



The Water Report™

Water Rights, Water Quality & Water Solutions in the West

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UNBUNDLING WATER RIGHTS

PILOT PROGRAM ANTICIPATED IN NEVADA’S DIAMOND VALLEY

Excerpts from:

“Unbundling Water Rights: A Blueprint for Development of Robust Water Allocation Systems in the Western United States”

by Mike Young

University of Adelaide (Australia)

& the Nicholas Institute for Environmental Policy Solutions (Duke University)

Compiled by the Editors of *The Water Report*

Editors’ Introduction

The following article is comprised primarily of edited extracts from *“Unbundling Water Rights: A Blueprint for Development of Robust Water Allocation Systems in the Western United States” (Unbundling)* — a report released last September by the Nicholas Institute for Environmental Policy Solutions at Duke University (available free of charge from: <https://nicholasinstitute.duke.edu/publications>).

Unbundling presents a path for transitioning from present western United States water management based on Western Water Law’s Prior Appropriation Doctrine — where the earliest established rights to use water have prioritized access to available water supply — to a system where components of those rights are separated out into marketable instruments, including shares. Details about pilot projects proposed for the Diamond Valley Basin and the Humboldt Basin in Nevada are included.

Unbundling’s author, Mike Young, University of Adelaide and Nicholas Institute for Environmental Policy Solutions, Duke University, is generally credited with being a principal architect of the “unbundled” system of water management developed in Australia over the last twenty years. In a telephone interview with *The Water Report*, Professor Young noted that the American proposal benefits from the lessons learned from the Australian experience and the US should be able to avoid some of the pitfalls Australia needed to overcome. He hopes that Nevada pilot programs will generate interest in testing unbundling in other western states in the US.

Also interviewed by telephone, Nevada State Engineer Jason King noted that the unbundling pilot program proposal had “gained traction” in the Diamond Valley Basin, where water users have reached near-consensus on going ahead with a pilot program based on the proposal detailed in *Unbundling*.

On August 25, 2005, the State Engineer announced that, due to groundwater depletion, Diamond Valley was being declared a “critical management area” (pursuant to Nevada Revised Statute (NRS) § 534.110(7)(a) — Order #1264 available at: <http://water.nv.gov/documents/1264o.pdf>). Diamond Valley groundwater users now have ten years in which to prepare a management plan to implement sustainable use or, in the absence of such a plan, face mandatory curtailment under prior appropriation down to the basin’s estimated perennial groundwater yield (the maximum amount of groundwater that can be withdrawn each year over the long-term without depleting the groundwater reservoir). The unbundling pilot program is expected to inform the plan-making process.

Unbundling Water Rights

If the proposed system is rolled out quickly, Nevada might become a leader in providing advice on the most appropriate way to transition to state-of-the-art water right and allocation systems. Development of smart irrigation technology might be ignited. Development of integrated meter recording and water accounting systems, as well as development of the systems needed to establish state-guaranteed registers and efficient validation processes, might bring significant benefits to the state.

FOR ADDITIONAL INFORMATION: MIKE YOUNG,
University of Adelaide and Nicholas Institute for Environmental Policy Solutions, Duke University
mike.young@adelaide.edu.au

Michael Young is a visiting fellow at Duke University’s Nicholas Institute for Environmental Policy Solutions. He is also the research chair in water and environmental policy at the University of Adelaide, was the Founding Executive Director of its Environment Institute, is a fellow of the Academy of Social Sciences in Australia, and is a distinguished fellow of the Australian Agricultural and Resource Economics Society. He played a key role in establishing Australia’s National Land and Water Resources Audit. A member of the World Economic Forum’s Global Agenda Council on Water Security, in 2010-11 he led the water component of a UNEP study on opportunities to pursue green growth strategies throughout the world. He serves as a member of the Global Water Partnership’s Technical Committee. He was a founding member of the Wentworth Group of Concerned Scientists. In 2006, he was awarded Australia’s premier water research prize — the Land and Water Australia Eureka Award for Water Research. The award recognizes the significant contribution of his research to the development of improved water entitlement, allocation and trading systems in Australia. He is an honorary professor with the University College London and, in 2012 spent several months in the United Kingdom working on water policy options for the Department of Environment, Food and Regional Affairs. This included consideration of ways to significantly reform water abstraction licensing and pricing arrangements. In 2013, he spent several months with the OECD’s Environment Directorate working on a draft framework for the design of water abstraction regimes and options for the management of water scarcity challenges in the Netherlands. He is continuing to work directly with water users in Nevada’s Diamond Valley.

“New Water”



FINDING “NEW WATER” IN CALIFORNIA



SEMINAR REVIEW & COMMENTARY

by Jeremy N. Jungreis and Travis VanLigten
Rutan & Tucker, LLP (Costa Mesa, CA)

Introduction

For the last four years, California has experienced one of the worst droughts in the state’s history. Reservoir levels throughout the state are at record lows, and groundwater basins in many parts of the Golden State are experiencing extensive overdraft. In response, and proving that necessity is often the mother of invention, state agencies, local agencies, and the private sector have been working to formulate possible solutions to protect and even augment the State’s limited water supply. This article summarizes some of the primary ways that Californians — and other water agencies and suppliers throughout the arid Desert Southwest — are developing “new water” from sources that were previously discarded or deemed too expensive to pursue. The article is adapted, and summarizes presentations from the recent Law Seminars International “New Water” Seminar, Co-Chaired by Jeremy N. Jungreis of Rutan & Tucker LLP, and Michele Staples of Jackson DeMarco & Peckenpaugh, LLP, held in Anaheim, California on October 5 and 6, 2015 (hereinafter “New Water Seminar” or “Seminar” — Presentations from the New Water Seminar are on file with the authors, and are available upon request).

Speakers at the New Water Seminar covered a variety of different subjects ranging from possible “new” sources of potable and non-potable water, new water-reclamation technologies, land use regulations, water-efficient housing developments, rehabilitation of contaminated groundwater, new state regulations, and financing strategies that may be available to fund alternative supply projects. Some of the presenters discussed how their respective entities were trying to adapt to the drought by imposing new water conservation requirements, or utilizing water-efficient technologies and landscaping. Others advocated for the deployment of technologies and programs that could result in “new” sources of water, thus augmenting the State’s water supply. Lastly, some of the presenters discussed the various strategies agencies could utilize to effectively fund and operate these new programs and projects.

Living with Drought

Recently, California Governor Jerry Brown issued an executive order mandating a 25 percent reduction in potable water use statewide; his Executive Order B-29-15 imposed numerous emergency mandates in an attempt to curtail excessive water use throughout the state. Accordingly, the State Water Resources Control Board (State Board) adopted emergency regulations, which implemented the terms of the Governor’s Executive Order, by laying out specific targets and regulations all aimed at meeting the 25 percent

Water Supply Overdraft

“New” Sources

Emergency Mandates

“New Water”

Building Moratoria?

More Resource v. More Efficiency

Housing Stock

Water Efficiencies

Retrofit Incentives

Land Use Approval

Remediating Groundwater

reduction target. Similarly, both on direction from the State Board, and under their own authority, many local agencies have issued their own regulations in an attempt to meet the State’s water reduction goal.

Meanwhile, life in California continued on, with an active housing market, and no indication of a decrease in demand for affordable housing. However, despite the lack of housing stock, some regulators have suggested imposing building moratoria until the drought has run its course, to avoid further straining the state’s water supply. In an attempt to avoid this drastic action, members of the private sector have advocated for the use of more water-efficient designs and technologies as a means of both protecting the State’s water resources, while also addressing the State’s persistent lack of housing.

When faced with limited resources, entities have two primary options: either create more of a resource or work to more efficiently use resources at their disposal. As part of the New Water Seminar, many of the presenters showcased that they were implementing both options, and detailed what they and their respective agencies have been doing to effectively operate and maintain a high standard of living with less water, during periods of extended drought.

New Development Intersects with “New Water”

As mentioned above, one of the presentations addressed strategies, from a developer’s perspective, of supporting new development during a period where there are insufficient water supplies at a state or regional level. Some regulators in California have suggested imposing building moratoria on housing development as a way to: (1) ensure adequate water supply; and (2) protect the region’s water quality. However, according to data provided from the Building Industry Association for Southern California (BIA) during the New Water Seminar, imposing building moratoria throughout California as a means to combat the drought would exacerbate preexisting housing shortages in many locations, leading to increased housing and rental costs and decreased standard of living. BIA contends California needs to build 100,000 housing units per year more than today to seriously mitigate housing affordability problems, and they presented evidence at the Seminar suggesting the construction of new housing stock actually saves water.

Unlike older housing units, newer housing units are much more water-efficient in many instances, using about half as much water as houses that were constructed on or before 1975. BIA estimated approximately 67% of California’s existing housing stock was built under standards requiring no water efficiency for indoor uses. Similarly, in terms of outdoor uses, houses built in 2015 that use drought tolerant landscaping have resulted in a 50% or more reduction in water use than typical front yard landscaping of pre-2010 homes.

Accordingly, BIA recommended that local governments avoid building moratoria and instead incentivize individuals to retrofit the older, less-efficient buildings, which could save a significant amount of water on an annual basis. BIA also advocated that public agencies continue to support landscaping incentive programs while investing more time and effort to improve the state’s overall water infrastructure.

Similarly, many public agencies use their land use authority as a way to efficiently manage limited water supplies. For example, Juan C. Perez of Riverside County Transportation and Land Management Agency, discussed during the Seminar how his agency used its land use authority to efficiently manage its water supply. Land use approval agencies are increasingly being scrutinized by regulatory agencies over approval of new development projects due to the limited water supplies. As public agencies, however, they must also be cognizant of the societal pressures to accommodate a growing population, and to ensure that the economy continues to grow. According to Mr. Perez, land use agencies should adopt a multi-faceted approach to address the impacts of drought, including: (1) adopting strict conservation standards for new development; (2) strengthening partnerships between public and private entities; and (3) being open to innovation and creative solutions. Under this approach, the Riverside County Transportation and Land Management Agency intends to adopt a new landscape ordinance that goes further than the State-mandated water use reductions while still facilitating new development and economic growth.

New Supply from Previously Contaminated Groundwater

One of the panels at the New Water Seminar discussed strategies for remediating existing groundwater supplies as a means of supplementing the State’s diminished water supplies. According to the presenters, there are a couple of different methods that can be used to remediate subpar groundwater supplies. Specifically, groundwater remediation systems can be passive or active. Passive groundwater remediation allows contaminants to biologically or chemically degrade or disperse in situ over time. Conversely, active groundwater remediation involves either treating contaminated groundwater in situ or extracting contaminated groundwater from the aquifer and treating it before reinjecting it into the aquifer. While technology to either passively or actively remediate groundwater does exist, there are some possible impediments that were discussed at the Seminar.

<p>“New Water”</p> <p>Impediments to Remediation</p> <p>Benefits</p> <p>“New” Sources</p> <p>Public-Private Partnerships</p> <p>Take or Pay Contract</p> <p>Desal Amendment</p> <p>Groundwater Infiltration</p>

First, there are significant concerns with handling and disposal of the waste that is pulled out of remediated water. Second, obtaining permits, entitlements, and regulatory authority to add remediated water to potable water systems is an uncertain and risky process. Third, while the remediation process does have safeguards, they could be enhanced for added protection. Fourth, many laypeople fear the unknown and may object to using remediate water, out of fear of using water that once contained contaminants that may have previously exceeded **maximum contaminant levels (MCLs)**. Finally, remediation systems for certain groundwater contamination could be prohibitively expensive — thereby making it too risky for some water systems to invest in the process of combining cleanups with water supply development.

While there are some apparent issues, according to one of the speakers implementing ground remediation systems throughout California would have many benefits, ranging from increasing the water supply to avoiding the cost of an alternate water supply. Remediating currently avoids or reduces future wellhead treatment costs by preventing contaminant plumes from spreading.

Other Strategies for Creating “New” Water

Aside from restricting water usage, or remediating existing water sources, water suppliers can also introduce new sources of water as a means of augmenting the State’s depleted water supply. Panels at the Seminar discussed three primary additional mechanisms for creating new supply: (1) desalination of ocean and brackish waters; (2) augmenting potable supplies with recycled water; (3) stormwater capture associated with Clean Water Act compliance as a strategy for augmenting groundwater supplies.

Desalination

Many in California, as well as globally, have advocated the development of desalination plants as a means to create a new and drought-proof source of water. Previously, desalination had been considered both technologically and financially infeasible. However, due to the pressures of the drought and a rethinking as to how to implement a desalination plant in a less environmentally disruptive manner, desalination plants have seemingly become a more viable option — as evidence by the opening of the United States’ largest desalination facility in Carlsbad, California earlier this year. Some local agencies in California and Orange Counties have decided to work with private companies to use private capital and their business expertise as a means of making a desalination plant an effective enterprise via public-private partnerships.

One example discussed extensively at the Seminar, was the aforementioned Poseidon Water desalination plant located in Carlsbad, California (*see* <http://poseidonwater.com/>). While more expensive than water coming from more traditional sources, the water created from the desalination plant has proved a valuable resource for the County of San Diego and its citizens. Once fully completed, Poseidon Water plant’s production of water in excess of 50,000 acre-feet per year (AFY) of pure water will deliver 8 percent of San Diego County’s water needs while also improving the overall water quality of reservoirs where the desalinated water is blended. In order to make it economically viable for Poseidon Water (Poseidon), the San Diego County Water Authority (SDCWA) agreed to purchase a minimum of 48,000 AFY under a water purchase agreement with the private plant developer (Poseidon). This allowed Poseidon to shoulder the substantial regulatory risk of developing a desalination plant, in exchange for the substantial cash flow predictability associated with SDCWA’s agreement to take or pay for a large portion of the plant’s future production.

While Poseidon has been working with SDCWA and other water agencies such as the Orange County Water District (regarding a potential plant in Huntington Beach, California), the State Board has also been working to make the development and deployment of desalination technology easier. In May of 2015, the State Board adopted the California Ocean Plan Desalination Amendment (23 Cal. Code Regs. § 3009) to provide regulations for the development and use of desalination plants. This amendment to California’s Ocean Plan (which regulates water quality and protection of beneficial uses in the Pacific Ocean and certain bays/estuaries within California’s state waters) would regulate the intakes, discharges, operations, mitigation measures, and monitoring plans that the desalination plants would need to use — providing certainty for future project developments. (*See also* Boer & Oehlschlager, *TWR* #137 for more information on regulating desalination in California).

Infiltration Projects

Another panel discussed “crossover projects,” in which a public agency develops projects that promote both an increased water supply and Clean Water Act compliance through infiltration to groundwater. There are a few different options for these types of projects, such as on-site projects, sub-regional projects, and regional projects. These projects would leverage the need to comply with the State’s water quality regulations, as a way to also supplement the state’s water supplies. A good example of these crossover stormwater capture projects in action can be seen in the Los Angeles Region’s development of Watershed Management Plans and Enhanced Watershed Management Plans at the strong urging of the State Water Board. These plans are being developed by entities covered under the Los Angeles municipal separate storm sewer systems (MS4s) permit as a means to capture and treat stormwater runoff before it can reach a receiving surface water via stormwater conveyance systems. Infiltration increases water supplies

“New Water”	<p>while preventing pollutants from entering receiving waters from MS4s. For example, the City of Los Angeles has begun developing certain “green” projects and regulations, including the development of a Low Impact Development Ordinance, and the creation of green streets and other infiltration projects. These projects would collect stormwater and allow it to percolate down into the groundwater basins that can be then treated and reused at a later date, thus increasing the region’s subterranean water supply, while also ensuring compliance with the Los Angeles MS4 Permit.</p>
Stormwater Infiltration	
State Policy	<p>Recycled Water</p> <p>Another possible option discussed in detail at the Seminar was the development of projects that rely upon recycled water as a means of increasing the local water supply. Recycled water is water that, as a result of treatment of waste, is suitable for a direct beneficial use that would not otherwise occur. In other words, recycled water is water that would have been considered waste, and thus not used, but that was subsequently treated, resulting in a new, clean, water source. In fact, the State adopted the 2013 Amended State Recycled Water Policy, which mandated that the state increase its use of recycled water by 200,000 AFY by 2020 and 300,000 AFY by 2030. However, implementation of Clean Water Act regulations is still often a major barrier, as some regulators appear to have limited desire to take on any additional risk.</p>
“Indirect Potable Recharge”	<p>To facilitate the use of recycled water, some agencies, like Orange County Water District (OCWD), have begun implementing “indirect potable recharge” (IPR) programs to augment the local supply of water. Under these programs, agencies collect wastewater and treat it via “Full Advanced Treatment” techniques, then place the treated water into percolation basins, which allow the treated water to percolate down, recharging the potable aquifer. The strengths of these programs include creating a new local water supply; reuse of an otherwise wasted resource; offsets to imported water cutbacks; cost reductions compared to imported water; and improving the water quality within the related basin. There are some regulatory and logistical hurdles, however, that could impede a full deployment of IPR programs. For example, while the State Water Board has recently adopted rules related to IPR programs, the regulations can be relatively onerous to comply with (22 Cal. Code Regs. §§ 60320.100, et seq.). Furthermore, much like other groundwater remediation programs, the general public may be hesitant to use recycled water, due to irrational fears surrounding the quality of treated water (notwithstanding multiple fail safes).</p>
Benefits	<p>Despite these hurdles, OCWD, and other agencies such as the Water Replenishment District of Southern California, have demonstrated that IPR can work, and work efficiently. Perhaps with continued perseverance and efforts to educate the public regarding the IPR process, projects like OCWD’s can be deployed throughout California.</p>
Continuing Innovation	<p style="text-align: center;">Conclusions</p> <p>Dealing with the drought has created many issues for public and private entities alike in California. With a limited amount of resources, California will have to continue to innovate to ensure an adequate water supply while also allowing its economy and population to grow. Formulating solutions to protect and augment the State’s limited water supply by developing “new water” can provide a way for California to move forward.</p>
	<p>FOR ADDITIONAL INFORMATION: JEREMY JUNGREIS, Rutan & Tucker, 714/ 338-1882 or JJungreis@rutan.com TRAVIS VAN LIGTEN, Rutan & Tucker, 714/ 641-3435 or TVanLigten@rutan.com</p>

Jeremy Jungreis is senior counsel in the Government & Regulatory Section of Rutan & Tucker, LLP. He is an accomplished water and environmental attorney with extensive experience guiding public and private clients through complex matters. Jungreis’ practice includes assisting clients in environmental compliance and litigation, land use/natural resource strategies, water rights — permitting and protection, water supply development projects, public agency law, utility law, strategic planning/coalition building, and governmental relations. Jeremy is also an expert in the development and production of local water supplies. Prior to joining the firm, Jungreis directed the Department of Defense’s most complex water system — with responsibility for conjunctively managing ground and surface water from four different watersheds. During this time, Jungreis also negotiated a physical solution and water rights settlement to one of California’s most long-standing pieces of water litigation in the case of *U.S. v. Fallbrook*. Prior to entering private practice, Jungreis served for three years as Regional Environmental Counsel for Marine Corps installations in the Western US and for four years as a Regional Environmental Counsel for Marine Corps installations in the Eastern US. He has also served as a Special Attorney for the US Department of Justice Environment and Natural Resources Division. Jungreis is a Lieutenant Colonel in the US Marine Corps Reserve. He is a frequent lecturer on environmental and water law topics and is the immediate past Chairman of the American Bar Association’s Water Quality and Wetlands Committee.

Travis Van Ligten is an associate in the Government and Regulatory Section of Rutan & Tucker, LLP where he specializes in a wide range of litigation and transactional matters relating to both public and private clients. Additionally, Van Ligten provides advice to both private and public clients on a wide range of environmental and land use issues. Travis earned his Juris Doctor degree from the University of Pennsylvania Law School in 2014. While at Penn, he acted as a legal extern for the EPA in their Philadelphia office working on a variety of environmental and regulatory matters.