BOTTLED WATER:

Legal Aspects of Groundwater Extraction

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CHAPTER 1

TAP OR DESIGNER BOTTLED?

The consumption of bottled water is expanding exponentially both in the United States and worldwide. This consumer preference is placing new stresses on groundwater supplies and on associated stream systems.[1] The United States leads the world in total bottled water consumption, although it still lags behind Europe in per capita consumption. In 2002, Americans consumed more than 6 billion gallons of bottled water, or about 21 gallons per person. Since 1992, the annual percentage increases have ranged from 8.2 to 18.4 percent. In the larger context of groundwater consumption, the percentage allocated to bottled water is small, but the impacts are often highly concentrated and substantial. The United States pumps about 77 billion gallons of fresh groundwater per day.

The U.S. leads the world in total bottled water consumption. In 2002, Americans consumed more than 6 billion gallons of bottled water.

This report takes the rising consumer preference for bottled water as a given and focuses on the potential social and environmental costs of the increased extraction of groundwater to meet market demand. It does not discuss consumer protection issues related to the safety of the product, except as they relate to extraction decisions. It then makes specific policy recommendations for states.

Using Groundwater for Bottled Water

Groundwater is a major source of water for irrigation and municipal and industrial use. However, groundwater extraction for bottled water does present some special features that are not always present with irrigation and municipal and industrial supply wells or well fields. Groundwater for bottled water must often be extracted at a specific location to comply with federal and state consumer protection laws. These locations tend to be in undeveloped rural areas that have not experienced large-scale pumping. Often these areas are characterized by untapped aquifers and small, high ecosystem value stream systems with comparatively few, if any, diversions.

The reason for these special features is federal Food and Drug Administration (FDA) regulations. Bottled water is technically a food product regulated by the FDA. Bottled water is defined as water "intended for human consumption" which may contain "safe and suitable antimicrobial agents." FDA standards must be as stringent as comparable U.S. Environmental Protection Agency tap water standards. These standards, in effect, dictate well and withdrawal location because they give legal signifi-

cance to geophysical categories that are intended to be primarily descriptive. Hydro-geologists have divided groundwater aquifers into different classifications to explain the various physical forces that affect groundwater use and recharge. However, science teaches that all sources of groundwater should be managed as a unified system. In contrast, the groundwater classifications that appear on bottled water are intended to signal the high level of purity and taste of the product.

The highest "purity" classification is "spring" water, with its image of bubbling, clear, uncontaminated water rising naturally to the earth's surface. Bottled water can only be labeled "spring water" if it comes "from an underground formation from which water flows naturally to the surface of the earth. . ." Spring water can be collected "only at the spring or through a bore hole tapping the underground formation feeding the spring." If the water is collected through "the use of an external force," the "water must continue to flow naturally to the surface of the earth through the Spring's natural orifice."[2] Artesian water is also a popular bottled water but is lower on the purity, taste and prestige scale than spring water. Artesian water comes from a well that taps a confined aquifer where the water level is above the aquifer. Artesian water can be extracted "with the assistance of external forces to enhance the natural underground pressure."[3] Mineral water can contain a small percentage of naturally occurring minerals.

The highest "purity" classification is "spring" water, with its image of bubbling, clear water rising naturally to the earth's surface.

The type of water put in a bottle has been the subject of fraud litigation. Nestle Waters North America, the owner of Poland Spring company, was sued in a class action suit that alleged that its water came from wells instead of directly and naturally from the deep Maine springs that its ads portray. Nestle argued that it legally used borehole wells to pump the water, but it agreed to a $12 million settlement. Segments of the industry are pressing the FDA to eliminate the "borehole loophole" to prevent any pumped water from being labeled as spring water. If the FDA does so, this would narrow the places where "spring" water can be extracted.

Because FDA labeling requirements generally require bottled water companies to locate wells in rural areas, the proposed locations of well fields and bottling facilities often trigger opposition. Nestle, which also owns Perrier Water, proposed to locate a well field and plant in a rural Wisconsin area east of the popular Dells, but local opposition caused them to relocate the project in northern Michigan. Other states such as Texas and Florida have recently seen similar organized opposition and legal challenges to the location of a well field to extract water for bottling.[4]

The Social and Environmental Costs of Large-Scale Extraction

States face many challenges in regulating the use of groundwater. The extraction of groundwater for bottled water raises many of the same problems for state regulators as would any large well. Groundwater withdrawals constitute 37 percent of all public water supplies in the United States.[5] Groundwater conservation is a major problem in many areas, because the resource is stressed by over-pumping.

Over-pumping can reduce the short- and long-term availability of the aquifer for domestic and industrial consumption by depleting the supply, especially at the upper levels of an aquifer, and thus raises the pumping costs for other users. It can also increase contamination levels. For example, salt water intrusion is a major problem in coastal and other areas. Pumping can also alter stream systems and disrupt the food supply for fish and other wildlife.[6]
Proponents of groundwater conservation argue that an effective regime should address the following four issues:

1. The assembly of the necessary information to understand the impacts of groundwater pumping and water balance of the aquifer and connected surface waters.

2. The integration of ground and surface rights, since often ground and surface waters are a single hydrologic system.

3. The limitation of "mining," which is extraction in excess of an agreed upon recharge rate of the aquifer.

4. The integration of groundwater pumping and water quality regulation to insure that pumping does not impair the quality of the aquifer. Quality considerations include salt water intrusion and the concentration of toxic substances. This is a particular problem in coastal areas where pumping may create a cone of depression which causes salt water intrusion into an aquifer.

CHAPTER 2

THE CHALLENGE OF GROUNDWATER USE REGULATION

The Differences Between Ground and Surface Use

There are formidable challenges to implementing these management objectives because it is much more difficult, for several reasons, to regulate groundwater extraction as opposed to surface use. First, it is relatively simple to calculate the average annual run-off of surface streams. Once this is done, the amount of water — either the total stream flow or some portion of it — available for consumptive use can be calculated and rights to use the water assigned among competing claimants. It is more difficult to calculate the useable supplies of aquifers, and in many areas of the country we have not allocated the resources to do this. Second, the adverse impacts of pumping on aquifers and related surface streams materialize over longer time horizons compared to the adverse impacts of many surface withdrawals on other surface users.

Third, there are seldom absolute limits on aquifer use. Aquifers are seldom pumped dry but rather are pumped deeper. This increases pumping costs and often the quality of the water decreases with depth. When the use of an aquifer is capped, the state must articulate a conservation standard — which requires hard political choices. Safe yield is the usual standard of a basin or aquifer. However, this is not a simple scientific standard but instead requires complex decisions about the long term water budget of the system.

Fourth, it is more difficult to incorporate use limitations into groundwater rights compared to surface rights. When one surface water user interferes with another's right, the injury is generally unidirectional. A's excess withdrawal reduces B's opportunity to use the same resource. In contrast, groundwater injuries are mutual. All wells mutually cause the lowering of the water table, decrease pressure levels and raise the cost of pumping. Groundwater law deals with these problems by not making the increased cost of pumping a compensable injury.

There is almost no "right to static pressure" in groundwater law.[7] Put differently, a surface user can argue that an interference with the status quo is an injury, but a groundwater pumper cannot. As a result, each pumper must expect that pumping costs will increase over time. States with strict groundwater regimes seldom enforce rights among pumpers. Rather, they allow all pumpers to pump but at some point close the basin to new entrants. At a minimum, states need the authority to define the sustainable yield basins, to limit unsustainable withdrawals and to coordinate ground and surface uses.[8]

Fifth and finally, it is difficult to coordinate ground and surface rights and to integrate water quality considerations in groundwater rights. The regulation of water quality has traditionally been considered a separate activity from water allocation.[9] Water quality regulation limits what can be put in and water allocation law limits what can be taken out of an aquifer. Of course, the two are connected. U.S. Supreme Court Justice Sandra Day

O'Connor has characterized the distinction as "artificial."[10]

The logic of the connection is clear, and a few courts have held that new withdrawals must be measured by their water quality as well as quantity impacts[11], but courts and legislatures have resisted incorporating water quality impacts into allocation decisions.[12] For example, when the Washington Department of Ecology began to condition appropriation permits to maintain state water quality standards, the legislature quickly prohibited the imposition of quality maintenance conditions.[13]

The Public Interest in Groundwater Use

There are various conceptions of the public interest in groundwater use which range from no limits on access to severe limits on access. However, the traditional public interest does not reach many of the concerns over the extraction of water for bottling. The common law implicitly assumed that the public interest in groundwater was to promote sufficient access to the resource to meet consumptive demands. This interest is reflected in rules that permit the right to use to be acquired through capture. Groundwater has long been treated as a free good open to anyone who has a right to enter overlying land. When states regulate groundwater use, they do so for two purposes: (1) the protection of the correlative rights of other similarly situated users and (2) the assertion of a broader public interest to prevent groundwater mining. These regulations are important but do not directly address many of the concerns about the extraction of groundwater for bottled water.

A few states expressly permit water "mining," or extraction in excess of the safe annual yield, but most states try to balance extraction and recharge.

State regulation is a product of 19th century fears that most regulation of private property would be held unconstitutional. To blunt 5th Amendment attacks on state water regulation, states began to regulate surface water access, and this regulatory tradition has been extended to groundwater. Many states declare that all water is owned by the state in trust for the public and, in states that include groundwater in the definition of waters subject to state ownership, this potentially converts groundwater into a state-owned mineral. However, states have not attempted to charge royalties or otherwise charge fees for its extraction. Trust ownership is generally regarded as a fiction for the exercise of the police power to set the ground rules for water use.[14]

In areas where the extraction of the supply exceeds the "safe" recharge rate, the public interest in groundwater is usually defined as conservation, which is usually defined as limiting of aquifer use to promote the long-term sustainability of the resource. A few states expressly permit "mining," or extraction in excess of the safe annual yield, but most states treat the resource as a renewable one and try to balance extraction and recharge rates. The focus of conservation regimes is on limiting users to achieve this balance. Sustained yield is an important conservation objective but it often does not speak to many of the issues raised by the extraction of water for bottling. Potential adverse impacts of large wells, such as those used for bottled water, include long-term declines in pressure levels, salt water and other contaminant intrusion, and the degradation of

associated stream aquatic ecosystems, and these are only partially addressed by many conservation regimes. In addition, these regimes are associated with urban and agricultural areas of states in the arid West, which are generally not suitable for bottled water extraction.

The Duty to Share Water

A state cannot prohibit the extraction of water for bottling if it will be exported in interstate commerce. The Dormant Commerce Clause of the U. S. Constitution has been interpreted to invalidate resource export bans because they discriminate against interstate commerce. *Sporhase v. Nebraska ex rel. Douglas,*[15] held that water rights are articles of commerce and invalidated a per se export ban. *Sporhase* constrains state restrictions on interstate transfers;[16] its impact on intra-state transfers is largely untested.[17] The Court in *Sporhase* suggested that a "demonstrably arid state" might be able to defend an export ban as a necessary conservation measure.

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In the 1980s, New Mexico tried to argue that it could conserve water exclusively for future generations of New Mexicans and prohibit Texas from exporting water from the New Mexico portion of a shared aquifer. But a district court defined the conservation standard in a way that excludes most export bans and certainly any bottled water ban. "Outside of fulfilling human survival needs, water is an economic resource."[18] El Paso persevered in its challenge and New Mexico earned a second district court decision that suggested that public interest review may preserve some degree of state sovereignty. However, this state power could not be applied to restrict the export of bottled water. El Paso argued that allowing a state to decide whether the proposed transfer is contrary to "the conservation of water within the state and not otherwise detrimental to the public welfare of the citizens of New Mexico" was unconstitutional, but the district court took a more generous view of the state's power to prefer its own citizens: "New Mexico need not wait until the appropriate time and place of shortage arises to enact a statute limiting exports."

El Paso prevailed only on the argument that the statute discriminated against interstate commerce. The court held that a state may not require interstate commerce to shoulder the entire burden of furthering conservation and other interests. Thus, the application of the conservation and public welfare standard only to out-of-state transfers discriminated against out-of-state users.[19] New Mexico eventually denied the application, because El Paso had not demonstrated a need for the water. In 1989, El Paso started to back away from its policy that Hueco Bolson water is the only available source of supply and is moving toward a more sophisticated water supply policy that relies more on the reallocation of local agricultural supplies.[20] In 1991 the litigation ended when El Paso withdrew its state applications.

The Fifth Amendment and Groundwater Regulation

Any assertion of the public interest must be balanced against the constitutional protection of pri-

vate property. The Fifth Amendment to the U. S. Constitution prohibits the taking of private property without just compensation. The Fifth Amendment has been interpreted to apply both to government actions that physically interfere with the right to exclude and those that limit the use and enjoyment of property through regulation. Groundwater regulation is often opposed because it will be an unconstitutional taking of appurtenant private property. These constitutional objections are unlikely to succeed in the courts, especially if the claim is only that a user is able to extract less water than before the regulation.

Courts have almost uniformly rejected challenges to groundwater regulation, although the theories vary. Courts have used the following theories:

- ***State Ownership***

Courts have reasoned that state assertions of ownership result in a severance of land from water. Thus, groundwater is not a vested property right but a lesser right and limited right to use.[21]

- ***Enhancement of Correlative Rights***

Groundwater regulation substitutes firm extraction rights for the inchoate and uncertain common law rights. Courts have long held that the legislature can limit unlimited extraction to improve the correlative rights of all similarly situated pumpers. [22]

- ***Extinguishment of Unexercised Common Law Rights***

Modern Supreme Court takings jurisprudence identifies the existence of a legitimate investment-backed expectation as a relevant factor in deciding whether a regulation is a taking. This principle has long been recognized in surface and groundwater law. States may extinguish unexercised common law rights, which are not investment-backed expectations, and substitute a permit system.[23]

CHAPTER 3

THE OWNERSHIP AND USE OF GROUNDWATER

The Common Law

The common law of groundwater offers some protection from injury by large well pumps but almost no protection of the public interest in conservation or environmental protection. The common law of groundwater is a law of capture. Groundwater use is a "natural" right incident to surface ownership. Groundwater law was formulated at a time when the mechanics of aquifers were not well understood and high-capacity pumps had not yet been developed. Courts viewed the subsurface of the earth as an inferno and could not visualize any limitations on individuals. The result is that the common law of groundwater provides almost no incentives to conserve the resource or to assess the impacts of other similar pumpers, let alone to assess the total aquatic ecosystem impacts of extraction.[24] Over time, the common law was modified by the notion of basic capture. Four primary rules have developed:

- ***The English Rule***

The English rule allows a surface owner to pump unlimited amounts of groundwater, regardless of injury to the amount available to other surface owners. A few courts have qualified this rule by excluding malicious pumping. The Texas Supreme Court recently reaffirmed the rule in a challenge to the extraction of water for bottled water, and Maine reaffirmed the absolute ownership rule in the face of an argument that it was based on absolute science.[25]

- ***The American or Reasonable Use Rule***

The absolute ownership rule has long been criticized as unfair and inefficient, because it stimulates a race to mine and thus penalizes any conservation effort. Most riparian-rights states[26] have replaced it with the reasonable use or American rule. The reasonable use rule distinguishes between the place of use and the place of extraction. A landowner may extract an unlimited amount of water regardless of the impact on other nearby pumpers for use on his or her land; the only qualification is that the use must be beneficial, e.g., for a legitimate purpose. Use on non-overlying land is per se unreasonable. The argument that bottled water extraction violates this rule has been raised in challenges to new wells. In practice, most of the cases pit small farmers against municipalities that have opened a well field. In most cases, the courts will balance the equities and refuse to enter an injunction. The reasonable use or American rule is fairer to small pumpers because they are compensated.[27]

- ***The Restatement of Torts Section 858***

The Restatement of Torts (Second) Section 858 imposes a reasonable use or non-injury limitation on large overlying pumpers to protect similarly situated small ones. An overlying landowner may be liable for pumping that "exceeds the proprietor's reasonable share of the annual supply or total store of ground water." Michigan, Ohio and Wisconsin have adopted the rule. The result is that mines or

quarries that damage small overlying owners must compensate them.[28]

- ***Correlative Rights***

California, Nebraska and New Jersey have replaced the reasonable use rule with the correlative rights rule to bring groundwater closer to the common law of riparian rights. The rule originated in California and provides that all overlying owners have a correlative right to a proportionate share of the basin. Non-overlying use is allowed, and any surplus waters are subject to appropriation by non-overlying land owners.[29] This rule formally puts non-overlying pumpers, usually municipalities, at a disadvantage, because in-basin users have preferential rights.[30] New Jersey dealt with this problem by allowing municipalities to pump without compensating injured small-well owners.[31]

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California has developed special rules for municipalities that insure that the state's correlative rights rule does not cut off access to needed supplies. The famous case of *City of Pasadena v. City of Alhambra*[32] invented a new way to divide basins among municipalities. The court held that overlying owners and appropriators have equal rights when they pump in excess of the safe annual yield. The "mutual prescription" rule tends to confirm municipal uses or to promote large-scale regional solutions. It has been limited to overlying/ non-overlying conflicts.[33]

The doctrine of mutual prescription is flawed, because California law prohibits prescription against the municipalities. *City of Los Angeles v. City of San Fernando*[34] corrected the error of *City of Pasadena* but went on to create a series of favorable rules for Los Angeles. It held that a non-municipal pumper may not prescribe against the state but a municipal pumper may prescribe against a non-municipal one. In addition, it announced a liberal safe-yield test that will delay the start of any prescriptive period and confirmed Los Angeles' pueblo rights as successor to the Pueblo of Los Angeles. Pueblo rights have been questioned as a historically inaccurate reading of Spanish colonial law,[35] but they operate in California as a super preference for cities.

Prior Appropriation

The doctrine of prior appropriation is hard to apply to groundwater. For this reason, there are many large groundwater-using states, including California, Nebraska and Texas, that follow the law of prior appropriation for surface use but not for groundwater. The states that have adopted prior appropriation for groundwater apply it differently compared to surface water. The most frequent injury suffered by junior right holders is not the loss of water per se but the loss of pressure. However, courts have refused to recognize a right to lift.[36] The most frequent use of prior appropriation is to protect prior surface rights. In Colorado, New Mexico and Washington state, there is a tight integration of ground and surface rights. The state engineer can deny a groundwater appropriation that would impair senior surface rights or condition a new appropriation on the retirement of senior surface rights.[37] Integration

has not, however, ended groundwater mining.[38] Other states have refused to integrate ground and surface rights.

Statutory Reform

Many riparian rights states have modified the common law through regulation. These programs do not eliminate the common law but rather modify selected features. The basic purpose is to substitute state permission for capture. The programs fall into three broad categories.

- ***Emergency Relief***

Many eastern states limit groundwater regulation to drought conditions or to stressed areas. These laws enable the state to identify areas where use may exceed available supplies, watersheds, and groundwater basins and to limit withdrawals during drought periods or in basins where withdrawals may exceed the renewal rates. For example, North Carolina authorizes the establishment of surface and groundwater "capacity use areas" when ground and surface uses require coordination or when withdrawals may exceed renewal or replenishment rates.[39] And Virginia permits the establishment of ground water management areas.[40] Once an area is established, the state requires a permit for withdrawals in excess of 300,000 gallons per month. Existing users are protected; permits must be issued based on past use[41], but the past use can be curtailed if there are demonstrated conservation savings.

Arizona, California, Colorado and New Mexico have taken the most aggressive steps to prevent groundwater mining.

- ***Aquatic Ecosystem Protection***

A few states have directly linked water use and aquatic ecosystem protection, but they generally limit the link to surface water. In 1989, Virginia enacted legislation that gives the state the power to designate surface water management areas. The designation criteria are broad. The State Water Control Board must only find that water levels are "potentially adverse to public welfare, health and safety."[42] Once an area is designated, the state may regulate withdrawals.[43] However, the authority is riddled with exemptions.[44] The most innovative part of the legislation is the state's power to afford some protection to instream uses. Instream uses may be balanced against off-stream uses "so that the welfare of the citizens of the Commonwealth is maximized without imposing undue burdens on any individual water use groups."[45] A similar regime for stressed groundwater-dependent areas was added in 1992.[46]

- ***Safe Yield***

Arizona, California, Colorado and New Mexico have taken the most aggressive steps to prevent groundwater mining. California has done a series of basin-wide adjudications, while Arizona has done it by statute requiring that existing pumping be gradually rolled back. The Arizona legislation is the current "gold standard" conservation regime. In the 1970s, the federal government forced the state to limit mining as the price for federal financing of a project to bring water to the center of the state from the Colorado River. Arizona is gradually switching from groundwater to Central Arizona Project water and recycled water.

The Arizona Groundwater Management Act requires that the state establish safe yield targets for designated Active Management Areas and that it achieve these limits over a long period of time. Water use appears to have leveled off even as population continues to increase. But, mining is continuing and projections have indicated that the Phoenix Active Management Area may exceed safe yield by between 245,308 and 419,538 acre feet on the 2025 target date. Tucson may have an overdraft of between 34,710 and 158,310 acre feet. A 2002 report of the Arizona Department of Water Resources found that well levels continue to decline in most major basins in the state.[47]

Groundwater conservation regimes in other states actually allow for increased groundwater use. Colorado, for example, uses plans for augmentation that allow increased groundwater use when surface rights are retired. New Mexico relied on this strategy but it is now being forced to reevaluate it. As overdrafts have continued, the state engineer is setting more stringent off-set requirements in the Middle Rio Grande to protect the flow of the Rio Grande and existing rights. In 2000, the state engineer closed The Middle Rio Grande Administrative Area to new appropriations.[48] In 2001, he approved a groundwater application from the north Albuquerque suburb of Rio Rancho. But the state engineer concluded that "[i]t would impair the existing rights and be contrary to the conservation of water in the State of New Mexico if a permit were issued without certainty" that city would be able to obtain the necessary off-set rights to preserve Rio Grande and Jemez river flows.[49] For the first time, the state engineer conditioned an appropriation on the city's actually obtaining and transferring all off-set rights prior to determining the actual impacts on surface rights and river flows.[50] In addition, the city must have an approved return plan before it can receive an off-set credit. These programs will have a limited impact on the location of wells for bottled water because the water in these areas may be (1) too expensive and (2) of insufficient quality to meet FDA and state regulations.

CHAPTER 4

POLICY RECOMMENDATIONS

States can better regulate the extraction of groundwater for bottled water by implementing the following policy recommendations:

- **Require that all high-capacity wells obtain a permit from the state.**

COMMENT: A groundwater permit system must be tailored to the water resources and use of a specific state. The object of the legislation should be only to target new large, high-capacity wells that are likely to have adverse impacts on existing and future smaller uses and on stream flows. States with no regulation of groundwater may consider imposing only a reporting requirement for high-capacity wells. This will enable them to gather the necessary information to decide if additional regulation is necessary. States that limit the use of groundwater only during a drought or in basins that have declining water tables may wish to consider adding a permit requirement for new high-capacity wells. The amounts per day extracted for bottled water are large. For example, Perrier wants to extract more than 500,000 gallons per day in Michigan. Thus, it is possible to establish a threshold for the permit requirement that will leave most domestic and agricultural uses unregulated. Many states choose 100,000 gallons per day for 30 consecutive days as the cutoff level. In states with abundant resources, where bottled water plants are likely to locate, the amount of small unregulated wells does not pose the problem that it does in more arid states where the cumulative impact of unregulated domestic wells is substantial.

- **Require that the permit applicant submit an environmental impact analysis that focuses on the impacts on associated aquatic ecosystems and other environmental issues such as traffic and air pollution.**

COMMENT: Large wells to extract water for bottling can often have substantial adverse environmental impacts on associated stream systems and aquifers. The pumping can also lead to a long term decline of water tables in the aquifer. Reduced flows and water travels can jeopardize wildlife and recreational use of streams. Decreased water levels can cause temperature changes and disrupt sediment transport patterns. These impacts are often not examined when agencies issue permits. Existing statutes focus primarily on the impacts on third party water right holders.

- **Require that the applicant compensate other well owners if they suffer a significant pressure decline or have their wells dewatered.**

COMMENT: Smaller pumpers are often the first to experience the affects of large scale pumping, but the adverse effects are often limited to the expense of deepening existing shallow wells. When a large new user comes into to an area and makes a super-normal use of water, it is fair to

require the new, large user to compensate existing smaller users.

- **Require that the permit agency hold at least one public hearing in the area of the proposed extraction after there has been an initial assessment of the likely environmental and social impacts of the proposed extraction.**

COMMENT: Large new wells are a form of LULU (locally undesirable land use). At a minimum, the state permitting agency should provide a convenient opportunity for landowners and stakeholders in the vicinity of the proposed well and bottling plant to learn of the scope of the project and proposed mitigation plans and to voice their concerns in a timely fashion.

At a minimum, the state should provide a convenient opportunity for local landowners and stakeholders to learn of the scope of a project.

- **Require that the permit only be issued after a determination that (1) there will be no interference with existing and foreseeable surface- and groundwater priority uses, which include domestic water supply, small non-domestic wells that extract less than 10,000 gallons per day, and agricultural uses between 10,000 and 100,000 gallons per day; (2) the diversion is consistent with minimum flows established for associated stream systems, or (3) if no minimum flows have been established, the extraction will maintain a summer minimum flow established to protect the aquatic ecosystem and recreational uses of the stream.**

COMMENT: These are the primary substantive standards that should be applied to new, large scale wells. These standards are necessary to protect existing users in the area and the public interest in environmental quality, such as the protection of minimum stream flows and the prevention of salt water intrusion, and to conserve stressed aquifers for long-term domestic and agricultural use.

- **Allow the permit agency to impose conditions on the permit to mitigate adverse impacts on existing and foreseeable uses or the associated stream system.**

COMMENT: It is often possible to mitigate the adverse impacts of a large new well through pumping restrictions during certain times of the year. This section gives a permit agency the express authority to impose mitigation conditions on the permit to protect both existing users and the public interest articulated in the previous section.

- **Require that the permit conditions modify the common law only to the extent of the specific requirements imposed by this statute.**

COMMENT: This section makes it clear that the state common law of water remains in place to the extent that it has not been modified by this statute. For example, small users who are not currently subject to a permit requirement would not be affected by this law.

- **Require that the permit be issued for ___ years, may be renewed, and may be transferred only to a person who wishes to extract the same or a lesser amount of water in a manner that [complies with] *is no less stringent than* the conditions of the original permit.**

COMMENT: Any permit regime must balance the interests of stability and flexibility to adapt to changed conditions. This section rejects the idea that water use permits should be perpetual. Instead, it opts for renewable term permits. The initial term should allow the user to recoup its investment in the water-based activity, but the state should have the option to review the pumping after the investment has been recouped. Given the site specific nature of bottled water extraction, it makes permits transferrable but does not allow the water to be used for another purpose in another location. In short, the permit will only be transferred if the bottling facility is sold.

- **Require the applicant to monitor the potential adverse environmental impacts and report monitoring data regularly to the permitting agency.**

COMMENT: Environmental monitoring is a standard feature of many activities that pose a risk of environmental disruption. This section allows the agency to acquire the necessary information to continually assess the affects of pumping and to make changes in the mitigation conditions if necessary.

ENDNOTES

1 Tara Boldt-Van Rooy, "'Bottling Up" Our Natural Resources: The Fight Over Bottled Water Extraction in the United States,' 18 *Journal of Land Use & Environmental Law* 267 (2003).

2 21 Code of Federal Regulations Section 165.110(a)(2))vi).

3 Ibid

4 See Boldt-Van Roy, supra Note 1 at 282-295.

5 U.S. Geological Survey, *Estimated Water Use in the United States in 1995,* 20 (USGS Survey Circular 1200, 1998).

6 In late 2003, a Michigan trial judge issued a 67 page written opinion which enjoined all withdrawals for Perrier's bottling facility at Sanctuary Springs. *Michigan Citizens for Water Conservation v. Nestle Waters North America*, Case No. 01-14563-CE (49th Judicial Circuit, Mecosta Circuit Court, 2003). The court rejected the argument the extraction of bottled water for sale violated the state's reasonable use rule. Instead, the court found that the pumping would have adverse environmental impacts on associated stream and lake systems and held "[i]n cases where there is groundwater use that is from a water source underground that is shown to have a hydrological connection to a surface water body to which riparian rights attach, the groundwater use is of inferior legal standing than the riparian rights." Id. at p. 48.

7 The leading case is *Wayman v. Murray Corporation,* 458 P.2d 861 (Utah 1969).

8 E.g., N.C.Gen.Stat.Ann. S 143-215.13,

9 See David H. Getches, Lawrence J. MacDonnell & Teresa A. Rice, *Controlling Water Use: The Unfinished Business of Water Quality Protection* (1991).

10 PUD No. 1 of *Jefferson County v. Washington Department of Ecology,* 511 U.S. 700, ___ (1994)

11 The leading case is *United States v. State Water Resources Control Board,* 182 Cal.App.3d 82, 227 Cal.Rptr. 161 (1986).

12 E.g., *City of Thornton v. Bijou Irrigation Co.,* 926 P.2d 1, 90- 93 (Colo. 1996)(appropriator has no basis to object to an exchange agreement that reduced flows available to dilute its discharge.)

13 Substitute Senate Bill 5028 (Chapter 15 Laws of 2003).

14 Frank J. Trelease, "Government Ownership and Trusteeship of Water, 45 *California Law Review* 638 (1957).

15 458 U.S. 941 (1982).

16 e.g., Neb. Rev.Stat. _ 537.810 (some interbasin transfers above 50 cfs require legislative approval).

17 The issue arose in a case challenging a California county's ordinance that forbade the export of groundwater outside the county but the court gave short shrift to the argument that the ordinance violated the Dormant Commerce Clause and decided the case of preemption grounds. *Baldwin v. County of Tehema,* 31 Cal.App.4th 166, 36 Cal.Rptr.2d 886 (3d Dist. 1994), *review denied* (State's failure to provide comprehensive regulation of groundwater precluded finding of implied state preemption of local authority).

18 *City of El Paso v. Reynolds,* 563 F. Supp. 379, 389 (D. N.M. 1983).

19 *City of El Paso v. Reynolds,* 597 F. Supp. 694, 701 (D. N.M. 1984).

20 See, A. Dan Tarlock & D'arcy A. Frownfelter, "State Groundwater Sovereignty After Sporhase: The Case of the Hueco Bolson," 43 OKLA. L. REV. 27 (1990).

21 E.g., *Bamford v. Upper Republican Natural Resources Dist.,* 245 Neb. 299, 512 N.W.2d 642 (1994)

22 *Lindsey v. Natural Carbonic Gas Co.,* 220 U.S. 61 (1911).

23 *Village of Tequesta v. Jupiter Inlet Co.,* 371 So.2d 663 (Fla. 1979); *Town of Chino Valley v. City of Prescott,* 131 Ariz. 78, 638 P.2d 1324 (1981).

24 Robert Glennon, *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters* (2002), surveys the costs of unrestrained use in all regions of the country.

25 *Maddocks v. Giles,* 728 A.2d 150 (Me. 1999); *Sipriano v. Great Spring Waters of America, Inc.,* 1 S.W.3d 75 (Tex. 1999).

26 States' water law regimes have traditionally been classified based on the state's adoption of the common law or the alternative of prior appropriation. In brief, most humid states east of the Missouri River adhere to the common law of riparian rights. The common law assigns water rights only to land owners with land adjacent to a stream. The amount of the right can only be determined through litigation. In contrast, the prior appropriation states severed water rights from land rights and guarantee users a definite quantity of water based on the time that it was put to beneficial use. Many eastern states have imposed a layer of regulation over the common law, but no state has displaced it. See A. Dan Tarlock et al., *Water Resource Management* (5th Ed. 2002).

27 *Higday v. Nickolaus,* 469 S.W.2d 859 (Mo. 1971); *City of Blue Springs v. Central Development Ass'n,* 831 S.W.2d 655 (Mo.App. W.D. 1992); *Forbell v. City of New York,* 58 N.E. 644 (1900); *Canada v. City of Shawnee,* 64 P.2d 694 (Ok. 1936)(injunction conditioned on city's institution of condemnation action).

28 This rule imposes liability generally on mines or quarries which damage small overlying owners. *Maerz v. American Steel Corp.,* 323 N.W.2d 524 (Mich. 1982); *Cline v. American Aggregates Corp.,* 474 N.E.2d 324 (Ohio 1984); and *State v. Michaels Pipeline Construction Co.,* 217 N.W.2d 339, (Wis. 1974), but does not constrain municipal pumping.

29 *Katz v. Walkinshaw,* 74 P. 766 (Cal. 1902).

30 *Wright v. Goleta Water Dist.,* 219 Cal.Rptr. 740 (Cal.Ct. App 1985).

31 E.g., *Woodsum v. Pemberton,* 412 A.2d 1064 (N.J.Super. 1980)(correlative rights rule does not include a right to lift).

32 07 P.2d 17 (1949).

33 *Tehachapi- Cummings Water Dist. v. Armstrong,* 122 Cal.Rptr. 918 (Cal.APp. 1975).

34 537 P.2d 1250 (Cal. 1975)

35 See Peter L. Reich, "Mission Revival Jurisprudence the Pueblo Rights Doctrine Meets Prior Appropriation: State Courts and Hispanic Water Law Since 1850," 69 Wash. L. Rev. 869 (1994).

36 *Wayman v. Murray Corporation,* 458 P.2d 861 (Utah 1969).

37 *City of Albuquerque v. Reynolds,* 379 P.2d 73 (N.M. 1962)

38 Alletta Belin, Consuelo Bokum and Frank Titus, *Taking Charge of Our Water Destiny: A Water Management Policy Guide for New Mexico in the 21st Century* 1 (undated).

39 N.C.Gen.Stat,Ann. S 142-215.13. See *High Rock Lake Ann_n v. North Carolina Environmental Management Commission,* 51 N.C.App. 275, 276 S.E.2d 472 (1981)(Commission has discretion not to declare area when nuclear power plant's proposed withdrawals would have a slight water quality impact and no water supply impact assuming compliance with conditions imposed on permit).

40 Ann.Code.Va. S 62.1-257.

41 Ann.Code.Va. S 62.1-261 (consecutive twelve-month withdrawals for the past five years for all uses except agricultural withdrawals which have a right to consecutive twelve-month withdrawals for the past ten years).

42 Ann.Code, Va. §62.1- 242.

43 §62.1-248.

44 §62.1-243 The exemptions include (1) withdrawals less than 300,000 gallons per month, (2) municipal or privately owned water company withdrawals in existence in 1989 and which do not exceed the grandfathered rate, (3) future withdrawals that received a Section 401 certification under the Clean Water Act, and (4) all beneficial consumptive uses in existence in 1989 provided that the grandfathered rate is not increased.

45 §62.1-248.

46 §62.1- 254- 270.

47 http://www.water.az.gov/adwr/Content/Publications/files/news/2002PrescottMonitoringReport.pdf

48 New Mexico State Engineer Middle Rio Grande Administrative Area Guidelines for Review of Water Rights Applications (2000). See Celina A. Jones, *The Administration of the Middle Rio Grande Basin: 1956- 2002,* 42 Nat. Res. J. 939 (2002) for a detailed analysis of the state's timed mining and surface water flow protection policy. Domestic wells are exempted. This minor domestic use preference is now a source of considerable unregulated water use. Washington state has moved to close this increasingly dysfunctional exemption. *State, Department of Ecology v. Campbell & Gwinn,* 146 Wash.2d 1, 43 P.3d 4 (2002), holds that the Department of Ecology correctly interpreted the state's water rights statute to exclude large subdivisions from the domestic well exemption. RCW 90.44.050 exempts withdrawals under 5,000 gpd and Ecology ruled that the entire subdivision was entitled to one 5,000 or less gpd well or it must file for ground or surface water rights. Applying an expanded plain meaning rule which permits reference to closely related statutes and legislative purposes, the court concluded that "the Legislature did not intend unlimited use of the exemption for domestic uses, and did not intend that water appropriation for . . . [subdivision] uses be wholly unregulated."

49 In the Matter of the Application of the City of Rio Rancho for Permit to Appropriate Water and Drill new Wells, Hearing No. 97-004, OSC File No. RG-6745 through RG-6745-S-34, summary available at http://www.seo.nm.us/publications/waterlines/wl-winter-2001/hearings.html.

50 American Bar Association, Section on Environment, Energy, and Resources, *Environment, Energy, and Resources Law: The Year in Review 2001,* 170 (2002).