

2016

# Water Protection Advisory Board

## **ANNUAL REPORT FOR 2016**

SUBMITTED TO THE  
ALBUQUERQUE CITY COUNCIL  
BERNALILLO COUNTY COMMISSION  
AND THE  
ALBUQUERQUE BERNALILLO COUNTY WATER UTILITY  
AUTHORITY GOVERNING BOARD

# Annual Report

2016

Prepared by the  
Albuquerque and Bernalillo County  
Water Protection Advisory Board

## Members:

Jennifer A. Thacher, Chair  
J. Steve Glass, Vice Chair  
Elizabeth H. Richards, Ph.D., (former)  
Michael J. Bitner, P.G. (former)  
John S. Derr, Ph.D.  
Kerry J. Howe, Ph.D.  
Stephanie J. Moore, P.G. (former)  
Russel D. Pederson, P.E.  
Caroline Scruggs, Ph.D.  
Erik K. Webb, Ph.D. (former)

This report presents an overview of the Water Protection Advisory Board's (WPAB) areas of focus, activities, and accomplishments during calendar year 2016. In addition to summarizing WPAB activities, this report offers a list of the threats to water quality in the basin 2016.

## **Background**

Starting in 1988, the City of Albuquerque (City) and Bernalillo County (County) passed resolutions calling for action to clean up and protect the Middle Rio Grande's (MRG's) shared groundwater resources. After five years of planning and research, the Albuquerque/Bernalillo County Ground-Water Protection Policy and Action Plan (GPPAP) was adopted by the County in November 1993, by the City in August 1994, and subsequently by the Albuquerque Bernalillo County Water Utility Authority (Water Authority) after its creation in 2003.

GPPAP was updated and revised in 2009 to include surface water quality protection activities, resulting in a single Water Quality Protection Policy and Action Plan (WQPPAP). The WPAB was established by parallel City, Authority, and County ordinances and is made up of citizen members appointed by those governments. Policy Implementation Committee (PIC) member agencies work to provide solutions to improving public health, protect the environment, engineer water quality and enhance area residents' quality of life.

The WPAB was charged with studying surface and groundwater protection concerns and advising the City, the Authority, and the County accordingly. The WPAB was also tasked with overseeing implementation of the Groundwater Protection Policy, including conducting periodic reviews and evaluations of the effectiveness of the Groundwater Protection Policy and Action Plan and recommending any necessary changes to it. Figure 1 shows the WQPPAP planning area within the MRG basin. The planning area corresponds to the watersheds that either lie within or cross the Bernalillo County border.

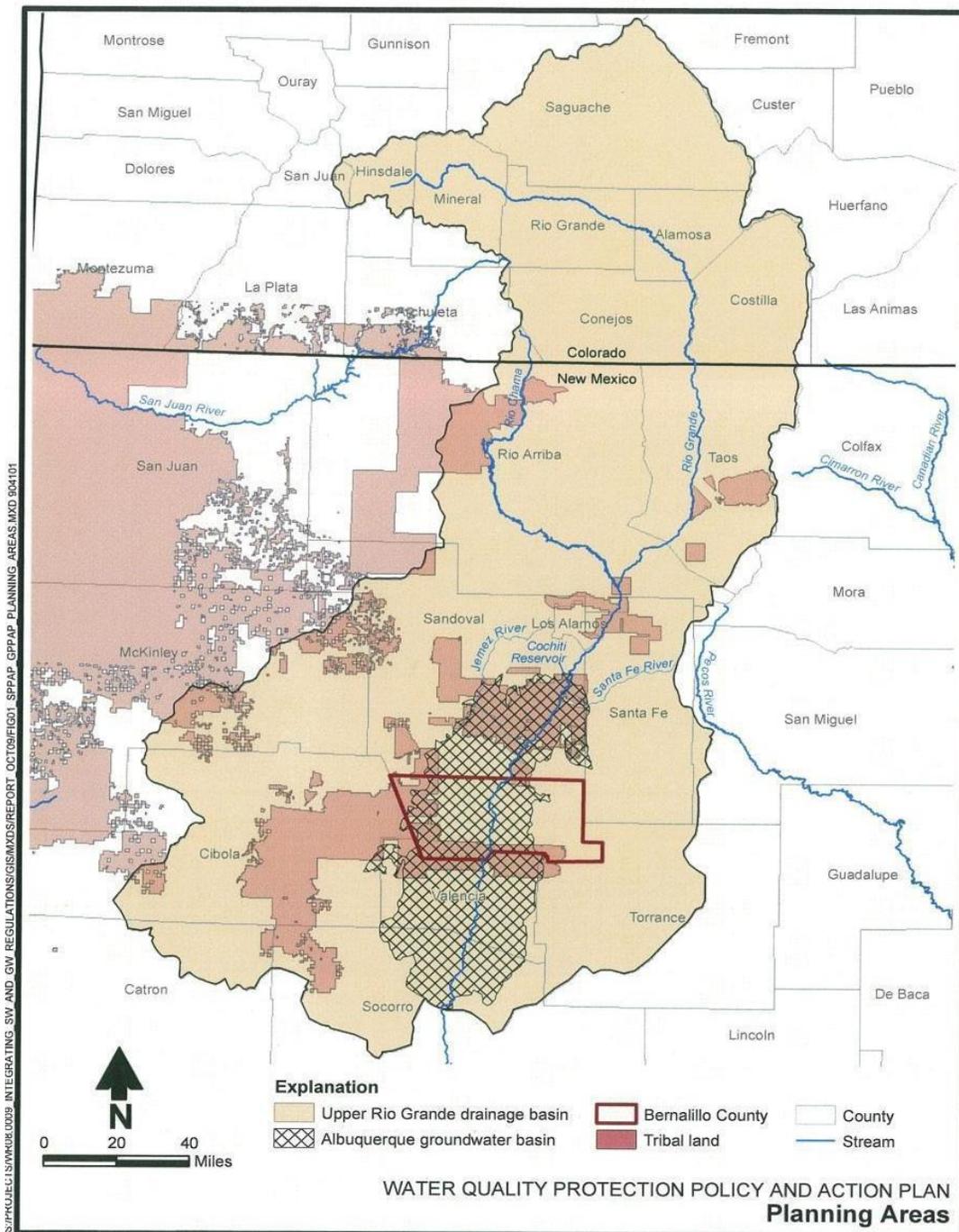


Figure 1

Figure 1. The WQPPAP Planning Areas include the Albuquerque groundwater basin and the Upper Rio Grande surface water drainage basin.

The purpose of the WPAB as established by ordinance is to:

- Study and advise the Authority, City, and County on surface and groundwater protection concerns;
- Oversee implementation of the Water Quality Protection Policy and Action Plan;
- Promote consistency in Authority, City, and County actions to protect surface and groundwater quality; and
- Advocate effective protection of surface and groundwater quality.

The WPAB consists of nine members, two appointed by the Water Authority, three appointed by the Mayor with the advice and consent of the City Council, and three appointed by the County Commission. One member is appointed jointly by the County Commission and the Mayor with the advice and consent of the City Council. A summary of the current members' qualifications is located in Appendix A.

A Policy Implementation Committee (PIC), comprising of members from several organizations with water quality protection programs in the region, is responsible for implementing the WQPPAP. The PIC also helps the WPAB fulfill its purpose through technical assistance, administrative services, and staffing resources. Core PIC entities and agencies that implement activities related to the WQPPAP, in addition to other environmental and public health services, include:

Albuquerque Bernalillo County Water Utility Authority

- Compliance Division
- Water Resources Management Division

Bernalillo County

- Natural Resource Services

City of Albuquerque

- Environmental Health Department
- Stormwater Management Section

## Water Protection Advisory Board Activities for 2015

The WPAB is required to hold meetings at least once a quarter, but usually holds meetings on the second Friday of each month, addressing specific water quality concerns included on an agenda agreed to by the board members. The board receives much of its information from formal presentations by government agencies or environmental advocates conducting investigations or outreach activities on topics of interest. In 2015, the WPAB meeting agenda topics included presentations in the following areas, consistent with the board's established priorities for the year:

- I. Protection of groundwater quality in the Albuquerque Basin;
- II. Protection of surface water quality and Watershed Health, and;
- III. Foster intergovernmental coordination, cooperation, and communication.

Below is a summary of significant action items taken by the board and technical presentations heard by members during the 2014 calendar year.

### JANUARY – NO MEETING WAS HELD

### FEBRUARY

#### Board Actions

Members elected Dr. Beth Richards and Dr. Jennifer Thacher to serve as the 2016 the WPAB Chair and Vice Chair, respectively. Members also passed their Open Meetings Resolution for the 2016 year and discussed the drafts for the 2015 Annual Report, 2016 Work Plan and Presenter Schedule, and water-related legislation that was introduced during the 2016 state legislative session.

### MARCH

#### Presentation Summary

Dr. Bruce Thomson, UNM Civil Engineer and Water Resources Program Professor Emeritus, provided the board with a presentation on the history and application of hydraulic fracturing (or “fracking”) in the oil and gas industry and in New Mexico. Dr.

Thomson told the board that fracking is a technique employed on oil and gas wells, which is a one-time operation for each well, since 1947. Dr. Thomson added that ninety-percent of the oil and gas wells in the state have been fracked.

Dr. Thomson suggested to the board that the current interest and concerns about fracking are related to the amount of water used by fracking operations on horizontal drilling, the spills and mismanagement of the disposal of produced water and drilling wastes, and the earthquake clusters associate with the disposal of oil and gas waste water / produced water through injection wells. Dr. Thomson added that as a general rule in New Mexico, every gallon of oil produced is accompanied by 8 gallons of native water.

Dr. Thomson shared that most investigations on fracking's effect on water supplies conclude that there is no impairment directly caused by fracking, but oil and gas activities occurring at the surface are the source of contamination to nearby water supplies. Dr. Thomson concluded that continued vigilance is warranted, because fracking activities are not without risks.

In addition, A discussion was held between the Board and PIC members on the potential impacts of household hazardous waste disposal at the landfill that concluded there would be minimal potential impacts to water since the landfill has a liner system, landfill gas extraction system, and groundwater is at a depth of over 700 feet at the landfill.

A short discussion was held on mandatory household hazardous waste recycling verses the current voluntary program. The board also discussed whether or not the members would desire a presentation on the monitoring of the Cerro Colorado Landfill and other closed landfills that may have received hazardous waste.

### Discussion Summary

Board members discussed the potential threat to drinking water supplies, the source of environmental contamination and spills at oil and gas sites, and having Dr. Thomson present during another meeting on the oil and gas activities in the Middle Rio Grande Basin. Additional presentations on oil and gas and fracking were also requested by the board.

## **APRIL**

### Presentation Summary

Mr. Will Jones, OCD Petroleum Engineer, Mr. Phillip Goetze, OCD Petroleum Geologist, and Mr. Bradford Billings, OCD Hydrologist, provided the board with a

summary of the New Mexico OCD regulations and activities performed by this division within the state’s Energy, Minerals and Natural Resources Department (EMNRD).

The EMNRD staff provided the WPAB with a summary of their department’s regulatory authority to perform oversight at oil and gas operations in the state, explained how “split-estates” are handled by regulations, and summarized the proposed exploration well in Sandoval County near Rio Rancho city limits.

During the April meeting, Ms. Sarah Brown and Mr. Ian Fox of the U.S. Forest Service (USFS) also gave the board an update on the USFS’s Forest Revision and Restoration Plan (the Plan). USFS staff explained that Mr. Fox informed the board that the Plan provides program level direction at the USFS for the strategic management of the lands under their stewardship. The Plan is updated every 15 years, and the current plan is on its 14<sup>th</sup> amendment. According to USFS staff, their goal is to incorporate all the adjacent land use and watershed management plans that protect the areas surrounding the USFS plans (i.e., the Cibola National Forest and Grasslands in Bernalillo County).

They explained to the board that the Plan requires a considerable amount of collaboration, with almost 80 agencies being contacted for participation (43 of which have signed a memorandum of understanding), including the Bernalillo County Parks and Recreation Department and the City of Albuquerque Open Space Department which are involved in the Plan update efforts.

### Discussion Summary

A topic that emerged during the Board discussion is the fact that adequate staffing for inspections is an issue, and board members contemplated writing a letter regarding this issue at a future date.

## **MAY**

### Presentation Summary

Dr. Bruce Thomson, UNM Civil Engineer and Water Resources Program Professor Emeritus, followed up on his March 2016 presentation to the WPAB and provided a discussion on the hydrogeologic properties of the Middle Rio Grande Basin and threats posed by oil and gas operations to the local drinking water supply.

Dr. Thomson told the board that groundwater movement in the Middle Rio Grande Basin (MRGB) is controlled by a series of faults, running north to south, and ancestral deposits along the axis of the rift valley. According to Dr. Thomson, work by Dr. John Hawley and Dr. Sean Connell, formerly of the New Mexico Bureau of Geology and Mineral Resources, provided the framework and understanding of the hydrogeologic controls in the MRGB. Dr. Thomson further explained that Albuquerque has a world-class aquifer with productive and heterogeneous hydraulic conductivity properties, but groundwater movement either north or south, depending on the downgradient direction (i.e., parallel to the faults) is the general horizontal direction in which contamination can migrate faster in the aquifer. Migration of contamination in the east and west directions is possible, but at a much slower rate, according Dr. Thomson.

Dr. Thomson also said the nature of the chemicals associated with oil and gas operations, including the hydrocarbons, fracking fluids and produced water (if disposed at a proper facility), do not tend to travel far from the source of contamination. Dr. Thomson explained that hydrocarbons are biodegradable and adhere to soil readily, thus preventing contamination from being extensively mobile. Dr. Thomson added that fracking fluids are not considered toxic, and produced water, when disposed of at an off-site facility versus reinjected, is kept from entering a drinking water source. In addition, Dr. Thomson said the increased risks associated with oil and gas operations are related to greater truck traffic and truck spills and waste disposal, than contamination from an oil production well.

Dr. Bob Wessely, Co-founder SciSo and member of a San Miguel County oil and gas regulation citizen task-force, provided the board with insight on how to develop local regulations for oil and gas activities. Dr. Wessely told the board that during the citizen task force's evaluation, which culminated in an ordinance passed in late 2014 in San Miguel County, two guiding choices were evident: (1) to what extent will the local government want to pay for the costs imposed on itself, and; (2) to what extent will the local government protect the health, welfare and safety of its citizenry?

Dr. Wessely told the board that a common-sense approach for oil and gas regulations provides that oil and gas companies operate transparently and competently, are open to inspections and monitoring, and cover the cost of the oversight. Dr. Wessely added that regulations cannot be arbitrary and capricious, but should be based on a government body's findings through testimony, analyses, scientific reports and data.

Dr. Wessely said local regulations for oil gas operations can be necessary, because state and federal regulations address "down hole" issues and not surface issues. Dr. Wessely added that the location for local oil and gas regulations is within a county's

land use and zoning ordinance, and ordinances can apply to all kinds of oil and gas facilities, such as exploratory wells, pipelines, and roads, for example. Dr. Wessely offered the board examples of ordinances the citizen task force used during their creation of the San Miguel ordinance, and an extensive checklist for ordinance creation.

Board Discussion:

Board members discussed their interest in sending a letter to the Bernalillo County Commission recommending that oil and gas regulations be included in the zoning ordinance.

Board Action:

Board members unanimously voted to prepare a letter to the City Council and County Commission recommending that each entity develop an ordinance to address oil and gas operations in their respective boundaries.

**JUNE**

Presentation Summary

Mr. Paul Robinson, Research Director for the Southwest Research and Information Center, provided the board with third-party concerns regarding the progress made towards environmental restoration activities at the Sandia National Laboratories' (SNL) Tijeras Arroyo, Tech Area-V and Burn Sites. Mr. Robinson told the board that regulatory milestones for the sites have been missed, specifically, the Corrective Measures Evaluation Reports for Tech Area-V and the Burn Sites were originally due in 2012.

Mr. Robinson expressed concerns that the environmental corrective action activities were being handled under an extended interim measures period, thereby bypassing review of technical work plans by the public. Mr. Robinson added that recent documents had not been made available on the SNL website for public access.

Mr. Robinson recommended to the Albuquerque Bernalillo County Water Utility Authority (Water Authority) and WPAB that they seek opportunities to review and comment on SNL environmental oversight records for themselves and the public, and seek opportunities for Public Hearings on Corrective Measure Evaluation Reports for the SNL groundwater contamination sites.

Mr. John Copland of the Sandia National Laboratories and Mr. David Rast of the U.S. Department of Energy – National Nuclear Security Administration (DOE-NNSA) Sandia

Field Office provided the board with an update on the corrective action activities occurring at the SNL Tijeras Arroyo Groundwater (TAG) Contamination areas of concern (AOC). Mr. Rast told the board that SNL had completed the corrective action at 303 of its 315 environmental restoration sites. Three of the remaining 12 sites have groundwater contamination, including the Burn Site, Technical Area-V and the TAG sites. Mr. Rast added that the primary contamination concerns for the TAG area is of nitrate and trichloroethene (TCE).

Mr. Copland told the board that the highest concentration of nitrate in the regional aquifer is 33 mg/L, attributed to the nearby golf course, and the highest TCE concentration in the regional aquifer is 1.67 µg/L. The drinking water standard for nitrate is 10 mg/L and 5 µg/L for TCE. Mr. Copland added that there is no imminent threat to any nearby drinking water production wells, the closest being over a mile away.

Mr. Copland concluded that SNL is in compliance with the April 2004 Compliance Order on Consent, issued by NMED for its environmental restoration activities, and is in compliance with the “corrective action” at the TAG site also being regulated by NMED.

#### Discussion Summary

Member Dr. Erik Webb recused himself from discussions regarding the SNL environmental restoration activities.

Chair Richards reminded those present that the WPAB had prepared a resolution requesting that SNL make access to technical documents for their environmental restoration sites easier for the public.

## **JULY – NO MEETING WAS HELD**

## **AUGUST**

#### Presentation Summary

Ms. Jun Li, Technical Lead for Sandia National Laboratories (SNL) provided the board with an update on the monitoring activities and contamination at the Technical Area-V (TA-V) site. Ms. Li told the board that the TA-V site is about 35 acres and has two sources of groundwater contamination, including the Liquid Waste Disposal System Drain Field (LWDS) and the Seepage Pits. Ms. Li explained that the LWDS discharged about 6.5 million gallons of industrial wastewater between 1962 and 1967, while the Seepage Pits discharged approximately 30-50 million gallons of septic waste and industrial water between the 1960s and 1992.

Ms. Li told the board about the proposed in situ bioremediation project that SNL has planned for the TCE plume, which will include the injection of food and nutrients (i.e., substrate) to enhance the effects of naturally occurring bacteria in the subsurface. The injected substrate will help with the natural dechlorination that occurs when the bacteria consume the TCE. Ms. Li added that the substrate will be put into the ground through up to three injection wells, as part of the work plan Treatability Study that was approved by the New Mexico Environment Department (NMED) in May, 2016. Ms. Li noted that a discharge permit will have to be provided to SNL by NMED, before the Treatability Study can begin, and Congress has to approve funding for the project.

Mr. Mike Skelly of SNL provided the board with an update on the characterization activities occurring at SNL's Burn Site. Mr. Skelly told the board that the groundwater at the Burn Site has been monitored since 1996 and is contaminated with nitrate from exploded ordinance and ammonium nitrate slurry tests in the 1960s and 70s.

Mr. Skelly described local aquifer at the site as a complicated fractured-bedrock, with the potentiometric surface between 90 and 326 feet below the surface. Mr. Skelly added that 10 wells are sampled for contamination, and 12 wells are used to collect water level measurements, and the groundwater flow direction is generally to the southwest.

Mr. Skelly showed a map of the nitrate contamination at the site, which showed two plumes with two distinct "hotspots" of nitrate contamination, separated by an approximate half-mile stretch of lower concentrations. Mr. Skelly added that the closest Water Authority production well is approximately eight miles away from the Burn Site.

#### Discussion Summary

Members discussed the details of the Treatability Study for the TA-V site, and the potential causes for the shape of the nitrate plume at the Burn Site. No actions were taken by the board.

#### Action Summary

Members reviewed the draft letter to be sent to the County Commission and the City Council regarding regulations for oil and gas operations in the County and City, respectively. Members agreed to review the letter during the interim before the next meeting.

## SEPTEMBER

### Presentation Summary

Ms. Kali Bronson, Stormwater Program Compliance Manager for Bernalillo County, provided the board with an overview of the Watershed-Based (WBP) MS4 Permit regulated by the U.S. Environmental Protection Agency – Region 6 (EPA-R6). Ms. Bronson explained that the permit started as a pilot permit focusing on the Middle Rio Grande Basin and the entities responsible for stormwater discharges into the Rio Grande. Ms. Bronson added that two other basins had pilot permits, but did not complete the pilot process.

Ms. Bronson told the board that several control measures were included in the permit requirements, including:

- Construction site stormwater runoff control;
- Post-construction stormwater management in new development and redevelopment;
- Pollution preventing and best management practices;
- Industrial and high-risk runoff;
- Illicit discharges and improper disposal;
- Control of floatables discharges;
- Public education and outreach; and
- Public involvement and participation.

Ms. Kathy Verhage of the City of Albuquerque Storm Water Quality Team provided the board with an update on the City's Storm Water Quality Ordinance and the proposed revisions to the City's Drainage Ordinance. Ms. Verhage told the board that the ordinances, and specific measures within the ordinances, are required by the WBP MS4 Permit.

Ms. Verhage reminded the board that the City's first storm water permit was issued by the EPA-R6 in 2003, which was required to be enforced via an ordinance. Ms. Verhage told the board that the City had several enforceable ordinances at the time, but when the permit was to be renewed in 2008, EPA-R6 did not approve the permit renewal until the City put forth an ordinance with specific post-construction and non-storm regulatory mechanisms. Ms. Verhage added that the City's permit was not approved by the EPA-R6 until 2012, prior to the City's drainage ordinance being implemented in Nov. 2013.

Ms. Verhage also updated the board on the City's currently proposed Stormwater Quality Ordinance. Ms. Verhage told the board that the proposed stormwater quality

ordinance authorizes the City to ensure facility compliance with the Multi-Sector General Permit; allows the City to install monitoring equipment, if necessary; and provides the City with the ability to issue Notices of Violation and assess fines for noncompliance.

Mr. Dan McGregor of the Bernalillo County Public Works Department provided the board with an overview of the implications the new WBP MS4 Permit has on the County's stormwater processes and operations. Mr. McGregor told the board that the permit is required to discharge storm water into ditches and arroyos, requiring multiple elements by each of the permittees described earlier by Ms. Bronson, and which will affect and change several County operations and processes.

Mr. McGregor told the board that the County has a draft stormwater ordinance addressing the new requirements that will be available for review in the coming weeks. He also requested that the board consider hosting an annual public meeting dedicated to the status of the WBP MS4, which will enable participating permittees to fulfill a public outreach requirement in their permit.

#### Discussion Summary

Members discussed the request by Mr. McGregor to host the annual WBP MS4 public meeting. The members agreed that they were the appropriate venue for this meeting, given their mission to provide their advice to the City, County and Water Authority regarding water quality topics.

### **OCTOBER**

#### Presentation Summary

Mr. Glen DeGuzman from the Bernalillo County Review and Planning Department provided the board with an overview of the Bernalillo County Septic System Ordinance Implementation Update. Mr. DeGuzman provided a history of the Ordinance, explained that unpermitted systems and systems 30 years or older need a septic evaluation, and provided a summary of an evaluation cost. Mr. DeGuzman told the board that septic evaluation consists of at a minimum the pumping of the septic tank and a physical inspection of the wastewater system components by a licensed professional. Mr. DeGuzman described who can be a licensed professional and spoke of potential consequences if no evaluation is performed.

Ms. Laura McCarthy and Ms. Sarah Hurto from The Nature Conservancy provided an update to the board on the Rio Grande Water Fund. Ms. McCarthy reviewed impacts to water quality and resources following forest fires like those in the Jemez and Sandia Mountains and stressed the need to manage watersheds more effectively. Ms. McCarthy said restorations and financial goals for the fund were 30,000 acres and \$21 million per

year, respectively. Fifty-four signatories have joined the Rio Grande Water Fund with \$1.12 million invested. Burn probability models, debris flow predictions, and fire behavior models were presented for the Jemez, Sandia Mountains, and upper Rio Grande Watershed.

Ms. McCarthy provided the board an overview of watershed treatment, focusing on stream restoration, forest thinning and prescribed burns, post-fire flood mitigation, and fire management. Ms. McCarthy said a benefits comparison within the Taos Valley Watershed of current conditions versus treated watersheds indicated a substantial return on investment for treated areas. Ms. McCarthy also presented information on public support for watershed protection indicating that water consumers were willing to pay for such protection. Ms. McCarthy told the board that 2015 funding contributions and needs study showed that contributions from Federal, state and the private sector was around \$13 million while the water fund need remained above \$20 million.

The Board discussed how watershed management may impact the Water Authority's recently released 100-year plan and requested that the plan be presented to the board in the near future.

Ms. Michelle Hunter, Chief of the Ground Water Quality Bureau at the New Mexico Environment Department (NMED) provided an update on this site. Ms. Hunter provided historical background for the site, indicated that the site is complex with potentially more than one pollution source, showed that the closest municipal wells are miles away and not threatened by the plume, and reviewed the current plume maps. Ms. Hunter told the board that the public notice for the remediation proposal ends Nov. 15, and will allow for additional assessment of the plume in the distal end, with the responsible party to determine if there is another source at the mid to distal end of the plume. The remediation proposal proposes a soil vapor extraction system downgradient of the source and a permeable reactive barrier intercepting the plume near the source. Ms. Hunter also provided a review of past work completed to date. This includes a soil vapor extraction system at the source, which has eradicated 99% of source vadose zone vapors. Vapor intrusion appears minimal.

### Discussion Summary

The board discussed potential legislative priority issues. Vice Chair Glass suggested having a letter drafted for discussion by the November board meeting that supports funding for projects that support the WPAB action plan such as: the Rio Grande Water

Fund, water and wastewater infrastructure, the Water Trust Fund, and the Water Revolving Loan Fund.

The board discussed that legislative bills concerning water quality may not be known until the 60-day session starts and there may not be sufficient time for the board to respond. The board requested that a boiler plate letter be drafted for the November board meeting containing general language that supports any specific bill that may be introduced and specifics could be added later for board review and approval.

Discussion by the board members focused on the proposed Water Quality Control Commission Regulation changes that would decrease concentrations of PCE and TCE to drinking water standards. Ms. Hunter stated that a decrease in regulatory standards of these compounds should not affect the cleanup of this site by the responsible party. She also stated that the regulatory changes to be proposed would include vapor intrusion with the inclusion of the compound 1,4 dioxane that is highly toxic. The board discussed if it should support the proposed regulatory changes and requested that Ms. Hunter return in the spring to update the board on the final proposed regulatory changes.

#### Board Action

Discussion was held on the Oil and Gas Ordinance Recommendation letter to address the letter to the chairpersons of the City Council, County Commission, and Water Authority Board and carbon copy all members of each council, commission, and board. A motion was made by Vice Chair Steve Glass and seconded by Chair Thacher to issue the letter to the above mentioned persons. The motion carried unanimously.

## **NOVEMBER**

#### Presentation Summary

Mr. Justin Ball of the New Mexico Environment Department – Ground Water Quality Bureau (NMED-GWQB) provided the board with an update on the status of various contamination sites across the City of Albuquerque and Bernalillo County. A summary of the status of each site was provided in the order below.

1. Former Digital Site – NMED is currently reviewing potential soil vapor intrusion at and around the site, but groundwater contamination has low concentrations of the contaminant of concern (1,1 dichloroethylene), which is still regularly detected below drinking water standards in a nearby Water Authority production well. This site has been actively regulated under an administrative order on consent since the 1990s.

2. University of New Mexico (UNM) Supply Well #5 – A shut-down production well on the UNM Campus has been contaminated for many years by trichloroethylene (TCE) from an unknown source. Due to the concentrations, the source is believed to be nearby.
3. Dunn Edwards Paint – This former paint shop, located in the southwest part of Albuquerque, is known to have contaminated soil and groundwater. The contamination has near surface contamination with lead from paint chips, and also TCE, naphthalenes, arsenic, barium, chromium and mercury.
4. McCatharn Dairy – This is a former dairy facility with high total dissolved solids, chloride and nitrate contamination in groundwater, located in the South Valley Area of Bernalillo County.
5. Mountain View Nitrate Plume – NMED considers this site a success story. A former farm in the South Valley of Bernalillo County historically over fertilized and mixed several types of nitrogen sources for fertilizer, contaminating ground water with high levels of nitrate due to the fertilization practices. The Office of the Natural Resources Trustee has provided money to clean up the site, injecting sorghum into wells in hot spots to encourage natural degradation by micro bacteria. Decreases in nitrate concentrations are being observed in the areas of sorghum injection, groundwater contamination decreasing by 50 percent.
6. Los Angeles Landfill – A former City landfill located near Balloon Fiesta Park has a small remaining plume of chlorinated solvents from pre-regulated disposal activities. The City will be proposing to continue sampling the site after pump and treat activities have commenced.
7. Former Gulton Manufacturing– This is a former computer chip manufacturing company performing cleanup of ground water under a judicial settlement agreement stemming from bankruptcy hearings for the former owner of the property. Current remediation activities include the injection of a chemical amendment (HRC) for in situ treatment of the chlorinated solvents that have contaminated the relatively shallow groundwater in the Tijeras Canyon area.
8. Southwest Mesa – This is a former dairy site that historically contaminated private drinking wells to levels above the maximum contaminant level (MCL) for

nitrate. However, most of the area has been hooked up to city sewer and water services.

Mr. Ball responded that there were only two NMED inspectors handling the groundwater contamination site load across the state.

#### Discussion Summary

Members discussed with Mr. Ball what recommendations the WPAB could make to the City of Albuquerque, Bernalillo County, and Water Authority to support the appropriate staffing for handling the environmental work load in areas that affect their respective water resources. In addition, members reviewed the draft letter prepared by staff to be used to show the board's support for water related legislation in consideration of the Water Authority Governing Board's 2017 legislative priorities.

#### Board Action

Members unanimously voted to add to the legislative priority recommendation letter language supporting sufficient staffing for NMED to perform oversight of groundwater contamination sites in Bernalillo County.

### **DECEMBER – NO MEETING WAS HELD**

## Top Areas of Focus for Water Quality Protection

Members of the WPAB and PIC evaluated several identified threats to water quality in the MRG using the following criteria:

1. Nature and extent of contamination;
2. Proximity to drinking water supplies;
3. Regulatory effectiveness and efficiency; and
4. Costs associated with not eliminating the threat.

Below is a table of the topics of significant concern to the WPAB.

Area of Focus	Explanation
KAFB BFF Spill	Several production wells could be impacted, and corrective action activities are slow.
Stormwater Quality	Large stormwater discharge above the Water Authority's San Juan Chama Drinking Water Project water diversion and MS4 Public Meeting.
Groundwater Contamination Sites	Several groundwater contamination sites are being investigated / remediated in the basin, including leaking underground storage sites, Superfund Sites, and former industrial sites.
Watershed Health	Primary threat to surface water quality. No regulatory requirements for prevention activities, but debris flowing to drinking water plant diversion can be eliminated.
Septic Systems	Septic systems are designed to seep contaminants; however, local ordinances are in place to minimize impacts.
Lack of Local Ordinances	Many water quality protection measures in place, but may need to be updated / revised to address new threats.
SNL / DOE Environmental Restoration Sites	The mixed waste landfill contains a mixture of toxic chemical and radioactive wastes in a legacy unlined disposal pit. DOE-SNL is currently implementing a long-term maintenance and management plan for

	this impoundment, of which the WPAB is pursuing regular updates. WPAB also wants to receive an update on the progress by DOE-SNL in mitigating the Tijeras Arroyo Groundwater contamination site.
Oil and Gas Operations in the MRGB	Review the environmental risks to water quality associated with oil and gas operations in the MRGB, and understand the regulatory process and compliance structure for this industry.
USGS Tijeras Arroyo Nitrate Study	Review the potential sources of nitrate contamination to the groundwater below Tijeras Arroyo as presented in a study being prepared by the USGS and funded by the USAF.

## Summary of Board Priority Activities for 2017

Based on the study and analysis of the topics and issues described above, the Board identified three areas of focus as priorities for calendar year 2017.

### ***PROTECTION OF GROUNDWATER QUALITY***

WPAB will continue to monitor the progress of groundwater remediation and investigation projects in the MRG, including the KAFB BFF Spill, Superfund sites, and other contamination sites that threaten the Water Authority water supply. Board members will be provided updates on the corrective action contingency planning activities at the KAFB BFF Spill, and environmental restoration activities at the Sandia National Laboratories, including the Tijeras Arroyo Groundwater contamination sites, and oil and gas operation activities in the MRGB. The board will also review the implementation of Bernalillo County’s new septic system ordinance, and the USGS nitrate study along the Tijeras Arroyo.

### ***PROTECTION OF SURFACE WATER QUALITY AND WATERSHED HEALTH***

WPAB will monitor the progress of the surface-water protection measures outlined in the Water Quality Protection Policy and Action Plan, adopted in 2009, which are now in the early stages. The Board will work with the Policy Implementation Committee to help ensure adequate progress occurs on these measures. Watershed health,

implementation of the watershed-based municipal separate storm sewer system permit and impacts of fire-scarred lands on surface water quality will be examined during the year.

***FOSTER INTERGOVERNMENTAL COORDINATION, COOPERATION, AND COMMUNICATION***

More than a dozen local, regional, state, and federal agencies have the authority and responsibility to further the aims of the Water Quality Protection Policy and Action Plan. Building on the efforts noted above, the board intends to continue to serve as a forum to foster communication among these groups. Board members will review how agencies coordinate regulatory efforts, the status of the WBP, and interaction between local and federal agencies on resolving threats to water quality in the basin.

## APPENDIX A

### Summary of Member Qualifications

Jennifer Thacher, Ph.D., Chair

- Water Authority appointment
- Second term – Sept. 2015 to Sept. 2018
- Ph.D. level of education, 12 years' experience in environmental economics, international water utility infrastructure, and watershed management.

J. Steve Glass, 2015, Vice Chair

- County appointment
- Second term – August, 2015 to August, 2018
- Master of Science level of education, 39 years' professional experience in environmental chemistry and biology applications in environmental science and regulation.

Michael J. Bitner, P.G. (former member)

- Water Authority appointment
- Second term – March, 2013 to March, 2016
- Masters level of education, 31 years' experience in water resources management, environmental and hydrology issues.

Suzanne Busch, P.E.

- City appointment
- First term – Aug. 2016 to Aug. 2019
- Bachelor's Degree, Civil Engineering. Over 25 years as municipal professional engineer and project manager.

John S. Derr, Ph.D.

- County appointment
- Second term -- August, 2015 – August, 2018
- Ph. D. level of education, fifty years' of experience in studying and reporting geological, planetary and seismological phenomena.

Kerry J. Howe, Ph.D.

- Joint City – County appointment
- First Term – August, 2014 to August, 2017
- Ph.D. level of education, over 21 years' of experience in water treatment technologies and professional engineering.

Stephanie J. Moore, P.G. (former member)

- Water Authority appointment
- First Term – March, 2016 to March, 2019
- Masters level of education, over 15 years performing hydrological research and water resources planning in both federal government and private consultant work.

Russel D. Pederson, P.E.

- City Appointment
- First Term – December, 2015 to December, 2018
- Masters level of education, over 20 years' experience as a professional engineer manager and environmental health support.

Roland Penttila, P.E.

- City appointment
- First term – Aug. 2016 to Aug. 2019
- B.S. from California State University in Long Beach in Civil Engineering, retired after 33 years' experience as a register professional engineer, former supervising engineer for the City in Storm Water Management including compliance with EPA Municipal Separate Storm Sewer Systems Permit.

Elizabeth H. Richards, Ph.D., (former member)

- City appointment
- Second term – August, 2013 to August, 2016
- Ph. D. level of education, 31 years' professional experience addressing energy and water sustainability problems.

Caroline Scruggs, Ph.D.

- County appointment
- Second term – October, 2015 to October, 2018
- Ph.D. level of education, 21 years' experience in civil and environmental engineering, and water resource planning.

Erik K. Webb, Ph.D. (former member)

- City appointment
- Second term – August, 2013 to August, 2016
- Ph. D. level of education, 29 years' professional experience addressing and developing policy for groundwater, environmental restoration, and water resources problems.

