 2004 but was not reviewed by the House of Representatives before the end of the 108<sup>th</sup> Congress. The bill was reintroduced by Senator Bingaman at the beginning of the 109<sup>th</sup> Congress as S. 214

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(H.R. 469) on January 31, 2005 where it was reviewed and passed the Senate on July 26, 2005. Currently, the bill is being reviewed by the House Resources Water and Power Subcommittee.(as of 9/30/05)

<sup>29</sup> *Id.* at 1.

<sup>30</sup> S. 214 at 5. 109<sup>th</sup> Congress, submitted to the Committee on Resources July 27, 2005. Available at: <http://thomas.loc.gov/cgi-bin/query/z?c109:S.214>: Accessed 30 September 2005.

<sup>31</sup> *Id.* at 7.

<sup>32</sup> *Id.* at 10. The Tri-Regional Planning Group consists of the Junta Municipal de Agua y Saneamiento de Ciudad Juarez, the El Paso Water Utilities Public Service Board, and the Lower Rio Grande Water Users Organization, at 4.

<sup>33</sup> Mumme, Stephen J., *Minute 242 and Beyond: Challenges and Opportunities for Managing Transboundary Groundwater on the Mexico-U.S. Border*, 40 NAT. RESOURCES J. 341, 363-77 (2000).

<sup>34</sup> The water portal is on-line and available at <https://waterportal.sandia.gov/>. Accessed 16 September 2005.