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Legal Control of California's Water Resources

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For further information about this and other documents in the series, contact the project team leader (see below) or visit the following website:

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Author: Thomas Harter, Department of Land, Air, and Water Resources, University of California at Davis

Editor: Larry Rollins, Davis, Calif.

Layout crew: Larry Rollins and Pat Suyama

Photo credits:

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Project Team leader: Thomas Harter, Department of Land, Air, and Water Resources, University of California at Davis

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Water Rights in California

In the late 1800s, companies established appropriative rights to obtain water from California's rivers for such operations as hydraulic gold mining.

To whom does water belong? To the public? To the state? To the local government? To the property owner whose land happens to include a piece of a creek or river or whose house sits atop an aquifer? Or does the water belong to the person (or group) who first took it from the stream or ground and used it? If so, how much does that person own—anything he or she can fetch, or just an amount that's reasonable? (What is reasonable during a drought?) What about the "right" of the environment itself—how much water should we leave in a stream or in the ground to maintain the health of natural ecosystems?

All these basic questions and more are addressed through complex legal rules and through local, state, and federal laws. The above questions focus on water quantity and water resources distribution. A mostly separate, but related, body of legal rules and regulations governs water *quality* questions—both surface water quality and groundwater quality. We will look at water quality regulations later and focus here on water rights.

Different cultures and societies have answered the basic question "who owns water" in many different ways. Those ways have changed over time, depending on political, climatic, geographic, and socioeconomic circumstances.

California's modern water rights reflect the state's and the country's history. To understand water rights in California, we must go back in history and examine the development of the fundamental legal doctrines (or paradigms) that govern water rights.

Historically, in the U.S., the answer to the question "who owns water" depends first and foremost on whether one is talking about surface water or groundwater.

Surface Water Rights

Prior to 1848, the pueblos of California held what was known as a **community right** to water. This allowed each pueblo to acquire water for purposes of irrigation, domestic use, and other needs of its inhabitants. These "pueblo rights" were recognized by Congress in 1850, when California obtained statehood. The cities of San Diego and Los Angeles, therefore, hold pueblo rights to water. These rights supercede any claims on surface water that date later than 1850.

Indian reservations also hold a "federally reserved right" to surface water to meet all water needs of the reservations. The seniority of the federally reserved water rights is established by the date at which an Indian reservation was created by the federal government. Since most reservations were established prior to most of the development and settlement of California, federally reserved rights are generally superior to other water rights.

When statehood was established in 1850, California quickly adopted the common law **riparian right**, which assigns the right to use surface water to those landowners adjacent to a stream. However, at the same time, miners engaged in placer and hydraulic gold operations found they needed large amounts of water away from the streams. To meet their needs and at the same time keep peace, they established a system of water appropriation rules whereby a claimant's right to water was established by:

- specifying a point of diversion,
- specifying a diversion amount, or
- specifying the use and place of use of the water.

Seniority of water claims was established by the date of the claim. The claim vanished if water use ceased for a period of more than 5 years. This system of water allocation is referred to as **prior appropriation**. Soon after the gold rush, the federal Homestead Act, combined with Americans' growing awareness of California's fertile soils and mild climate, caused a marked increase in agricultural enterprise in the state. With agriculture expanding, California's mixed system of riparian water rights and prior appropriation rights soon clashed. Non-riparian farmers needed to secure rights to transport water from streams to their properties. Typically those farmers relied on prior appropriations. But riparian owners soon became

powerful enough to challenge prior (non-riparian) appropriators, and threatened to curtail their water use. In 1886, the California Supreme Court established that riparian rights are superior to prior appropriations. This lead, in 1887, to the passing of the Wrights Act, which established the framework for creating irrigation and water districts. These districts, similar to modern utility districts, were envisioned to be quasi-municipal entities with powers of eminent domain, of condemnation against private owners, of issuing bonds, and of levying taxes to fund construction.

Conflicts between prior appropriative rights and riparian rights continued, however, especially where unexercised or dormant riparian rights were activated. In 1913, the Water Commission Act introduced a permitting process that would control all new surface water appropriations. The act created the predecessor to today's State Water Resources Control Board.

Neither the riparian rights doctrine nor the prior-appropriations rights doctrine were very specific with respect to controlling the type of use. The prior appropriations doctrine included a clause that required the water use to be "reasonable." No such clause applied to riparian owners. This led to sometimes grotesque situations, where a riparian owner's claims to a wasteful use of water on their property (by today's definitions) would be superior to claims of prior appropriators that would be more beneficial.In 1928, the Constitution of California was therefore amended by popular vote to include Article X, Section 2, which states that all "water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented." The definition of "beneficial use" in California's constitution has historically been interpreted to mean any uses that created *economic* value, such as domestic, industrial, and irrigation uses and uses for hydroelectric power and recreation. More recently, environmental uses and the public trust have also been acknowledged as beneficial uses.

During the 20th century, conflicts over water rights were less and less about private water rights issues. Increasingly, the questions needing answers had to do with regional water management planning, controlled primarily by large municipal utilities and by irrigation and water districts. With the emergence of greater environmental awareness by the public beginning in the 1960's, Congress and the State legislature passed a large body of water quality laws. Ever since then, water allocation and water management have become intertwined with water quality issues.

The state's dominant water management process at the end of the 20th century is the CalFed process, which was initiated partially to support Southern California

Garvey Reservoir, a municipal water source for eastern portions of Los Angeles, Calif.

Five Legal Doctrines Upon Which U.S. & California Groundwater Rights Are Based

DOCTRINE	TYPE OF WATER RIGHT			POINT OF USE	
	Capture	Priority	Sharing	Unlimited	Overlying Lands Only
English Common Law (Absolute Ownership)	✔			✔	
American Common Law (Reasonable Use)	✔				✔
Prior Appropriation		✔		✔	
Restatement (2nd) of Torts Reasonable Use			✔	✔	
Correlative Rights			✔		✔

in securing water resources from the more humid, northern part of the state. The CalFed process also aims to protect the water rights of users in Central and Northern California and to protect the water quality within the large, statewide water distribution system, at the heart of which is the Sacramento-San Joaquin River delta.

Groundwater Rights

The answer to the question "who owns groundwater?" depends on whether water will be used:

- solely on the well owner's property (i.e., overlying use only), or
- anywhere that the well owner wishes to use it (i.e., unrestricted location of use).

In addition, the answer depends on whether the extent of ownership was:

- unlimited in the amount to be extracted from the aquifer, regardless of seniority or reasonableness,
- determined on a priority basis (first-come, first-served) that is cemented through historic use, or
- shared among multiple interests according to some communally-defined basis for "reasonableness."

Table 1 shows the names of the five legal doctrines under which groundwater rights in the U.S. and in California have historically been allocated.

Absolute ownership, or English common law, goes back to water rights as they were handled in England during colonial times: everybody may pump to their heart's content regardless of the effect on groundwater levels in neighboring wells. Especially in the less humid regions of the United States, the application of English common law presented a virtual carte blanche to injure other groundwater pumpers. Although this was the original water rights doctrine, the 19th century saw the advent of a modified version known as American common law.

American common law restricts pumping to uses on the overlying land. (Export to another groundwater basin or to neighboring land is not permitted.) American common law also introduced the concept of "reasonable use." As long as a groundwater pumper can show a "reasonable use" of the water pumped on the overlying land, this legal principle does nothing to prevent one groundwater pumper from injuring another if groundwater resources are limited.

Many western states have therefore adopted the **prior appropriation** doctrine: Similar to prior appropriation of surface water, the water rights are obtained by

- putting water to a beneficial use,
- having a specified point of diversion, and
- quantifying the amount.

Water rights are lost due to non-use and are transferable as long as there is no harm to others. Most importantly, water is distributed on a first-come, first-served basis: seniority is determined by who first put a given amount of water to (beneficial) use. No sharing occurs under shortages: the most junior water right loses all water before anybody else loses any.

Prior appropriation, however, still does not prevent harm to some groundwater users, while other (more senior) users go about their pumping business unrestricted. Some states have therefore resorted to the use of some measure to prevent "injury" to others regardless of seniority. One way to go about this is to resort to tort law, specifically to the **Restatement (Second) of Torts (1979), Section 858**, which introduces liability for groundwater users and states specifically that "A proprietor of land or his grantee who withdraws ground water from the land and uses it for a beneficial purpose is *not subject to liability for interference* with the use of the water by another, *unless*:

(a) the withdrawal of ground water *unreasonably causes harm* to a proprietor of neighboring land through lowering the water table or reducing artesian pressure,

(b) the withdrawal of ground water *exceeds the proprietor's reasonable share of the annual supply* to total store of ground water, or

(c) the withdrawal of ground water has a *direct and substantial effect upon a watercourse or lake* and unreasonably causes harm to a person entitled to the use of its water."

Under this legal doctrine, groundwater can be used on the overlying land or elsewhere, as long as the liability is met. It is therefore more flexible than American common law with respect to groundwater management and with respect to groundwater exchanges across property boundaries and groundwater basins. Yet it adds protection to all groundwater users sharing a common groundwater basin, as it does not allow "injury" to other users, even if the use of the groundwater by one pumper causing the injury to the others is technically "reasonable."

In California, the **correlative rights** doctrine introduced by a famous California water rights case in 1903 (*Katz vs. Walkinshaw*) establishes "sharing" rules similar to those achieved under the torts doctrine. It goes much further, however, in defining the groundwater right: Under the correlative rights doctrine, the right to groundwater is defined as a *usufructuary* right that is an appurtenance of the overlying land (not extinguished by non-use). A usufructuary right means a right to use rather than own somebody else's property. Under the correlative rights doctrine water is a communal property—that is, it belongs to the people of the state. The right to use groundwater is shared by all overlying owners of a groundwater basin. Importantly, the right extends only to use on overlying tracts.

The correlative rights doctrine also goes much further than any of the previous legal doctrines in defining the term 'reasonable': the use must be reasonable in relation to:

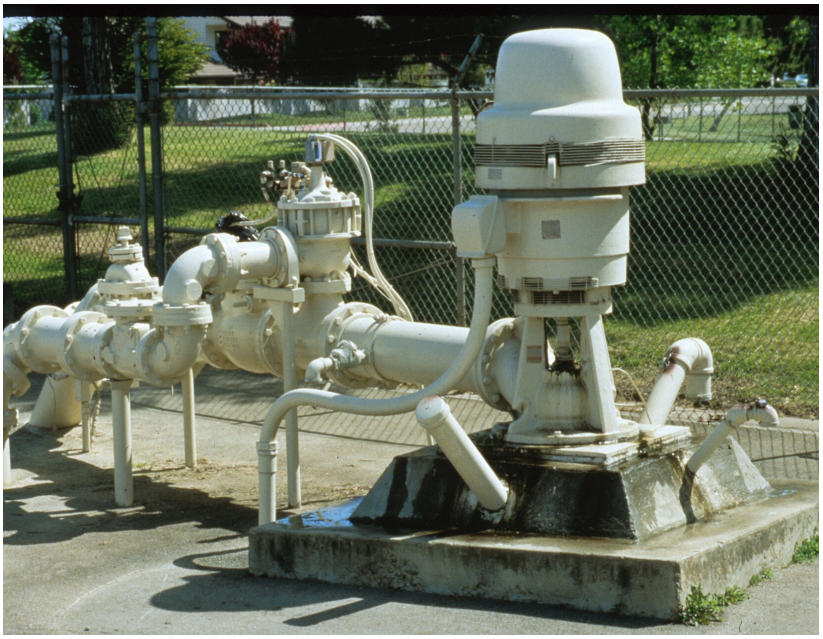
- use by others,
- characteristics of parcel, and
- characteristics of aquifer.

In addition, Article X of the California Constitution requires that all "water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented."

Unlike prior appropriation, correlative rights do not allow a precise definition of an individual's water rights. In the event of conflict, one is forced to seek an optimal solution that will allow all competing uses to continue with as little conflict as possible. Groundwater shortage is therefore shared among all users. The definition of "beneficial use" in California's constitution has historically been interpreted to mean any uses that created *economic* value. More recently, environmental uses and the public trust have also been acknowledged as beneficial uses with correlative rights.

Water flowing from an agricultural irrigation well, Yolo County, Calif.

Off-tract uses of groundwater are not addressed by the correlative rights doctrine. If a groundwater basin has more water available than is needed by its overlying users, the surplus may be distributed through prior appropriation to users outside the groundwater basin. If the overlying use increases (e.g., due to introduction of agriculture, or due to population pressures), the most junior offsite groundwater user is curtailed first. Relying on groundwater from a neighboring or distant groundwater basin to which one has prior appropriative rights is therefore a risky business when seeking a reliable future source of water. The mixed use of correlative rights for overlying water applications and prior appropriation for off-tract uses poses a disruptive potential for long term water management, especially if the off-tract user is a large water provider for municipalities. Off-tract uses are not limited to exportation from a groundwater basin. Because they do not own land, municipal and private water utilities pumping water for sale to domestic users are also considered off-tract users. Therefore, they are subject to prior appropriation and junior to correlative right holders, even if those water deliveries are to overlying land owners.



Municipal water supply well, Lodi, Calif.

In the history of California groundwater management, legal and regulatory solutions to the conflict between the correlative rights of landowners overlying a groundwater basin and the long-held prior-appropriation rights of users both outside and inside the groundwater basin have had a major impact not only on the distribution of groundwater but also on the conjunctive use of groundwater and surface water.

An important example of that conflict developed in the Raymond Basin in Southern California during the 1930s and 1940s. During that time it was determined that the groundwater basin, approximately 40 square miles, had been critically overdrawn for many years. Overlying users included ranches, golf clubs, cemeteries, and public utilities. So-called "off-tract" users were larger public utilities serving water to areas outside the basin. The first hurdle—defining the exact amount of overdraft (a function of annual rainfall)—was solved by mutual agreement between all parties. Everyone agreed that groundwater pumpage needed to be reduced from 24,000 ac ft/yr to 18,000 ac ft/yr. Next, both the overlying and off-tract users agreed to *not* apply the prior appropriations doctrine, which would have required that all junior off-tract users with a total water use of 6,000 ac ft discontinue their pumpage, but to share the cut in groundwater pumpage equitably. Only one overlying party, the City of Alhambra, did not enter the stipulation. The city took one of the largest junior off-tract users, the City of Pasadena, to court, insisting on implementation of correlative and appropriative rights. The court, in its final decision, decided in favor of the off-tract user (City of Pasadena), finding that the preeminent right in this case was not the correlative and prior appropriations doctrine, but the so-called **prescriptive right**, which establishes that the City of Pasadena's water use had grown into a (prescriptive) right, because their excessive use of groundwater from the Raymond Basin had been publicly known and continued for many years (despite the known overdraft situation) and had not been challenged by any overlying groundwater user:

> " Accordingly, an appropriative taking of water which is not surplus is wrongful and may ripen into a prescriptive right where the use is actual, open and notorious, hostile and adverse to the original owner, continuous and uninterrupted for the statutory period of five years, and under claim of right. [...] Appropriative and prescriptive rights to ground water, as well as the rights of an overlying owner, are subject to loss by adverse user." (City of Pasadena v. City of Alhambra, Supreme Court of California, 1949; 33 Cal.2d 908, 207 P.2d 17.)

Thus, the court forced not only the off-tract users but also the overlying users to equitably share the reduction in groundwater pumping required to keep the basin from overdrafting. Statewide, the consequence of this 1949 court decision was what some have called a *race to the pumphouse*, as many water districts and public water utilities attempted to establish as large a prescriptive right as possible (regardless of their current water needs).

The "race" ended in 1975 with another important state Supreme Court decision (*City of Los Angeles vs. City of San Fernando*) which determined that, according to California's Civil Code 1007, no possession of property by a city or public entity (including irrigation and water districts) can ever ripen into a prescriptive right. Thus, the correlative rights and prior appropriations doctrine were reestablished to some degree, since many of the modern groundwater rights conflicts are in basins with extensive incorporated lands. However, the court stipulated that regardless of correlative, appropriative, and prescriptive rights, a "physical solution" be worked out in individual cases. More recent court decisions have affirmed the applicability of the prescriptive rights doctrine where private water users are affected (e.g., *High Desert County Water District vs. Blue Skies Country Club, Inc., California Appellate Court, 1994*).

The correlative rights doctrine also governs the security of groundwater storage. In *Alameda County Water District vs. Niles Sand and Gravel, California Court of Appeal, 1st district, 1974,* a gravel pit operation that dewatered an aquifer which received artificial recharge from a neighboring district's groundwater storage program was barred from groundwater pumping. The court asserted the "correlative and reasonably beneficial use of overlying owners" including the gravel mining operation. Pumping and discharging water from the pit was found to constitute a non-beneficial use (correlative to the district's groundwater replenishment program).

Groundwater recharge ponds, southern California.

Unlike surface water rights, groundwater rights in California are not governed by a permit system. Within the limits of the legal framework described above, any landowner is allowed to pump an unspecified amount of groundwater at any time without the need to first apply for a permit.

To provide water users with a more secure measure for groundwater and surface water management, several other important groundwater rights have been established in California:

Irrigation districts, water districts (of which there are over 40, of many different kinds, established individually by enactment through the California legislature), and over 100 "special districts" have become important partners in managing groundwater, most recently through the powers created by the California Groundwater Management Act (AB 3030).

Basin adjudication is similar to the surface water permitting process: All groundwater extraction within a groundwater basin is specified in terms of the amount and user. Groundwater extraction is metered and a local water master ensures the implementation of the adjudication process. Adjucated groundwater basins in California include: Scott River Stream System, Central Basin, West Coast Basin, Upper Los Angeles River Area (San Fernando), Raymond Basin, Main San Gabriel Basin, Cummings Basin, Tehachapi Basin, Warren Valley Basin, Chino Basin, Cucamonga Basin, San Bernadino Basin Area, Santa Margarita Watershed.

Groundwater management districts are given special status by the state legislature to regulate and limit extraction of groundwater. Such districts exist in Fox Canyon and Ojai Basin, Ventura County; Long Valley and Sierra Valley, Lassen and Sierra County; Mendocino City; Pajaro Valley, Santa Cruz County; Honey Lake Valley, Lassen County; Tri Valley, Mono County.

Special legislative authority to levy pump taxes (but no control on extraction) has been given to Orange County Water District, Monterey Peninsula Water Management District, and Santa Clara Valley Water District.

Water replenishment districts have been created through the implementation of groundwater management plans according to AB 3030.

Police power of cities and counties has been ascertained in *Baldwin vs. Tehama*: cities and counties have been recognized to have authority to regulate groundwater, under their police power.In the case of Tehama County, this included restriction of extraction by new wells and establishment of a permit system for out-of-county water uses.

State Water Resources Control Board has potentially powerful means to control groundwater extraction through its regulatory powers to ensure good groundwater quality. In the case of Monterey County, for example, the SWRCB has exercised its groundwater quality oversight to enforce groundwater management in the Salinas River basin.

Wastewater treatment plant, Clovis, Calif.

Legal Framework For Water Quality Protection

What is "clean" water? What is "dirty" water? How can water resources be protected from degradation by human activities? How can activities that potentially lead to water degradation be identified? What stops a water user from polluting rivers, streams, lakes, oceans, or groundwater? What types of water uses should be considered "polluting activities"?

The legal framework that exists to establish "water rights" concerns itself solely with quantities of water and with establishing who has the right to use a water source. Controlling and protecting the *quality* of our water resources is an equally important endeavor. However, answers to questions involving water quality are not always clear-cut. They often require describing and evaluating subjective values, such as aesthetics and even the spiritual respect we associate with pure, "natural" streams and lakes. Another example: the mostly hidden and indirect human health issues associated with the consumption of a water resource.

For these reasons, water quality planning and protection by legal—that is, regulatory—means is a relatively new concept. Its development was possible only after U.S. citizens (and American culture) began to embrace an "environmental ethic," insisting that the quality of water, air, and soil be protected.

Federal Framework

Prior to the early 1970s, little direct regulatory oversight existed of water polluting activities. Few legal means were available to individual, community, or state parties to prevent or legally defend themselves against activities that obviously or speculatively affected the water users' water quality. Likewise, there were few regulations that sought to redress any obvious or speculative impacts that changes in water quality may have had on the users' application of that water, including their health. Backyards and industrial land, rivers and streams, and the oceans had become the dumping grounds—openly or secretly—of a rapidly expanding industrialized world. No limits, and little control, existed on the development, sale, use, transport, disposal, or environmental cleanup of substances that potentially polluted water resources, above ground or below. The only means to defend legally against water polluting activities was by application of common law, primarily tort law. The most common tort claim throughout most of the 1950s and 1960s, when "environmental" issues first surfaced, was that an objectionable activity was a "nuisance." A court's declaration of an activity as "nuisance" provided a legal means to force an operation to be discontinued and any noxious remains to be cleaned up and removed. Without broader legislation to protect water resources from degradation, there was no way to anticipate and prevent damage. Tort law provided only an expensive, litigative, case-by-case protection of water users from adverse water polluting activities *after* the impacts of the pollution reached the water users. Indeed, no regulatory framework existed for pollution prevention, or even to standardize measures that defined "pollution." By 1970, the common law was widely recognized to be inadequate in dealing with complex pollution situations, many of which involved multiple sources and raised entirely new, complex technical and scientific issues.

The backbone of today's legal framework guarding water (and other natural resources) from environmental degradation was established through several landmark legislations in the early 1970s, which also created the federal Environmental Protection Agency. With respect to water resources protection, the most prominent federal rules are the Clean Water Act ("CWA", 1972), the National Environmental Policy Act ("NEPA", 1970), the Marine Protection Research and Sanctuaries Act ("MPRSA", 1972), the Safe Drinking Water Act ("SDWA", 1974), the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA", 1972), the Resource Conservation and Recovery Act ("RCRA", 1976), the Toxic Substances Control Act ("TSCA", 1976), and the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA", 1980), commonly known as the Superfund Act. Since their inception, most of these laws have been amended and reauthorized, sometimes significantly. The following short overview of the purpose and goal of each act is intended to help describe today's multi-faceted regulatory framework, with its multiple agencies and many programs governing numerous aspects of water quality, water users' rights, and potential water polluters' responsibilities.

The *Clean Water Act (CWA)*, enacted in 1972 as the Federal Water Pollution Act and renamed CWA and significantly modified in 1977, was the first comprehensive national legislation to address the protection of surface water resources. The act was written to create the nation's first surface water pollution prevention program. With the CWA, a framework was created that established:

- The National Pollutant Discharge Elimination System (NPDES) permit program, which controls, through a permit system, all municipal and industrial point sources of waste discharge into surface waters. (With few recent exceptions, farms and return flows from irrigated agriculture are exempted.)
- Technology-based (as opposed to water-quality-based or health-risk-based) minimum effluent standards for numerous industries that discharge any one of 129 "priority pollutants" (a list of pollutants defined by EPA in 1977 that includes mostly halogenated hydrocarbons, pesticides and certain metals).
- Standards for ambient water quality (section 303 of the CWA). These provisions, long ignored, are now used as a regulatory tool for additional control of point and nonpoint source pollution, via the requirement that water pollutants in surface waters cannot exceed the "total maximum daily load" (TMDL), a parameter whose value depends on the designated uses of the waterways being evaluated. If a TMDL is exceeded, even after all point sources meet the technological requirements set forth in their NPDES permit, both point sources and nonpoint sources (chiefly runoff from agricultural and range lands) must be identified and must communally reduce their output.
- Specific provisions for spills and other accidental discharges of toxic chemicals
- Funding support for construction of publicly-owned treatment works. (Prior to 1970, few treatment plants existed and their treatment technology was extremely limited by today's standards.)
- Assessment and planning guidelines for nonpoint source pollution prevention (sections 208 and 319 of the CWA).

While the CWA focuses on surface water protection, it includes (relatively weak) provisions for groundwater protection under its nonpoint source and TMDL programs, because groundwater often seeps into streams and lakes. In other words, groundwater pollution was

Bird above wetland, Gray Lodge Wildlife Area, Butte County, Calif.

addressed inasmuch as it indirectly creates surface water pollution.

The passage of the Clean Water Act and the Marine Protection Research and Sanctuaries Act resulted in a large reduction in the amount of waste discharged into surface waters and oceans, forcing an increase in the land disposal of hazardous wastes. The resulting threat to groundwater pollution was initially ignored. However, the *Safe Drinking Water Act* (SDWA) of 1974 sets national standards specifically for the quality of drinking water. While drinking water is only one of many beneficial uses of water, half of the nation's drinking water originates from groundwater resources. SDWA was the first federal act that also addressed groundwater protection. Besides drinking water standards, SDWA also established a permit system for underground injection (primarily by the petroleum and chemical industry) and special protection for designated *sole source aquifers*, that is, aquifers that are the sole source of drinking water in a region. Under SDWA, federal guidelines were established for the assessment and protection of the sources of drinking water: in the case of groundwater, the water source is the so-called "well head protection area"; in the case of surface water, the water source is the watershed upstream of the drinking water take-out. In California, the surface water source assessment program and the well head protection area program have been combined into a single "drinking water source assessment program" (DWSAP), which is currently being implemented.

SDWA primarily provides a means of protecting the water consumers within public water systems; it does not regulate the water quality of privately owned domestic wells. Furthermore, other than its permitting process for subsurface injection and its limited protection of sole source aquifers, SDWA has no effective means of, and was not intended to, regulate sources of groundwater or surface water contamination.

The *Resource Conservation and Recovery Act* (RCRA), with its 1984 Hazardous and Solid Waste Amendment, is the primary regulatory tool created to control the discharge of pollutants into surface waters and to limit the discharge of hazardous and toxic substances on land, thereby preventing groundwater pollution. RCRA creates a "cradle-to-grave" monitoring program for hazardous substances: the act requires the generators of hazardous waste to minimize the impact from discharges and mandates standards for all handlers of hazardous waste (waste generators, waste transporters, and waste treatment, storage, and disposal facilities). Most importantly, RCRA regulates the use of underground storage tanks, one of the most common sources of industrial groundwater contamination.

The *Federal Insecticide, Fungicide, and Rodenticide Act* (FIFRA) and the *Toxic Substances Control Act* (TSCA) govern the production, registration, and use of pesticides and other toxic substances. The goal of these acts is to limit the introduction and use of such materials *before* the materials become waste, to ensure that the usage of a chemical itself does not become a water quality problem, in either groundwater or surface water. Both acts regulate the use of existing chemicals and establish a registration program for new substances that attempts to ensure that proper use of a product, as indicated on the product's label, does not result in contamination of surface water and groundwater.

While CWA, RCRA, FIFRA, TSCA, and, to a limited degree, SDWA attempt to *prevent* water pollution, the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA, also known as the federal Superfund program) establishes a program to implement the cleanup of already contaminated groundwater sites. Note that remediation of surface water contamination, after removal of its source, is typically through the self-healing abilities of the natural world—primarily by dilution and flushing. CERCLA therefore applies solely to groundwater cleanup. Under CERCLA, the federal government establishes and maintains a "National Priority List" of groundwater contamination sites that are abandoned or for which the responsible party cannot be readily identified under provisions of RCRA or SDWA. In 1991, the federal list contained 1,200 sites. (Many additional sites are defined under similar state "Superfund" programs.) CERCLA provides funding and legal instruments to implement one of the following three cleanup options:

- *Federal cleanup and cost recovery.* Under this option, sites must be defined by National Priority List, the federal government implements the cleanup, and costs are recovered from "potentially responsible parties" (PRPs), which may include: (1) current owners and operators of a contaminated site, (2) anyone who owned or operated the site at the time hazardous wastes were disposed of, (3) waste generators, or (4) transporters of the waste who selected where to take it. Under CERCLA, the government need *not* show negligence or culpability, and liability is strict. PRPs can be held jointly and severally liable. CERCLA provides federal money from a revolving fund up-front, to implement the cleanup work prior to receiving money from the PRPs.
- *PRP cleanup.* This is the most typical scenario. Liability is used by EPA as a stick to negotiate agreement with PRPs for cleanup by those parties under EPA supervision. If the government believes that a contaminated site may pose an "imminent and substantial

EPA personnel emptying drums containing paints and solvents, Santa Fe Springs, Calif., 1981. A fire at this site had caused contaminated runoff to enter the San Gabriel River, immediately adjacent, killing an estimated two million fish downstream. This project was one of the first CERCLA-funded cleanups.

endangerment" to public health or the environment, it can seek a judicial order requiring PRPs to take whatever steps may be "necessary to abate such danger or threat" or be fined $25,000 per day for not obeying the order.

- *Private or state cleanup.* Private parties, state or local governments, or Indian tribes can undertake the cleanup themselves, then sue the PRPs for their costs.

The overriding mandate of all of the above federal legislations has been that the primary responsibility for protecting the quality of water resources lies with the states and local governments. The intent of the federal legislation is to provide national minimum standards that apply to all states and to avoid having states duplicate efforts in defining complex technical guidelines, health risks, pollutant standards, etc. Federal EPA is responsible for developing the guidelines and regulations set forth in these acts and for overseeing the implementation by the states. States are free to employ stricter regulations than those mandated by the federal guidelines. Within the federal guidelines, the states have the flexibility to adopt programs that are specific to the peculiarities of each state.

California's Water Protection Framework

California's legal, regulatory, and administrative framework governing issues of water quality and water resources protection derives largely from, and mirrors, the federal framework outlined above.

One of the earliest environmental regulations, and still one of the most important, is California's version of the National Environmental Policy Act (NEPA), called the California Environmental Quality Act (CEQA). CEQA was enacted in 1970 as a system of checks and balances for land-use development and management decisions in California. It mandates that all land-use development and management decisions be accompanied by an environmental review, in the form of an Environmental Impact Report (EIR). The EIR records the scope of the developer-applicant's proposal and analyzes all its known environmental effects. Project information is used by state and local permitting agencies in their evaluation of the proposed project. Both NEPA and CEQA are designed to ensure that any land development project under the regulatory authority of local, state, or federal agencies complies with applicable environmental standards and will not physically harm the environment in a significant manner. Some projects are categorically exempt; others may not have any significant environmental impacts, in which case a "negative declaration" is issued. If a significant environmental impact is expected, an EIR must be prepared prior to the agency's issuing of a construction permit. After the EIR is submitted, a permit can be issued only if it contains conditions that substantially lessen the environmental impacts from the project. CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against the project's unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable".

The most significant state legislation pertaining specifically to water quality is California's Porter-Cologne Water Quality Control Act (Porter-Cologne), which incorporates many of the provisions of the federal Clean Water Act. Under Porter-Cologne, the State Water Resources Control Board (SWRCB) has the ultimate authority over State water rights and water quality policy. Porter-Cologne also establishes nine Regional Water Quality Control Boards (RWQCBs) to oversee water quality on a day-to-day basis at the

local and regional level. The RWQCBs, or *Regional Boards*, engage in a number of water quality functions in their respective regions. One of the most important is preparing and periodically updating a water quality control plan ("Basin Plans"). Basin Plans define beneficial uses and establish water quality standards for surface water and groundwater. They also describe the actions necessary to maintain water quality standards. The federal CWA provides the main framework for the regulatory power of the Regional Boards. In California, the Regional Boards are the designated state agency handling NPDES permits under CWA. The nine Regional Boards differ somewhat in the extent they choose to apply waste discharge requirements and other regulatory actions. Porter-Cologne provides several options for enforcement of waste discharge requirements, including cease-and-desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecutions. The SWRCB also combines the water rights and the water pollution control functions of State government and considers water quality and the availability of unappropriated water whenever rights to water use are granted or waste discharge controls are established.

The California Department of Health Services is the state agency in charge of implementing the federal guidelines set forth in the Safe Drinking Water Act and put into California law under the California Safe Drinking Water Act. The California SDWA spells out all applicable regulatory provisions for the safe operation of community water systems, including maximum contamination levels (MCLs) for specific substances considered a health risk to humans. The department has been responsible for providing guidelines and overseeing "sanitary surveys" of watersheds (to assess potential pollution sources within a watershed that serves a community water system) as well as for implementing the federal Well Head Protection Area program. The two programs are now unified under the department's Drinking Water Source Assessment Program, which implements the federal SDWA guidelines for source water assessments.

The California Department of Toxic Substances Control (DTSC) is responsible for regulating hazardous waste facilities and overseeing the cleanup of hazardous waste sites in California. It is the primary state agency in charge of implementing the provisions of the federal RCRA and CERCLA. Through its inspection, compliance, and corrective action programs, DTSC ensures that state and federal requirements for managing hazardous wastes are implemented. Nearly 200 major commercial facilities have authorization to treat, store, and dispose of hazardous waste in California. The 5,000 businesses which conduct lower-risk treatment activities are regulated through a streamlined, tiered permitting process or programs that provide an appropriate level of oversight.

The California Department of Pesticide Regulations (DPR) regulates all aspects of pesticide sales and use, including the federal FIFRA guidelines. The department is currently implementing a groundwater and wellhead protection program that primarily addresses the application and management of pesticides on the farm. The groundwater protection program will be in effect in areas that the department has determined to be vulnerable to groundwater pollution from pesticides (predominantly the San Joaquin Valley). The program prescribes certain agricultural activities and also physical specifications for the surface completion and protection of wells near pesticide use areas. The DPR wellhead protection program should not be confused with the Well Head Protection Area program under the Safe Drinking Water Act (see above).

Finally, the California Department of Water Resources is responsible for statewide aspects of both water quantity and water quality planning. Major responsibilities of the Department are:

- To prepare and update the California Water Plan, to guide development and management of the State's water resources.
- To plan, design, construct, operate, and maintain the State Water Resources Development System, to supply good quality water for municipal, industrial, agricultural, and recreational uses and for fish and wildlife protection and enhancement.
- To protect and restore the Sacramento-San Joaquin Delta, by controlling salinity and providing water supplies for Delta water users, by planning long-term solutions for environmental and water use problems facing the Delta, and by administering levee maintenance reimbursements and special flood control projects.
- To regulate dams, provide flood protection, and assist in emergency management to safeguard life and property, by supervising design, construction, operation, and maintenance of more than 1,200 jurisdictional dams, by encouraging preventive floodplain management practices, by maintaining and operating Sacramento Valley flood control facilities, by cooperating in flood control planning and facility development, and by providing flood advisory information.
- To educate the public about the importance of water and its proper use and to collect, analyze, and distribute water-related information to the general public and to the scientific, technical,

educational, and water management communities.

- To serve local water needs by providing technical assistance, by cooperating with local agencies on water resources investigations, by supporting watershed and river restoration programs, by encouraging water conservation, by exploring conjunctive use of ground and surface water, by facilitating voluntary water transfers, and, when needed, by operating a State drought water bank.

Detailed information on the programs of the various state agencies and the state legal framework can be found on the agencies' webpages. For a general overview of national water rights and water quality issues, see the following reading material:

- Sax, Abrams, Thompson, Legal Control of Water Resources
- Water Education Foundation, "The Laypersons Guide to Water Rights Law"
- California Groundwater Resources Association, Groundwater Management Handbook
- Blackman Jr, W. C., Basic Hazardous Waste Management, CRC Press, Boca Raton, Fl 33431, 339 p.