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## High-Capacity Wells: A Survey of Groundwater Withdrawal Rights and Regulations

Linda Reid

Megan Kiplinger, Jordan Miller, Benjamin Edelstein, Samuel Ouimet

*Water365, LLC.*

Groundwater represents roughly 30% of the world's freshwater supply, and 2.5 billion people depend solely on groundwater to meet their daily water needs. In the United States, around 20% of total freshwater withdrawals come from groundwater sources. Agricultural irrigation is currently the largest use of groundwater in the United States. To satisfy demand, high-capacity wells that have the ability to withdraw water over an established daily threshold are often employed. These wells are capable of achieving withdrawal rates that exceed natural groundwater recharge rates and can disrupt the hydrological cycle as a result. Therefore, unregulated groundwater withdrawals through the use of high-capacity wells can become unsustainable.

Like the regulation of rights to use surface water, regulation of groundwater rights and high-capacity wells has largely been left to states. Although states typically regulate surface water according to two common law doctrines (riparianism and prior appropriation), the regulations of groundwater has been more complex. Currently, there are five common law doctrines that states have used to regulate groundwater: absolute ownership, American reasonable use, correlative rights, the Restatement (Second) of Torts, and prior appropriation. However, few states apply any of these doctrines in a uniform way. As a result, groundwater management in the United States has been highly fragmented.

The following chart provides a brief summary of the common law doctrine applied to groundwater management in each state, and the regulatory frameworks in place for groundwater withdrawal through the use of high-capacity wells. Note, that the common law doctrine that some states adhere to is unclear. Furthermore, some states are not able to be neatly categorized as following a single doctrine. We selected the doctrine(s) that were most clear in the state's legislation and case law. The applicable common law doctrine may differ in special management areas.

**The information contained in this document is provided for educational purposes only. It is not legal advice and is not a substitute for the potential need to consult with a competent attorney licensed to practice law in the appropriate jurisdiction.**

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
<b>Alabama</b>										
<i>Alabama Water Resources Act (Ala. Code § 9-10B)</i>	Alabama Office of Water Resources (within the Department of Economic and Community Affairs)	Reasonable Use	Capacity stress area	No limit (exception = capacity stress areas)	All public water systems Users with a capacity to withdraw at least 100,000 gallons/day	N/A	Temporary withdrawals may be eligible to be exempt from registering	Registered user must submit annual report	Users outside of capacity stress areas with a withdrawal capacity of less than 100,000 gallons/day	
<b>Alaska</b>										
<i>Alaska Water Use Act (Alaska Stat. § 46.15)</i> <i>Water Management Act (Alaska Admin. Code tit. 11, § 93)</i>	Alaska Department of Natural Resources	Prior Appropriation	Critical water management area	N/A	N/A	Permit required when withdrawal is a "significant amount"	(1) 5,000 gallons for 1 day from a single source (2) 500 gallons from a single source for more than 10 day/year (3) 30,000 gallons/day non-consumptive use from a single source	Well meters generally required for large commercial wells (greater than 30,000 gallons/day)	Smaller domestic wells	
<b>Arizona</b>										
<i>Arizona Groundwater Management Act (Ariz. Rev. Stat. Ann. tit. 45)</i>	Arizona Department of Water Resources	Reasonable Use <sup>1</sup>	Active management areas (AMA) Irrigation non-expansion areas (INA) <sup>2</sup>	AMA/INA: see local water management plan for amount (goal of most is "safe yield")	N/A	Permit required for any withdrawal in an AMA or INA	Special management areas: Exempt wells (withdrawal for non-irrigation use from a well with a pump capacity of less than 35 gallons/minute), certain existing irrigation uses grandfathered in	Required for non-exempt wells in special management areas AMA: required (see AMA water management plan for specific requirements) INA: required for all users using water for irrigation purposes, and required for all users withdrawing more than 10 acre-feet/year	Exempt wells (pump capacity of more than 35 gallons/minute) AMA: see local land management plan INA: irrigators of 10 acres or less	<sup>1</sup> Exception = doesn't apply in special management areas. <sup>2</sup> INAs subject to either the specific rules of the basin or all irrigation is prohibited unless the area was irrigated within 5 years before the adoption of the rule.
<b>Arkansas</b>										
<i>Arkansas Ground Water Management and Protection Act (Ark. Code Ann. § 15-22: Water Resources)</i>	Arkansas Natural Resources Commission	Reasonable Use <sup>1</sup>	Critical groundwater areas	Amount that can be beneficially used on one's own property	Required for all withdrawals	May be required in critical groundwater areas	Withdrawals for domestic uses Withdrawals from wells with a maximum potential flow rate of less than 50,000 gallons/day Certain existing uses grandfathered in (exception = an equally or less costly substitute exists)	Annual reports on the water usage from October 1st to September 30th of the next year required for all users	None	<sup>1</sup> There is also support for Correlative Rights in the state's common law. The eastern version of Correlative Rights differs from the doctrine as it was originally developed in California. In Arkansas, "reasonableness" is determined with respect to other landowners. A water right gives "each riparian owner . . . an equal right to make reasonable use of water subject to the equal rights of other owners to make reasonable use." <i>Lingo v. City of Jacksonville</i> , 258 Ark. 63, 65 (Ark. 1975).
<b>California</b>										
<i>Cal. Water Code</i> <sup>1</sup>	Groundwater is managed at the local level and no single state agency has authority	Reasonable Use and Correlative Rights	State divided into 515 basins (larger areas classified as medium or high priority basins)	Courts can limit the rights of a pumper to extract groundwater in order to protect the water supply and prevent overdraft	N/A	No default state groundwater withdrawal permitting requirements (see the permitting regime established for a particular basin by the local groundwater sustainability agency)	N/A	No statewide reporting requirements	N/A	<sup>1</sup> See generally Division 2: Water, Division 6: Conservation, Development, and Utilization of State Water Resources.

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Colorado	Colorado Division of Water Resources Colorado Ground Water Commission (regulates groundwater within designated basins)	Cal. Water Code [FN = See generally Division 2: Water, Division 6: Conservation, Development, and Utilization of State Water Resources]	Designated basins	Amount specified in permit <sup>2</sup>	N/A	Permit required regardless of where the well is located <sup>3, 4</sup>	Designated basins = Small capacity wells: (1) Wells not exceeding 50 gallons/minute and used for no more than 3 single-family dwellings (exception = does not include irrigation on more than 1 acre of land) (2) Livestock wells not exceeding 50 gallons/minute and used for watering livestock (3) Wells used in 1 commercial business not exceeding 50 gallons/minute (4) Certain wells used for observation purposes (5) Wells used exclusively for firefighting purposes (6) Certain monitoring wells  Nondesignated basin = Exempt wells; flow rates of 15 gallons/minute or less for in-house use and outside use only for domestic animals	Reporting required	N/A	<sup>1</sup> Colorado has complicated water system, with rights and procedures differing based on how the groundwater is classified and where it is located. Groundwater classifications are: (1) Tributary groundwater: This is the "default" and is groundwater that is tributary to a natural stream. (2) Designated groundwater: This is groundwater in areas that have been declared "designated basins." (3) Nontributary groundwater: Groundwater that is located deep in an aquifer that is outside of a designated basin, that is not tributary to surface flows. (4) Not nontributary groundwater: Groundwater in the Denver Basin aquifers with slightly more connection to surface water than nontributary groundwater, but not located within a designated basin.  <sup>2</sup> For nontributary groundwater, the State Engineer allocates the total available groundwater based on the 100-year aquifer life, with each permit holder being allowed to deplete the aquifer by 1% each year.  <sup>3</sup> In a non-designated basin, the permit is a "non-exempt well permit." In a designated basin, it is a "large capacity well permit."  <sup>4</sup> For tributary groundwater, the water right must first be adjudicated in Water Court.
Connecticut	Connecticut Department of Energy and Environmental Protection	Absolute Dominion	Aquifer protection areas <sup>1</sup>	N/A	Required for certain existing diversions (diversions maintained prior to or on July 1, 1982)	Required for all withdrawals over 50,000 gallons/day	Well(s) where withdrawal will not exceed 50,000 gallons during any 24-hour period  Certain existing diversions grandfathered in (diversions existing and registered before July 1, 1983)	Annual reporting required for registered wells  Annual reporting required for permit holders putting water to consumptive use (non-consumptive use permit holders should consult their permit for reporting requirements)	None	<sup>1</sup> Focused on groundwater quality/pollution.  <sup>2</sup> § 22a-377(a) for other exemptions.
Delaware	Delaware Division of Water Resources	Correlative Rights	Groundwater management zones <sup>1</sup>	For permitted new withdrawals, a pumper can use up to 20 acre-inches/year, but not more than 10 acre-inches/month  See Del. Admin. Code § 7303 for groundwater withdrawal rate limits	N/A	Required for all withdrawals over 50,000 gallons/day	N/A	Annual reports on water usage required for permit holders	Permit holders for irrigation only need to report from Mar. to Nov.	<sup>1</sup> Focused on groundwater quality/pollution.

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<b>Florida</b>										
Florida Water Resources Act of 1972 (Amended by 1997 Water Act) (Fla. Stat. §§ 373.302 - 373.342: Regulation of Wells)  Fla. Admin. Code ch. 40A-E (Water Management Districts)	Water Management Districts (5 local governing bodies), with the Florida Department of Environmental Protection providing general supervision and oversight	Reasonable Use	Water resource caution areas (in some WMDs)	"Reasonable-beneficial use" ("use of water in such a quantity as necessary for economic and efficient utilization for a purpose and in such a manner that is both reasonable and in the public interest")  Permit may contain limits on withdrawal amounts if the aquifer level time table is below that set by the Department of Environmental Protection	N/A	Every WMD requires groundwater users to obtain a permit for consumptive uses of water	Domestic consumption of water by individual users  Additional exemptions vary based on WMD <sup>1</sup>	Annual reporting required for permit holders authorized to withdraw more than 100,000 gallons/day	Groundwater users exempt from permitting requirements  Permit holders authorized withdraw 100,000 gallons/day or less	<sup>1</sup> See Fla. Admin. Code 40 A-E
<b>Georgia</b>										
Groundwater Use Act of 1972 (Ga. Code Ann. § 12-5-90)  Ga. Comp. R. & Regs 12-5-3 (Wells and Drinking Water)	Georgia Environmental Protection Division (within the Georgia Department of Natural Resources)	Absolute Dominion	N/A	N/A	N/A	Required for any user who withdraws more than 100,000 gallons/day for any purpose  Note: special permitting rules apply to farms	Withdrawals of less than 100,000 gallons/day	Permittees must submit a semiannual statement on the nature and quantity of their use, an annual report of their water use, and a progress report every 5 years that details water conservation techniques and supplemental information ;	Farm uses (includes irrigation for farm purposes)	
<b>Hawaii</b>										
State Water Code (Haw. Rev. Stat. ch. 174C)	Hawaii Commission on Water Resources Management	Correlative Rights	Water management areas	N/A	Required for wells in existence before State Water Code was adopted	Well construction permit required everywhere  Water use permit required in water management areas	Domestic consumption for individual users	Monthly reports required for all wells <sup>1</sup>	None	<sup>1</sup> Salt water wells can report annually
<b>Idaho</b>										
Ground Water Act of 1951, as amended (Idaho Code tit. 42: Irrigation and Drainage - Water Rights and Reclamation)  Idaho Admin. Code tit. 37: Dept. of Water Resources	Idaho Department of Water Resources	Prior Appropriation	Critical groundwater areas	Amount that can be beneficially used  Note: Irrigation greater than 1 cubic-foot/second per 50 acres is prohibited without approval from IDWR	N/A	Required for all withdrawals	Domestic wells: use of water for individual use, irrigation of less than 1/2 acre of land, and any other associated purpose, so long as not more than 13,000 gallons/day, and any other use so long as the total use is not more than .04 cubic-foot/second or 2,500 gallons/day	Required for permittees	Exempt uses	
<b>Illinois</b>										
Illinois Water Use Act (1983) (525 Ill. Comp. Stat. 45)	County Soil and Water Conservation Districts (overseen by the Illinois Department of Agriculture)	Reasonable Use	Regulated recharge areas <sup>1</sup>	Limits may be placed upon wells with a capacity of 100,000 gallons/day or more if the District has investigated and recommended a limit  State regulators may restrict withdrawals in certain counties	Required for high capacity wells (facilities with a capacity to withdraw at least 100,000 gallons/day)	Required for special jurisdictions (any town where the Iroquois River flows, or any town with more than 100,000 people where the Mackinaw River flows)	High capacity wells	Annual report to the Illinois Water Inventory Program for high capacity wells	Wells with pump capacity of less than 100,000 gallons/day	<sup>1</sup> Focused on groundwater quality/pollution.
<b>Indiana</b>										
Ind. Code § 14-25-3 (Water Rights; Ground Water)	Indiana Department of Natural Resources	Absolute Dominion	Restricted use areas	May be limits if the Director declares a groundwater emergency if small quantity users (less than 100,000 gallons/day) have a cause of action	Required for all facilities with a capacity to withdraw at least 100,000 gallons/day	Required in restricted use areas for all new users or those withdrawing more than 100,000 gallons/day	Wells with a pump capacity of less than 100,000 gallons/day	Annual reporting required for owners of registered facilities	None	

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<b>Iowa</b>										
Iowa Code ch. 455A (Water Rights), ch. 455E (Groundwater Protection) Iowa Admin. Code tit. 567 (Environmental Protection Commission)	Iowa Department of Natural Resources	Correlative Rights	Protected source areas	Each aquifer has a different limit on the amount or rate of withdrawal	N/A	Required for withdrawals that exceed 25,000 gallons/day <sup>1</sup>	Withdrawals less than 25,000 gallons/day	Annual reporting required	None	<sup>1</sup> Additional permitting requirements for high-capacity wells that have an expected pump capacity of 500 gallons/minute or more.
<b>Kansas</b>										
Kansas Water Appropriation Act (Kan. Stat. Ann. § 82a-701 <i>et seq.</i> ) Kan. Admin. Regs. tit. 28 (Dept. of Human Health and Env.)	Division of Water Resources (within the Kansas Department of Agriculture)	Prior Appropriation	Intensive groundwater use control areas Local enhanced management areas	Annual authorized quantity (cannot be increased) Local groundwater management districts can impose additional limitations	N/A	Required for all withdrawals	Domestic uses (2 acres or less) Certain existing uses grandfathered in	Annual reporting required	Domestic users	
<b>Kentucky</b>										
Ky. Rev. Stat. ch. 151 (Geology and Water Resources)	Division of Water (within the Kentucky Energy and Environment Cabinet)	Reasonable Use	N/A	Quantity and rate specified in permit	N/A	Required for facilities with a withdrawal rate of more than 10,000 gallons/day	Domestic uses Agricultural uses (includes irrigation) Withdrawals made at a constant rate with an average withdrawal rate of 10,000 gallons/day or less <sup>1</sup>	Monthly reporting required for permitted withdrawals	Withdrawals exempt from the permitting process	<sup>1</sup> Permit may be required if the withdrawals are made on an irregular basis and at an irregular rate if the water withdrawn represents a significant portion of the available water supply.
<b>Louisiana</b>										
Water Control Law (La. Stat. Ann. §§ 30:2071 <i>et seq.</i> ) La. Admin. Code tit. 43 (Natural Resources), Part VI (Water Resources Management), Subpart 1 (Ground Water Management)	Office of Conservation (within the Louisiana Department of Natural Resources)	Absolute Dominion	Areas of groundwater concern	No limit	Required for all wells (new wells and those that have been re-worked) producing more than 50,000 gallons/day	N/A	Wells pumping less than 50,000 gallons/day (owner is not considered a "user")	Monthly reporting required for owners of non-domestic water wells in an area of groundwater concern DNR can require registered wells to submit information	None	
<b>Maine</b>										
Me. Stat. tit. 39 (Waters and Navigation), ch. 3 (Protection and Improvement of Waters) See specifically: Art. 1-B (Ground Water Protection Program) § 404 Ground Water Rights Art. 4-B (Water Withdrawal Reporting Program) Art. 5-A (Natural Resources Protection Act)	Maine Department of Environmental Protection	Absolute Dominion	N/A	Amount needed for beneficial domestic use at single family home, so long as it doesn't cause harm to another beneficial user	N/A	If withdrawal is within 500 feet of a body of water: withdrawal of at least 75,000 gallons/week or 50,000 gallons/day If withdrawal is over 500 feet from a body of water: withdrawals of at least 216,000 gallons/week or 144,000 gallons/day Required for withdrawal from a significant groundwater well	Public water systems Home domestic supply Agricultural use	Annual usage reports required for those withdrawing more than threshold amount (varies depending on the location of nearby lakes/ponds) <sup>1</sup> Required for withdrawals from certain groundwater sources within 500 feet of a lake or pond Required if the withdrawal is from groundwater greater than 500 feet from certain water bodies and is 50,000 gallons or more on any day (exception = the person making the withdrawal demonstrates that it won't impact any adjacent surface water body)	Proven to the Department's satisfaction that the withdrawal won't impact the adjacent surface water body Nonconsumptive uses Household uses Emergencies	<sup>1</sup> § 470-B for threshold volumes for reporting annually.

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<b>Maryland</b>										
Md. Code Ann., Envir. tit. 5 (Water Resources)	Maryland Department of the Environment	Reasonable Use	Water management strategy areas	Administrative decisions suggest that the Department has an unwritten rule limiting withdrawals to an amount it calculates that belongs to the land or to land under the user's control	N/A	Required for all withdrawals	Certain domestic uses (other than heating/cooling) Agriculture use less than 10,000 gallons/day (with some exceptions) Groundwater withdrawals of less than 5,000 gallons/day (does not include use for public water systems, or uses within a water management strategy area)	Semi-annual reporting required for permit holders when permit is issued for an average withdrawal of more than 10,000 gallons/day Annual reporting required for agricultural uses	Users exempt from permitting process	
<b>Massachusetts</b>										
Massachusetts Water Management Act (Mass. Gen. Laws ch. 21G)	Massachusetts Department of Environmental Protection	Absolute Dominion	N/A	No limit	Users withdrawing over 100,000 gallons/day on average during the 5 years prior to January 1986	Required for withdrawals over 100,000 gallons/day	Nonconsumptive uses not factored into calculating the volume withdrawn	Annual reporting required for registered users and permit holders	None	
<b>Michigan</b>										
Natural Resources and Protection Act (Mich. Comp. Laws ch. 324 (Act 451 of 1994))	Michigan Department of Natural Resources	Restatement (Second) of Torts § 858 (Beneficial Purpose Doctrine)	N/A	A reasonable amount up to the point of interfering with a neighbor's reasonable use	Required for owners of prospective new or increased "large quantity water withdrawals" (1 or more cumulative withdrawals of over 100,000 gallons/day average in any consecutive 30-day period)	Required for users proposing to withdraw over 2,000,000 gallons/day	Owners of a noncommercial well on certain residential properties (either a single family residential property, or a multi-family residential property not exceeding 4 residential units on 3 acres or less) (exception = well is a lake augmentation well) Seasonal withdrawal of 2,000,000 gallons/day in any consecutive 90-day period to supply a common distribution system	Annual reporting required for registered users and permit holders	Owner of a farm who submits a water conservation plan under § 32708 User who withdraws less than 1,500,000 gallons in any year is subject to less stringent reporting requirements	
<b>Minnesota</b>										
Minn. Stat. ch. 103A - 114B	Minnesota Department of Natural Resources	Correlative Rights	Groundwater management areas	Non-essential uses may be limited if governor declares a critical water deficiency	N/A Note = Legislative approval is needed if a user plans to appropriate more than 2,000,000 gallons/day for a consumptive use, along with a determination from DNR that there are adequate resources	Facilities that withdraw at least 10,000 gallons/day or 1,000,000 gallons/year (exception = Commissioner can require a permit for wells with a capacity less than this in groundwater management areas)	Water is used to supply less than 25 people's domestic uses	Annual report tracking monthly withdrawals required for permit holders	None	
<b>Mississippi</b>										
Mississippi Commission on Environmental Quality Regulation LW-2 (Surface Water and Groundwater Use and Protection) Miss. Code Ann. tit. 51 (Water, Water Resources, Water Districts, Drainage, and Flood Control) Miss. Admin. Procedures Act Rules tit. 11 (Mississippi Department of Environmental Quality)	Office of Land and Water Resources (within the Mississippi Department of Environmental Quality)	Absolute Dominion <sup>1</sup>	Water use caution area	No limit	N/A	Required for all withdrawals <sup>2</sup>	Water for domestic uses (ordinary household purposes, livestock watering, and irrigation of non-commercial lands) Water withdrawn from a well with a surface casing diameter of less than 6 inches Existing water rights before grandfathered in Note = Board may require permits for exempt wells in in a water caution area for withdrawals in excess of 20,000 gallons/day	Annual reporting required on volume withdrawn over the year for owners of wells that withdraw over 20,000 gallons/day	None	<sup>1</sup> In <i>Bd. of Supervisors v. Miss. Lumber Co.</i> , 31 So. 905 (Miss. 1902), Mississippi was categorized as an absolute ownership state, but the court indicated that if faced with the appropriate case, it would instead apply reasonable use rule. <sup>2</sup> Additional permit requirements for wells with a withdrawal capacity in excess of 20,000 gallons/day.

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<b>Missouri</b>										
Mo. Rev. Stat. § 256.400 <i>et seq.</i>	Missouri Department of Natural Resources	Reasonable Use <sup>1</sup>	N/A	No limit	Required for "major water users" (owners of wells with a capacity to withdraw at least 70 gallons/minute or 100,000 gallons/day)	N/A	Water pumped from mines and quarries	Registered users must submit an annual report on their withdrawal/use  May be required in water quality protection areas if the State Water Resource Plan requires reporting	None	<sup>1</sup> Missouri follows a modified version of the Reasonable Use rule called Comparative Reasonable Use, which is determined on case-by-case basis and takes into account all relevant facts/circumstances. See <i>Higday v. Nickolaus</i> , 469 S.W.2d 859 (Mo. App. 1971).
<b>Montana</b>										
Montana Water Use Act (Mont. Code Ann. § 85-2-5)	Montana Department of Natural Resources and Conservation	Prior Appropriation	Controlled ground water areas	No limit (exception = may be limits in controlled groundwater areas)	Required for wells that are exempt from the permitting process	Permit required for withdrawals over 35 gallons/minute or that exceed 10 acre-feet/year <sup>2</sup>  Note = Appropriations greater than 3,000 acre-feet/year requires legislative approval (exception = appropriations for irrigating croplands owned and operated by applicant.)	Exempt well: well outside of a stream depletion zone with a maximum pumping rate of 35 gallons/minute and a maximum volume of 10 acre-feet/year <sup>2</sup> , well in a stream depletion zone with a pumping rate of 20 gallons/minute or less, and a volume less than 2 acre-feet/year <sup>2</sup>  Existing water rights (appropriations put to beneficial use between 1962-1973) do not require a permit	Well log report must be filed by the driller	N/A	<sup>1</sup> Appropriations of 4,000 or more acre-feet/year and 5.5 or more cubic-feet/second of water may not get permit without proving the regular criteria and that that use of water is reasonable.  <sup>2</sup> Permit may still be required to appropriate water in a controlled groundwater area, even if ordinarily exempt.  <sup>3</sup> Combined appropriation by 2 or more wells exceeding 10 acre-feet/year requires permit, regardless of flow rate.
<b>Nebraska</b>										
Groundwater Management and Protection Act (1975) (Neb. Rev. Stat. §§ 46-701, <i>et seq.</i> )  Neb. Rev. Stat. ch. 61 (Natural Resources)	Natural Resources Districts (local entities, supervised by the Nebraska Department of Natural Resources)	Reasonable Use (Correlative Rights in times of shortage)	Management areas	No limit	Required for all wells constructed after July 1, 2001	Required when pumping will be done for irrigation purposes  Required in management areas	No registration required for domestic wells (wells used solely for domestic purposes and built before Sept. 9, 1993)  No permit needed in management areas for single water wells designed and built to pump 50 gallons/minute or less (certain other exceptions)	Requirements differ based on the groundwater management plan for each Natural Resources District	N/A	
<b>Nevada</b>										
Nev. Admin. Code ch. 533 (Adjudication of Vested Water Rights; Appropriation of Public Waters), ch. 534 (Underground Water and Wells)	Nevada Division of Water Resources (within the Department of Conservation and Natural Resources)	Prior Appropriation	Designated basins (State Engineer can further designate areas within these basins as critical management areas) <sup>1</sup>	Withdrawals in designated basins generally limited to "safe yield" (State Engineer may limit to less)	State Engineer has authority to require registration of exempt domestic uses in certain water basins	Required before well is drilled in a designated basin  Required before water is used outside of designated basins	Domestic wells (diverts less than 2 acre-feet/year and has a flow rate below 1,800 gallons/day, serving not more than 3 single-family dwellings)  Wells existing before July 1, 1983	N/A	N/A	<sup>1</sup> Designation status of basins divided into general categories: (1) Designated areas, where order does not define administrative control (2) Designated, irrigation denied areas (irrigation is not a preferred use in the basins) (3) designated, preferred use areas (certain types of preferred uses) (4) designated preferred uses, irrigation denied areas (orders designate certain uses as preferred, but not irrigation)
<b>New Hampshire</b>										
Groundwater Protection Act (N.H. Rev. Stat. Ann. ch. 385-C)	New Hampshire Department of Environmental Services	Reasonable Use (the rights are correlative)	N/A	N/A	Users withdrawing over 20,000 gallons/day averaged over a 7-day period or over 600,000 gallons over any 30-day period (registration is in addition to any required permits)	Large groundwater withdrawal (any withdrawal of 57,600 gallons or more in any 24-hour period at a single property)	Emergency withdrawals  Withdrawals associated with short-term use	Registered users must report their monthly water use on a quarterly basis	None	

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<b>New Jersey</b>										
Water Supply Management Act (N.J. Stat. Ann. tit. 58)	New Jersey Department of Environmental Protection	Reasonable Use or Correlative Rights <sup>1</sup>	Areas of critical water supply concern	Maximum diversion quantity set in permit (can modify conditions of existing diversion permit to limit or reduce the quantity of water to the safe or dependable yield)	Required for any user with the capacity to divert over 100,000 gallons/day, but who diverts less	Required for users withdrawing over 100,000 gallons/day for a period of more 30 days in a 365 consecutive day period	Agriculture uses Aquaculture or horticulture uses Certain existing uses grandfathered in	Registered users must annually report their monthly water use Permittees must submit monthly diversion amounts on a quarterly basis	None	<sup>1</sup> New Jersey common law as it pertains to groundwater remains unclear.
<b>New Mexico</b>										
New Mexico Groundwater Code (N.M. Stat. Ann. § 31-12)	New Mexico Division of Water Resources	Prior Appropriation	Declared groundwater basins (entire state)	Unclear: the rules have been changing and challenged	N/A	*Not required (*See exception)	Required if in declared groundwater basin (*entire state is a declared groundwater basin, so technically yes, a permit is required for all withdrawals) Certain existing uses grandfathered in and have to fill out a form (vested rights with priority dates prior to 1907 as long as they have been for a continuous use and not a 1 time diversion) <sup>1</sup>	Must meter if well serves more than 1 household	N/A	<sup>1</sup> Permit applications presumptively granted for minimal domestic uses, but they aren't technically exempted. A domestic use is irrigation of 1 acre or less of non-commercial land and other domestic uses.
<b>New York</b>										
Water Resources Law (N.Y. Envt. Conserv. § 15: Water Resources) N.Y. Stat. tit. 6 (Department of Environmental Conservation), ch. V (Resource Management Services), Subchapter E (Water Regulation) Great Lakes Water Conservation and Management Act of 1989 imposes certain additional requirements to water users in the Great Lakes Basin	New York Department of Environmental Conservation	Reasonable Use	Special groundwater protection areas	Permit holders can withdraw amounts that are reasonable to meet proposed use of water	Anyone making a withdrawal of water for agricultural purposes must annually register or report the withdrawal Required in the Great Lakes Basin for withdrawals of 100 gallons/day averaged over a 30-day period or 3,000,000 gallons in a 30-day period	Required for wells with a pump capacity of at least 100,000 gallons/day Required for agricultural irrigation <sup>1</sup>	Withdrawals for fire/public emergency Withdrawals approved from a compact basin commission Existing registered withdrawals for agricultural purposes <sup>2</sup>	Annual reporting required for permit holders, detailing water usage and conservation measures Anyone who withdraws for agricultural purposes over an average of 100,000 gallons/day in any consecutive 30-day period must annually report	None	<sup>1</sup> Certain counties or areas may have imposed more stringent thresholds. <sup>2</sup> See § 15-1501 for other exceptions
<b>North Carolina</b>										
Water Use Act of 1967 (N.C. Gen. Stat. §§ 143-215.11, et seq.)	North Carolina Environmental Management Commission (within the Department of Environmental Quality) Division of Water Resources (issues permits) (within the North Carolina Department of Natural Resources and Community Development)	Reasonable Use	Capacity use areas	Limits must be set in capacity use areas on quantity and rate (see § 143-215.14)	Required for any withdrawal of at least 100,000 gallons/day	Required for any withdrawal of at least 100,000 gallons/day in capacity use areas	Agricultural-related withdrawals of less than 1,000,000 gallons/day Certain other uses exempt	Registrants required to update withdrawal information every 5 years Permittees must submit a statement on quantity, sources, and nature of use no more frequently than every 30 days Users in capacity use areas must submit monthly reports	None	



State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
<b>North Dakota</b>										
N.D. Cent. Code tit. 61 (Waters) N.D. Admin. Code tit. 89 (Water Commission)	State Engineer (assisted by the Water Appropriation Division of the North Dakota State Water Commission)	Prior Appropriation	Source water protection areas <sup>1</sup>	Amount that can be beneficially used (permit cannot be issued in an amount that is more than this)  Conditions may be imposed on the permit by State Engineer	N/A	Required for all withdrawals	Domestic uses of less than 12.5 acre-feet/year (use of water by a single individual, family, or household (includes irrigation of land not exceeding 5 acres for non-commercial purposes) <sup>2</sup>  Livestock uses of less than 12.5 acre-feet/year  Fish, wildlife, or other recreational uses of less than 12.5 acre-feet/year  Certain historical uses grandfathered in	Annual reporting required for permit holders	None	<sup>1</sup> Focused on groundwater quality/pollution.  <sup>2</sup> Watering a large garden is a domestic use, but it's irrigation when watering more than 5 acres of land. A permit is then needed.
<b>Ohio</b>										
Ohio Rev. Code Ann. ch. 1521 (Division of Water Resources)	Division of Water Resources (within the Ohio Department of Natural Resources)	Restatement (Second) of Torts § 858 (Beneficial Purpose Doctrine)	Groundwater stress areas	A reasonable amount <sup>1</sup>	Required for all facilities with a capacity to withdraw at least 100,000 gallons/day  Required for all water users in a capacity stress area that withdraw more than the amount set by the Division	Required if a facility plans to increase their withdrawal by more than 2,000,000 gallons/day over a 30 day period	Certain registration exceptions applying mostly to public water suppliers	Annual water use reporting required for owners of registered facilities and permit holders	None	<sup>1</sup> See § 1521.17 for factors to be considered when making a reasonableness determination
<b>Oklahoma</b>										
Okla. Stat. § 82-11 (Oklahoma Groundwater Law)	Oklahoma Water Resources Board	Reasonable Use and Correlative Rights	Sensitive sole source groundwater basin	Proportionate share of the maximum annual yield (MAY) allocated to the landowner on a per-acre basis <sup>1</sup>	N/A	Required for all withdrawals <sup>2</sup>	Domestic uses (household purposes, for farm and domestic animals up to normal grazing capacity of the land and for irrigation of land not more than 3 acres)	Annual reporting required for permit holders	None	<sup>1</sup> Maximum annual yield: a determination of total groundwater that can be produced from a basin maintaining safe yield. There are different types of permits, so the maximum amount depends on the type of permit.  <sup>2</sup> Different requirements apply based on the type of permit: regular, temporary, provisional temporary, special, limited quantity.
<b>Oregon</b>										
Or. Rev. Stat. tit. 45, ch. 536 (Water Resources Administration), ch. 537 (Appropriation of Water Generally) Ground Water Act of 1955 (Or. Rev. Stat. § 537.505, et seq.)	Oregon Water Resources Department Oregon Water Resources Commission	Prior Appropriation	Groundwater management area	Beneficial use, without waste  Permit may impose conditions  May be limits in critical groundwater management areas	Required for a pre-Aug. 3, 1955 right	Required for all withdrawals	Domestic uses up to 15,000 gallons/day  Stock watering  Lawn watering up to 1/2 an acre  Small industrial or commercial uses up to 5,000 gallons/day  Note = exempt uses still require a permit in designated groundwater management areas <sup>1</sup>	On an honor system not to use more than permit allows  Must complete a pump test every 10 years and report results to Commission	None	<sup>1</sup> See § 537.545 for other exempt uses
<b>Pennsylvania</b>										
No statute directly on regulation of the allocation of groundwater resources (See generally, Pa. Cons. Stat. § 25-110)  Water Rights Act (PL 842, No. 365)	Pennsylvania Department of Environmental Protection	Reasonable Use	Critical water planning areas	N/A	Required for all facilities and operations that withdraw or use more than 10,000 gallons/day over a 30-day period	Required for all new or increased withdrawals of 10,000 gallons/day in the Delaware or Susquehanna River basins	Domestic wells	Registered users must annually report their withdrawals and use	None	

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<b>Utah</b>										
Utah Code Ann. tit. 73 (Water and Irrigation)	Utah Department of Natural Resources	Prior Appropriation	Critical management areas	<p>Withdrawing large volumes of groundwater that have a certain chemical makeup making it suitable for irrigation is permitted only in certain basins</p> <p>State Engineer can set limits on maximum annual withdrawals in areas where water management plans have been issued</p> <p>Conditions may be placed on permit</p>	N/A	Required for all withdrawals	None	N/A	N/A	
<b>Vermont</b>										
Vt. Stat. Ann. tit. 10 § 37 (Water Resources Management) (See specifically Act 250, ch. 151 of tit. 10)	Vermont Department of Environmental Conservation	Correlative Rights	N/A	N/A	N/A	Required for withdrawals over 57,600 gallons/day (40 gallons/minute for 24 hours)	<p>Emergencies</p> <p>Domestic uses</p> <p>Farming</p> <p>Public water systems</p> <p>Waterworks enhancements that don't expand facilities capabilities by more than 10%</p>	Annual report on water usage required for permit holders	Required for commercial and industrial uses that have a monthly average of 20,000 gallons/day	None
<b>Virginia</b>										
Ground Water Management Act of 1992 (Va. Code Ann. § 62.1-25) 9 Va. Admin. Code § 25-610 (Groundwater Withdrawal Regulations)	State Water Control Board (within the Virginia Department of Environmental Quality)	Reasonable Use	Ground water management areas	Board may include conditions or limits necessary to protect public welfare, health, and safety	Required for each private well constructed in a groundwater management area by the certified water well systems provider within 30 days of completion of construction	Required for withdrawals of at least 300,000 gallons in any 30-day period in ground water management areas	<p>Withdrawals of groundwater in any area not declared a ground water management area</p> <p>Withdrawals less than 300,000 gallons/month in a groundwater management area</p> <p>Withdrawals related to the exploration/production of oil, gas, coal or other materials if the withdrawal won't injure another landowner</p> <p>Temporary withdrawals associated with state-approved groundwater remediation</p> <p>Certain existing rights grandfathered in</p>	Every user withdrawing an average of 10,000 gallons/day must submit an annual report on their withdrawals	Required for users withdrawing 1,000,000 gallons/month for irrigation	None
<b>Washington</b>										
Groundwater Code (Wash. Rev. Code § 90.44) Wash. Admin. Code tit. 173 (Department of Ecology)	Washington State Department of Ecology	Prior Appropriation	Groundwater management areas	<p>Beneficial use</p> <p>Department may approve an application for less than the full amt</p>	N/A	Required for withdrawals greater than 5,000 gallons/day	<p>Single or group domestic uses less than 5,000 gallons/day</p> <p>Industrial uses of less than 5,000 gallons/day</p> <p>Irrigation of non-commercial area less than 1/2 acre</p> <p>Stock watering</p>	Department may still require exempt users to submit information about water use	N/A	

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<b>West Virginia</b>										
Groundwater Protection Act (W. Va. Code § 22-12)  Water Resources Protection Act (W. Va. Code § 22-26)	West Virginia Division of Environmental Protection	Reasonable Use	Critical planning areas	N/A	Required for "large-quantity users" (withdraw more than 300,000 gallons in a 30 day period)	N/A	Note = "Large-quantity users" excludes farm use  Large-quantity users who are buying water from a public or private water utility or other service that is reporting its total withdrawal	Registrants must submit annual reports, but agricultural users can voluntarily submit their use  Required for "large quantity users" (any person withdrawing more than 750,000 gallons in any month)	None	
<b>Wisconsin</b>										
Wis. Admin. Code Natural Resources ch. 811 (Requirements for the Operation and Design of Community Water Systems), ch. 812 (Well Construction and Pump Installation), ch. 856 (Water Use Registration and Report) and 812  Wis. Stat. § 281.34 (HCW statute)  Wis. Stat. § 281.35 (HCW must comply with this if it has water loss of more than 2 million gallons/day)  2003 WI Act 310 (groundwater protection law)	Wisconsin Department of Natural Resources	Restatement (Second) of Torts § 858 (Beneficial Purpose Doctrine)	Water management areas	Additional requirements for wells withdrawing 2,000,000 or more gallons/day  Wells of 5,000,000 gallons/day in Great Lakes Basin need prior notification and comment by the governors of states/provinces in the basin	Required for new and existing high-capacity wells (facilities with the capacity, from all wells on a property, to withdraw at least 100,000 gallons/day or more in any 30-day period)  Certain registration requirements as a result of being part of GLC	Required for high-capacity wells (facilities with the capacity, from all wells on a property, to withdraw at least 100,000 gallons/day or more in any 30-day period)  Additional requirements for wells within the Great Lakes Basins (individual permit required for withdrawals of at least 1,000,000 gallons/day for any 30 consecutive days)  Required for certain water users, including diversion for stream level maintenance, agriculture and irrigation  Required for for a system or plan which consumptive withdraws an average of more than 2,000,000 gallons/day in any 30-day period	DNR can waive the requirement to obtain coverage under the general permit for a person that makes a withdrawal for purpose of agriculture or irrigation in Great Lakes Charter basins	Annual reports are required for facilities that withdraw an average of at least 100,000 gallons/day in any 30-day period	None	
<b>Wyoming</b>										
Wyo. Stat. Ann. ch. 3 (Water Rights: Administration and Control)	Wyoming Department of Natural Resources	Prior Appropriation	Control areas	25 gallons/minute for domestic and stock uses (domestic use: household use where the area to be irrigated is not greater than 1 acre, supplying not more than 3 single family homes)  May enact temporary corrective measures in groundwater control area	Required for all withdrawals	Required for all withdrawals	None	Owner must continue to ensure that the well is maintained so that it does not pollute the groundwater	N/A	