Requiring Proof of Groundwater Availability:

A Review of Groundwater Supply Policy
in the States of Arizona and New Mexico

Greater Edwards Aquifer Alliance

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THE STATE OF ARIZONA

History

Water is a precious commodity in the state of Arizona, where average annual rainfall does not exceed 12 inches in most areas and natural surface water sources are scarce (*AZ3*). As a result, Arizona citizens traditionally relied on groundwater from underground aquifers for the majority of potable water. However, a significant increase in the growth of the state's population beginning mid 20th century placed a much greater demand on these groundwater resources, resulting in a situation of "groundwater overdraft" whereby more groundwater was being pumped out than was annually recharged (*AZ9*). With concerns over water shortages, water quality degradation, and ground subsidence, the state took efforts in 1980 to prevent the overdraft of groundwater by passing the Groundwater Management Code.[1] This code addresses five (5) essential questions:

1) How much groundwater does Arizona have?

2) Who should be allowed to use that water?

3) For what purposes should groundwater be used?

4) How much should be withdrawn for what purposes?

5) How can the citizens of Arizona keep track of groundwater withdrawals?

(*AZ4*)

The Arizona legislature created a new agency, the Arizona Department of Water Resources (ADWR), to implement the Groundwater Code. The ADWR functions somewhat like the Edwards Aquifer Authority in that it is a state agency that monitors the quantity and distribution of groundwater and surface water resources. It does not monitor water quality. In addition to administering the Groundwater Code, the ADWR works to develop alternative water supplies to groundwater, promotes water conservation, and seeks equitable distribution of current water resources (*AZ2*).

The Arizona Groundwater Management Code (Groundwater Code)

The Groundwater Code is designed to promote long-term planning and allocation of Arizona's scarce water resources. An integral part to this code is a water determination process, whereby each new subdivision[2] is required to show that it has enough water to serve the development and that this water is both continuously and legally available for the next 100 years. Revisions

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[1] The passage of this Groundwater Code was, by some accounts, in exchange for federal funding of the Central Arizona Project (CAP). The CAP diverts water from the Colorado River into the interior of the state and has provided a renewable source of surface water to help the state wean itself from groundwater (*AZ9*).

[2] Platted after 1980

to the Groundwater Code in 1995 further required developers to demonstrate how water from "renewable sources"[3] would be used instead of groundwater in order to reach a point of "safe yield" whereby the amount of groundwater being used is equal to the amount being recharged.

The subdivision's location, however, will determine the penalty for failing to fulfill water availability criteria. There are five designated "Active Management Areas (AMAs)" around the state in which a finding of "unassured" water availability will prevent a developer from selling lots in a new subdivision. Outside of the AMAs, a finding of "inadequate" water availability does not prevent the selling of lots, although it must be disclosed to any potential buyers. The terms "assured" and "adequate" are used to describe the roughly parallel determination processes inside AMAs and outside AMAs, respectively.

Active Management Areas (AMAs)

The most stringent regulations under the Groundwater Code apply in the five designated Active Management Areas (AMAs), which encompass four major urban centers (Prescott, Phoenix, Tucson, and Santa Cruz AMAs) and one primarily agricultural area (Pinal AMA).[4] These five AMAs include approximately 80% of Arizona's population and account for 70% of the groundwater overdraft (i.e. the amount of pumped groundwater that exceeds annually recharge). The ADWR maintains regional offices and staff in each AMA. At least once every five years, each AMA is required to submit a "Management Plan" to the ADWR, listing its water management and allocation goals, and outlining a plan for achieving these goals (*AZ2*). In the urban AMAs, the primary management goal is "safe-yield" by the year 2025. Safe-yield is accomplished when no more groundwater is being withdrawn than is being annually replaced. In the agricultural AMA, the management goal is to provide a sustainable water source for both irrigation and non-irrigation uses.

Assured and Adequate Water Supply

The primary regulatory component of the Government Code is the Assured and Adequate Water Supply rules that guide the determination of water availability for new developments. This determination of water availability (physically, continuously, and legally) is required for new subdivisions both inside and outside AMAs.[5] Failure to fulfill the criteria *inside* an AMA prevents a developer from selling lots. In contrast, failure to fulfill the criteria *outside* an AMA must be reported to potential buyers, but it does not prevent the sale of lots. Four types of applications

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[3] Renewable sources of water include: surface water, Central Arizona Project (CAP) water, treated effluent, and recharge credits (*AZ2*).

[4] The AMA boundaries are generally defined by watersheds and basins rather than along political subdivisions.

[5] A subdivision is defined by the Arizona Department of Real Estate (ADRE) as: "six or more parcels with at least one parcel having an area less than 36 acres. It includes residential or commercial subdivisions, stock cooperatives, condominiums, and all lands subdivided as part of a common promotional plan (including golf courses, parks, schools, and other amenities)". Any new development that does not fit this definition of subdivision is exempt from the Assured Water Supply rules.

are processed in each of these roughly parallel programs: Physical Availability Demonstration (PAD), Designation of Assured (or Adequate) Water Supply, Analysis of Assured (or Adequate) Water Supply, and either Certificate of Assured Water Supply or Water Adequacy Report (*AZ2*).

	INSIDE AMA	OUTSIDE AMA
1	Physical Availability Demonstration	Physical Availability Demonstration
2	Designation of **Assured** Water Supply	Designation of **Adequate** Water Supply
3	Analysis of **Assured** Water Supply	Analysis of **Adequate** Water Supply
4	Certificate of **Assured** Water Supply (includes information from docs 1-3)	Water **Adequacy** Report (includes information from documents 1-3)

Table 1: Comparable documents for inside and outside AMAs.

This report will focus on the Assured Water Supply regulations for inside AMAs since it provides the most insight into the process of regulating development through water availability performance standards.

A developer can fulfill the criteria for demonstrating a 100-year water supply by a written commitment of service from a public or private water provider that has already received a Designation of Assured Water Supply by the ADWR.[6] If a proposed development is not served by a designated water provider, the developer must obtain a Certificate of Assured Water Supply (Table 1: Item 4) by satisfying five (5) criteria:

1. The water supply must be **physically, legally, and continuously available** for the next 100 years.

> Depending on the source of the water supply proposed, there are different criteria for measuring its physical availability. The amended Groundwater Code encourages the use of renewable sources of water, such as surface water, treated effluent, and water from the Central Arizona Project, all of which are evaluated differently.
>
> Groundwater remains a significant water source for many areas, and its physical availability is based on a complex formula that takes into account permissible pumping and required replacement. For each AMA, a groundwater level is set, below which no new development is allowed to pump within a 100-year time span. This level is set by the ADWR and is based on a number of factors, including the current rate of groundwater withdrawals and expected future demand for groundwater. As an example,

[6] Municipalities and water companies receive permission from the ADWR to serve designated areas through a process that is similar to applying for a Certificate of Convenience and Necessity in Texas. The water purveyor must provide the ADWR with a hydrological study that proves it has the water supply sufficient to serve the intended area.

the Tucson AMA has set a groundwater level of 1,000 ft below ground. Any new development within this AMA must therefore provide proof that its use of groundwater will not cause the groundwater level to drop below 1,000 ft over the course of 100 years.

In order to satisfy the legal availability requirement, a developer must present legal proof of the right to use any proposed water source.

A final criterion, the continuous availability of a water supply, can be shown by providing proof of adequate storage and transport mechanisms for the proposed supply for the100-year time span (*AZ7*).

2. The water must meet federal **water quality** standards for potable water sources.

3. The proposed water use must be **consistent with the management goal** of the AMA.

The primary management goal of the four urban AMAs is to reduce the reliance on groundwater and thus prevent the overdraft of groundwater resources. Therefore, this Certification requirement is designed to help achieve this goal through various methods.

The first method involves the implementation of a Groundwater Allocation Formula whereby new developments are allocated a set amount of groundwater for the 100-year period with the expectation that groundwater use be phased out and renewable sources used instead. However, access to renewable resources may be limited in some areas and some developments and/or water providers may choose to rely solely on the use of groundwater. In that case, the annual amount of groundwater allocated to those developments/water providers may be exceeded in exchange for paying an annual "replenishment tax" to recharge the groundwater overdraft.

The replenishment tax program is managed by the state-created Central Arizona Groundwater Replenishment District (CAGRD). The CAGRD is governed by an elected 15–member board that reviews groundwater use proposals for new developments seeking to exceed their allocated groundwater amount and submits a "replenishment plan" to the ADWR for approval. The replenishment tax is designed to cover all costs associated with recharging the groundwater overdraft. Recharge is generally supplied by Central Arizona Project (CAP) water and is recharged in the same AMA in which the overdraft occurred. The Phoenix AMA further stipulates that recharge occur in the same area within the AMA itself that overdraft occurred whenever possible (*AZ6*).

The replenishment tax is passed on to individual homeowners and is directly related to the amount of groundwater consumed. In other words, those homeowners who consume more groundwater pay a higher replenishment tax, thus providing an incentive to conserve. Developments built before 1995 are exempt from paying a replenishment tax as well as mining, irrigation, and industrial uses (*AZ6*).

A second method gives credit to a development for "incidental recharge" by increasing its allocated amount of groundwater by a small, usually standard, amount (e.g. 4%). Incidental recharge includes any recharge that occurs incidentally of its use by humans.

Examples include recharge of groundwater after its use for irrigation, leaks from water pipes, and treated effluent entering groundwater storage. In order to determine whether a development is entitled to a groundwater credit, the ADWR uses estimations of recharge from certain human activities to evaluate a development's potential to create incidental recharge (*AZ11*).

A third method gives credit to developments for the purchase and retirement of Irrigation Grandfathered Groundwater Rights (IGRs). A formula is used to determine how much of the retired irrigation groundwater can be used for a new development, the amount being somewhat less than the original IGR (*AZ7*).

4. The proposed water use must be **consistent with the current management plan** of the AMA.

   This requirement ensures that the development complies with the ongoing water conservation plans set by each AMA (e.g. use of xeriscaping, etc).

5. The developer must demonstrate the **financial capability** to construct any necessary water storage, treatment, and delivery systems for the 100-year period.

(*AZ2*, *AZ7*)

There is a 15-day period for public comment once an application for a Certificate of Assured Water Supply has met the Assured Water Supply criteria. If no protests are received, a Certificate is issued. A typical application is processed in about three to four months (*AZ2*).

THE STATE OF NEW MEXICO

History

The State of New Mexico, like Arizona, has limited water resources. Most areas rely almost exclusively on groundwater resources to supply their drinking water (*NM2*). In many counties, there are multiple providers of water, including private water systems and community wells. In the mid 1970s, many recognized the need to have greater oversight on these multiple water providers in order to prevent water shortages. A system of junior/senior water rights was enacted to help distribute rights to water sources based on historic use and need.

Additionally, the State passed the New Mexico Subdivision Act (NMSA) in 1978, giving counties the right to accept or deny proposed subdivisions in their jurisdiction based on a number of criteria, including whether the subdivision has sufficient quantity and quality of water to serve it.[7] Each developer must demonstrate both the physical availability of water to serve the development and the legal rights to use it.

The New Mexico Subdivision Act (NMSA)

Amendments to the NMSA in 1995 extended the right to regulate development based on water availability to encompass a more comprehensive definition of subdivision (refer to Table 2 below). Under the current regulations, developers of large, small-lot residential and non-residential subdivisions with many parcels (all Types 1 and 2, and some Type 3 (when 6+ parcels)) and large, large-lot subdivisions with many parcels (all Type 4) must submit a "Disclosure Statement" at the time of the preliminary plat approval, attesting to the physical and legal availability of water in sufficient quality to serve the proposed development for a minimum of 40 years (*NM11*).[8]

TYPE	# OF PARCELS IN SUBDIVISION	PARCEL (p) SIZE
1	500+	Any (p) < 10 acres
2	25-499	Any (p) < 10 acres
3	≤24	Any (p) < 10 acres
4	25+	Each (p) > 10 acres
5	≤24	Each (p) > 10 acres

Table 2: Classification of Subdivisions (as defined by the 1995 Amendments to the 1978 New Mexico Subdivision Act).

[7] In New Mexico, both counties and municipalities have zoning and platting authority within their respective jurisdictions. The Board of County Commissioners approves plats under county jurisdiction, while an equivalent governing body approves plats for municipalities.

[8] Some counties require proof of water availability for a longer time-frame. However, if no minimum is specified by the County, the OSE automatically evaluates water availability for a minimum of 40 years (*NM1*).

This Disclosure Statement is reviewed by a number of agencies, including a County water review agency, which verifies the water availability. If a county lacks the resources for a water review department, the Office of the State Engineer (OSE) provides review of water availability. Each reviewing agency issues an opinion either in support of or against the proposed development, and these opinions are included in the final Disclosure Statement presented to the county at the plat approval hearing (*NM9*).

County Commissioners have the final say in plat approval and can choose to disregard the opinions stated in a Disclosure Statement. In other words, if the reviewing agency determines that a proposed subdivision has not sufficiently proven water availability, a county board could still approve the subdivision. A developer is given 30 days after receiving an adverse opinion from the reviewing body to produce further documentation in support of sufficient water availability. The reviewing body in turn has 30 days to review new documentation and issue a second opinion. After the issuance of a second opinion, whether positive or negative, the preliminary plat application with Disclosure Statement is then put to a vote by the County Commission at a public hearing (*NM11*).[9]

Once a development receives a preliminary plat approval, it is "grandfathered" under the water regulations existing at the time of approval. However, significant alterations to the plat prior to the commencement of development may result in the loss of vested rights (*NM9*).

Municipal Participation

County regulations on water availability only apply to unincorporated lands; therefore, any incorporated municipalities within counties are exempt from the county code. For example, New Mexico's Bernalillo County requires proof of water availability for a minimum of 70 years, but the City of Albuquerque, located within Bernalillo County, does not. Most municipalities have their own water systems, which are subject to regulation by the State and are not required to prove future water availability for an extended time-frame.

Criteria for Determining Water Availability

This report will focus on the three most populous counties in New Mexico—Bernalillo, Dona Ana, and Santa Fe—as a representative sample of the kind of water availability regulation adopted throughout the state. The criteria used by these counties to determine water availability, from groundwater or surface water sources, are dependent on the proposed type of water system providing the water. In general, there are different regulations for community or municipal water systems than for individual or shared wells. Additionally, whether these wells or waters systems exist prior to the development or whether they are to-be-built is also given

[9] Prior to the 1995 NMSA amendments, a second adverse opinion from the OSE would have necessitated an independent study to be conducted by several "qualified water scientists" appointed by the water quality control commission and paid for by the applicant. The opinion of this independent study would then have been taken into account by the approving body at the public hearing. The current regulations reiterate that the burden of proof of sufficient water availability is on the plat applicant but they do not specify how this proof should be obtained.

different consideration. This report will focus on groundwater regulation since these regulations will be most useful when developing an analogous program for the Edwards region.

Bernallilo, Dona Ana, and Santa Fe counties have similar criteria for evaluating each type of proposed water system; however, each designates a different time-frame for future predictions. Santa Fe County is by far the most stringent, requiring proof of water availability for a minimum of 100 years, while Bernalillo and Dona Ana counties require a minimum of 70 and 40 years, respectively. While each county retains the right to deny the plat permit for a new development that does not adequately demonstrate water availability, Santa Fe County further bases decisions on zoning and lot density on proof of water availability. The County has set maximum lot densities for various land use zones, but a development is not guaranteed these maximum densities unless the water availability report supports it (*NM3, NM4, NM8*).

When a developer proposes to provide water through a **new community or municipal water system**, the following criteria must be addressed in the Disclosure Statement:

1) Geohydrological report.

   A geohydrological report must be submitted demonstrating the continuous physical availability of the proposed water source to meet the annual needs of the development for the desired time period (40, 70, or 100 years). Data for this report is collected through well testing, on-site geological investigations, and aquifer modeling. Sante Fe County stipulates that water availability calculations be based on current source capacity and not future recharge, since recharge amounts vary from year to year.

2) Adequate and sufficient test wells.

   Certain parameters are set to ensure that the test wells used to gather data for the geological report accurately reflect the characteristics of the groundwater resource. Bernalillo and Dona Ana Counties do not stipulate the exact number of wells that should be tested or how far away test wells can be from the development property. Instead, their regulations simply state that the number of wells and their placement should be “adequate” and leaves the burden of proof on the developer. In contrast, Santa Fe County requires a minimum of one test well per ten (10) dwellings proposed for any development, while sometimes requiring a minimum of one test per four (4) dwellings when the water source geology is uncertain. Additionally, Santa Fe County limits outside well testing to within a one-mile radius from the property line.

3) Maximum drawdown over the desired time period (40, 70, or 100 years).

   This criterion essentially asks, *by how much will the water level in the source aquifer decline over 40, 70, or 100 years?* The development’s cumulative annual demand for the desired time period should be estimated using maximum demand predictions.

In other words, it should be assumed that the maximum amount of water permitted to the development is used each year.[10] Additionally, a developer should consider outside users of the same source aquifer when making calculations since their demand might change over time and impact future water levels for every user.

4) Determine lowest practical pumping level

   This next step helps ascertain whether the maximum drawdown calculated in the previous step exceeds the amount of water available in the source aquifer. The lowest level of practical pumping beyond which no water is retrieved can be determined by a variety of methods depending on the type and geology of the aquifer being used and the pumping infrastructure in place. This lowest pumping level or "maximum allowable drawdown" is then reduced by 20% in order to account for seasonal fluctuations and other unpredictable circumstances that would likely limit the actual availability of water. Essentially, this step first locates the bottom of a well, and then secondly raises that bottom to determine a very conservative estimate of available drawdown.

5) Full Disclosure

   A final criterion stipulates that no available data be withheld from the record so that the County Commission can make an informed determination of water availability. Historical pumping and water level data should be included in the Disclosure Statement, as well as sufficient visual representations of the data that will help create a comprehensive picture of the water source.

For **existing community and municipal water systems**, the following criteria must be addressed in the Disclosure Statement:

1) A water supply plan from the existing utility must be submitted with the plat application to verify the utility's willingness and ability to provide the proposed water. Conceivably, existing systems have already proven water availability through a previous County or State review.

2) Existing **private** water systems must provide additional information upon request including, but not limited to, engineering plans detailing the system's water supply and storage infrastructure and how the new development will tie into this system.

For **new or existing individual or shared wells**, the following criteria must be addressed in the Disclosure Statement:

1) A hydrogeologic report must be submitted that is analogous to the one submitted for new water systems.

[10] The OSE regulates water rights and issues pumping permits.

2) Data on the effect of outside demand of the source aquifer on water available for the proposed development must be disclosed. This criterion requires gathering usage data from surrounding area developments that are pulling from the same water source. Conversely, Bernalillo County also requires a developer to submit data on any adverse effects the proposed drawdown from the new development will have on outside users of the source aquifer. These outside users include other nearby developments, but also any number of watershed features, including, but not limited to, streams, canals, lakes (natural or man-made), and wetlands.

(*NM3, NM4, NM8*)

CONCLUSION

Summary

The States of Arizona and New Mexico both have arid climates and limited water resources. In the face of water shortages associated with growing populations and aggravated by drought, each state requires some new developments to prove long-term water availability before they are approved. While Arizona has developed a uniform standard for the entire state, it only applies within certain designated areas known as Active Management Areas, where water shortages are felt most acutely. This approach is in contrast with New Mexico, which has allowed regulation to be developed within counties, resulting in a variety of different methods and levels of stringency. Arizona's effort to minimize the draw-down of groundwater resources is largely dependent on the availability of alternative renewable sources of water, mainly, the Central Arizona Project (CAP). In this way, a wholesale adoption of the State's policies may not be suited for the San Antonio area given reliance on the Edwards Aquifer. New Mexico's policy, where each water source is assumed to be finite, more closely mirrors the current water situation in South Texas and could accommodate Desired Future Conditions limitations adopted by the Groundwater Management Areas.

The efficacy of assured water regulations in Arizona and New Mexico is varied. Although regulation has encouraged the development of alternative water sources and water conservation programs, both New Mexico and Arizona residents remain dependent on large quantities of groundwater. A point of safe-yield has not yet been met in either state *(AZ8, NM2)*.

In Arizona, the exemption of "grandfathered" mining and agricultural uses from the water availability regulations undermines progress towards safe-yield. These grandfathered rights are slowly retired as land that was once used for these uses is converted into urban developments (*AZ8*). However, this conversion is not keeping pace with urban development, resulting in an overall increase in water demand. In 2002, agriculture still accounted for 40% of overall water use in Arizona (*AZ9*). A second roadblock is the Replenishment Tax, which effectively allows developers to pay a fee in lieu of using a renewable source. This fee was intended to cover the expense of recharging the amount of groundwater used by the development elsewhere in the state where infrastructure to do so was in place. However, no cap was placed on the number of developments that could "pay in lieu of", and due to the number of developers who have opted for this measure, the amount of water to be recharged currently far exceeds actual water available for recharge (*AZ9*).

In New Mexico, municipalities are exempt from the water availability review standards of the County, resulting in an incentive for new developments to seek annexation into city limits. The City of Santa Fe frequently annexes those portions of the surrounding Santa Fe County experiencing high growth (*NM10*). A second issue is that the exemption of smaller subdivisions from the water availability rules has led to an increase in those kinds of subdivisions being proposed for development (*NM10*). As a result, Santa Fe County is moving towards a development planning process that emphasizes conservation over proof of water availability.

Policy Recommendations

1) Pilot a water availability program in specific watersheds experiencing water shortages and subject all land uses in those areas to regulation. Allow the watersheds in question to determine what regulation is necessary to achieve a level of safe-yield. This flexibility is necessary given that different watersheds may have varying factors affecting the availability of water.

2) Clearly define what kinds of developments to target under any water availability regulations. Factors to consider are: size, density, age, and land use type – commercial, residential, industrial, etc.

3) Avoid providing a "fee in lieu of" to avoid water availability regulation. It is often difficult to calculate an accurate fee that would cover the expenses of correcting for the avoidance of regulations. Additionally, it will likely be necessary to adjust the fee frequently to account for the fluctuation of water availability in times of drought or in response to continued development.

4) Examine how proof of water availability requirements might be adopted and enforced by individual Ground Water Conservation Districts (GWCD's) and/or Priority Groundwater Management Areas (PGMA's) to complement draw down restrictions adopted through the Desired Future Conditions process of the Texas Water Development Board.

5) Examine and note possible redundancies/complements in Regional Water Planning Group annually adopted plans required by the Texas Water Development Board.

SOURCES CITED

Arizona (AZ)

AZ1. Arizona. Arizona Administrative Code. Title 12 (Article 7): Natural Resources (Assured and Adequate Water Supply. October 26, 2007. http://www.azsos.gov/PUBLIC_SERVICES/Title_12/12-15.htm#ARTICLE%207.%20ASSURED%20AND%20ADEQUATE%20WATER%20SUPPLY.

AZ2. Arizona. Arizona Department of Water Resources. "Assured and Adequate Water Supply". October 2007-July 2008. http://www.azwater.gov/dwr/WaterManagement/Content/OAAWS/default.asp.

AZ3. Arizona. Arizona Department of Water Resources. *Assured Water Supply: Brochure.* 2001 ADWR Network. http://www.azwater.gov/dwr/Content/Find_by_Category/Permits_Forms_Applications/Files/AssuredWaterSupply/awsbrochure.pdf.

AZ4. Arizona. Arizona Department of Water Resources. *Overview of the Arizona Groundwater Management Code.* 2008 ADWR Network. http://www.azwater.gov/dwr/Content/Publications/files/gwmgtovw.pdf.

AZ5. Arizona. Arizona Department of Water Resources. *Securing Arizona's Water Future.* 2008 ADWR Network. http://www.azwater.gov/dwr/Content/Publications/files/supplydemand.pdf.

AZ6. Arizona. Central Arizona Groundwater Replenishment District. "Executive Summary." July 22, 2008. 2008 Central Arizona Project. http://www.cagrd.com/static/index.cfm? ontented=81.

AZ7. Holub, Hugh, Atty at law. "Summary of Arizona Water Law." Personal webpage. April 22, 2008. http://hughholub.com/waterlaw.htm.

AZ8. Holub, Hugh, Atty at law. "Question on AZ Water Law". E-mail correspondence. April 25, 2008 and May 2, 2008.

AZ9. Jenkins, Matt. *Arizona returns to the desert.* High Country News. March 21, 2005. http://www.hcn.org/issues/294/15361.

AZ10. Anonymous. "Rural water worries aren't just a local issue." Editorial. Arizona Republic. March 16, 2006.

AZ11. University of Arizona. Water Resources Research Center. *Artificial Recharge: A Multi-Purpose Water Management Tool.* Arroyo, Winter 2007.

New Mexico (NM)

NM1. Keller, Jerry G. New Mexico. Office of the State Engineer. “New Mexico’s Subdivision Review process.” Email correspondence. July 29, 2008 and September 8, 2008.

NM2. Ketcham, Lauren N. *Our Water, Our Future: Policy Options to Safeguard Water Resources in New Mexico.* Environment New Mexico, Research & Policy Center. September 2006.

NM3. New Mexico. Bernalillo County Code. Chapter 74 Subdivisions. November 2007.

NM4. New Mexico. Dona Ana County Subdivision Regulations. Article 11, Sec. 11-1: Water Supply Guidelines. November 1994.

NM5. New Mexico. Interstate Stream Commission. *New Mexico State Water Plan: 2003*. http://www.ose.state.nm.us/publications_state_water_plans.html

NM6. New Mexico. New Mexico Administrative Code. 47-6-11 Property Law: Subdivision Act 1995-1996 Amendments.

NM7. New Mexico. Office of the State Engineer. “Subdivision Review”. June-July 2008. http://www.ose.state.nm.us/water_info_subdivision.html

NM8. New Mexico. Santa Fe County Land Development Code. Article 7, Sec. 7.7: Water Supply. March 2005.

NM9. Rodey Law firm. *Doing Business in New Mexico: A Guide for Investors and Businesses.* New Mexico, 2006. http://www.rodey.com/publications/Rodey%20Guide%20to%20Doing%20Business%20in%20New%20Mexico.pdf

NM10. Trevizo, Lori. Santa Fe County. “Santa Fe County water supply”. Personal correspondence. October 3, 2008.

NM11. Wilson, Brian C. Office of the New Mexico State Engineer. *Water Conservation and Quantification of Water Demands in Subdivisions: A Guidance Manual for Public Officials and Developers.* May 1996. http://www.ose.state.nm.us/publications/tech_rpts/rpt-48/rpt-48.pdf