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FEDERAL WATER POLICY & INDIAN WATER RIGHTS SETTLEMENTS

by L. Michael Bogert, Parsons Behle & Latimer (Boise, ID & Washington, DC)

INTRODUCTION

Congressional pronouncements in some of the most fundamental Federal laws have, appropriately, commanded that the management of water belongs to the States. Important Federal organic statutes such as the Reclamation Act and the Clean Water Act expressly provide that it is the policy of the United States to defer to State processes that appropriate and allocate water within their respective sovereign borders. That stated, participation by Indian Country and the US (including Congress) in the resolution of Indian water rights is driven by a clearly pronounced Federal policy framework. All three branches of Federal government have contributed to Federal Indian water policy, and it is a clear driver in the resolution of claims to water through State-based crucibles.

This article explores the key elements of Federal Indian water policy and concludes that the delicate balance between participation in State law processes by Indian Country and the US is maintained by a mature and tested Federal water policy; that such policy peacefully coexists with appropriate State sovereignty over water management; and the policy contributes to successfully concluding Indian water rights settlements.

BACKGROUND

STATE-BASED MANAGEMENT / FEDERAL WATER POLICY CONCERNING TRIBES

Justice Scalia, speaking at the celebration that honored the 27-year review of water rights claims in Idaho's Snake River Basin, called the completion of Idaho's adjudication "a great state triumph."

> It was the State of Idaho, not the Federal government, that parceled out the Snake River's waters. The state Legislature wanted to adjudicate, the state executive facilitated it, and the state courts ran it. And that is as it should be. *A Federal coast-to-coast system for allotting water would struggle to account for the diversity of the problems facing various States*…Water rights and disputes between Indian Tribes and States have often produced long and bitter lawsuits. Some of these cases have been left before the Supreme Court of the United States. Idaho, however, blunted the problem by negotiating settlements with the Tribes.

US Supreme Court Justice Antonin Scalia, quoted in the Idaho State Journal (Dave Goins), August 27, 2014 (emphasis added).

Scalia noted of Idaho's adjudication, "[I]t's a state doing what states ought to do, define private property rights…By eliminating uncertainty it allows the productive work of Idaho to go on." Scalia also praised the state and the tribes for negotiating settlements that kept their cases from coming before the US Supreme Court. (*See* Idaho Statesman (Rocky Barker), August 26, 2014.)

Federal Policy & Tribal Water Settlements

Stream Adjudication (State-Based)

Federal Water Policy

McCarran Amendment

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260 North Polk Street,
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Editors: David Light
David Moon

Phone: 541/ 343-8504
Cellular: 541/ 517-5608
Fax: 541/ 683-8279
email:
thewaterreport@yahoo.com
website:
www.TheWaterReport.com

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Just down the hall from the seventh-floor office of the Commissioner of the Bureau of Reclamation at the Department of the Interior in Washington, DC, prominently displayed signage indicates the agency mission is "Managing Water in the West."

To any current or former participant of a general stream adjudication under the McCarran Amendment hosted by a sovereign State, the motto of Reclamation should seem somewhat incongruous. This is because the customary means by which constituencies converge around a negotiating table to confirm their water rights vis-à-vis each other is a State-based process. *See Colo. River Water Conservation Dist. v. United States*, 424 U.S. 800 (1976), which held that although jurisdiction is not exclusive in State court, the policy underlying the McCarran Amendment, 43 U.S.C. § 666(a) — to avoid piecemeal litigation — favors deference to State adjudication of Federal water rights. The usual rights, remedies, and enforcement of water rights remain a State-based legal infrastructure that can safely be referenced as the means by which water is "managed" in the West. Indeed, the Reclamation Act itself speaks directly to how the Bureau of Reclamation is supposed to behave vis-à-vis its relationship with the States with respect to "control, appropriation, use, or distribution of water." Section 8 of the Reclamation Act of 1902, 32 Stat. 390 (1902), 43 U.S.C. § 383 (1958) — discussed more fully below.

Accordingly, one summary answer to the question of whether it is time for a Federal water policy is that there cannot be such policy because water management is fundamentally a product of State law. However, if one scratches beneath the surface of this postulate, Federal water policy already exists with respect to Indian water rights. As time has passed from the days when Congress established a number of icons of Federal environmental natural resources law, there exists a shadow body of Federal water policy impacting State-based adjudicated outcomes. Such impacts arise where the United States and Federally recognized Indian Tribes must, out of necessity, subject themselves to State-court jurisdiction via waiver of sovereign immunity under the McCarran Amendment. The McCarran Amendment diverts the US and Tribes into a State-law process through a rare Federal waiver of sovereign immunity. *See* 43 U.S.C. § 666(a). The Amendment expressly permits the US to be joined as a party in a State lawsuit "for the adjudication of rights to the use of water in a river system or other source." *Id*.

The question of the moment is whether it is time for a Federal water policy. In the context of Indian water rights, that time arrived a while ago. Beginning in 1907, authoritative and persuasive Federal water policy has emerged through each branch of Federal government, and it peacefully coexists with State-based water rights adjudications.

The author's perspective on Indian water rights settlements is informed by, among others, three separate trips to Capitol Hill on these issues: first, as Counsel to Idaho Governor Dirk Kempthorne during the successful passage of the Snake River Water Rights Act of 2004, *see* S. Rep. No. 108-636 (2004) (hearing on S. 2605, the Nez Perce Tribe's water rights settlement); second, as Counselor to the Secretary of the Interior as a part of his Indian water rights management team, *see* H.R. Rep. No. 110-67 (2008) (oversight); and finally, as a recovering post-government Federal trustee, *see* S. Rep. No. 112-634 (2012) (informational hearing on negotiation and implementation of water settlements in Indian Country). For purposes of the present discussion, the author concedes a bias decidedly favoring of State sovereignty.

NEGOTIATING SETTLEMENTS WITH THE TRIBES & FEDERAL WATER POLICY

CAN STATE, FEDERAL, AND TRIBAL WATER INTERESTS BE ACCOMMODATED SIMULTANEOUSLY?

The porcupine romance between Federal legal machinery and State water law is vividly illustrated in the following pronouncement by no more an august body than the US Supreme Court. In *Montana v. Wyoming*, 131 S. Ct. 1765 (2011), Justice Thomas nimbly navigated the Court through the appropriate legal framework governing return flows:

> The lack of clarity in this area of water law highlights the sensitive nature of our inquiry and counsels caution…Our assessment of the scope of these water rights *is merely a Federal court's description of State law*.
>
> The highest court of each State, of course, remains "the final arbiter of what is State law." *West v. American Telephone & Telegraph Co*., 311 U. S. 223, 236 (1940)…But it is not this Court's role to guide the development of State water regulation. *See id*., at 237 ("[I]t is the duty of [Federal courts] in every case to ascertain from all the available data what the State law is and apply it rather than to prescribe a different rule, however superior it may appear from the viewpoint of 'general law'"). *Our decision is not intended to restrict the States' determination of their respective appropriation doctrines*.

Id., 131 S. Ct. at 1773 n.5 (emphasis added). Justice Thomas's point is paradigmatic of what is commonly understood by observers of the intersection of State and Federal water interests, namely, that "general" Federal water management does not exist.

But what about Federal water policy? Notwithstanding clear statutory expression by Congress that water management is the province of the States, several key elements of Federal water policy do exist. These elements have driven (and will drive in the future) Indian water rights settlements. Such "Federal Indian water policy" can attribute its development to the three co-equal branches of Federal Government.

Federal Policy & Tribal Water Settlements

Deference To States

State Authority

Legal Framework

In at least two significant expressions of deference to State water law, Congress has directed in the Reclamation Act and the Clean Water Act that Federal water policy is to defer to State water management. Section 8 of the Reclamation Act of 1902 provides that:

> [N]othing in this act shall be construed as affecting or intended to affect or to in any way interfere with the laws of any State or Territory *relating to the control, appropriation, use, or distribution of water used in irrigation, or in any vested right acquired thereunder*, and the Secretary of the Interior, in carrying out the provisions of this act, shall proceed in conformity with such laws... .

32 Stat. 390 (1902), 43 U.S.C. § 383 (1958) (emphasis added). The 1902 Act is now classified at 43 U.S.C. §§ 372, 373, 381, 383, 391, 392, 411, 416, 419, 421, 431, 432, 434, 439, 461, 491, and 498. As used in this article the term "Reclamation Act" refers to this 1902 statute.

Likewise, the Federal Water Pollution Control Act, 33 U.S.C. 1251–1376 (commonly referred to as the Clean Water Act) declares that:

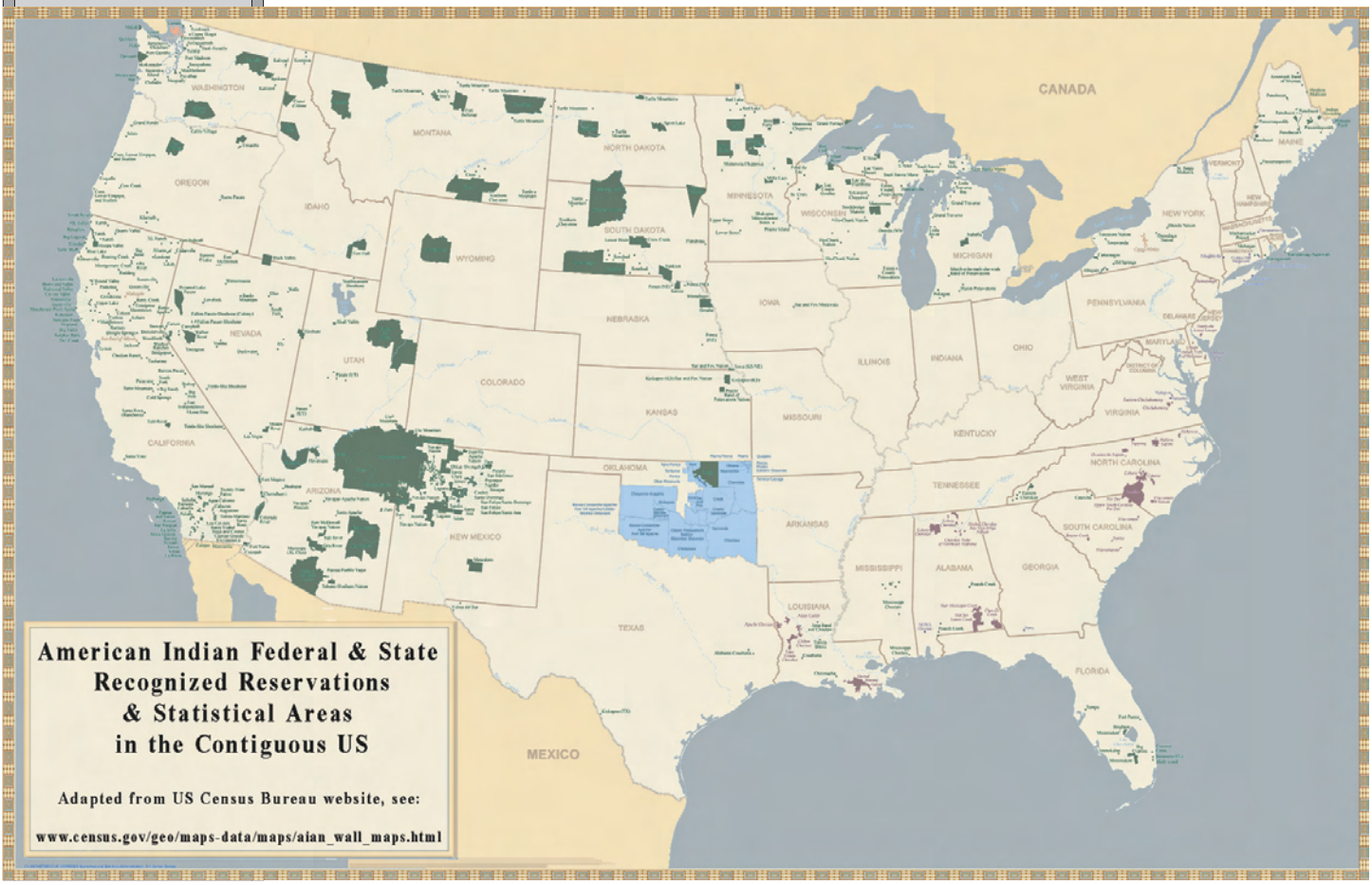
> *It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this Act*. It is the further policy of Congress that nothing in this Act shall be construed to supersede or abrogate rights to quantities of water which have been established by any State.

33 U.S.C. § 1251(g) (emphasis added).

Congress also has other Federalism directives in the Clean Water Act:

> The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In order to achieve this objective it is hereby declared that, consistent with the provisions of this Act—
>
> …
>
> (b) *It is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States* to prevent, reduce, and eliminate pollution, to plan the development and use (including restoration, preservation, and enhancement) of land and water resources, and to consult with the Administrator in the exercise of his authority under this Act.

33 U.S.C. § 1251(b) (emphasis added).



Federal Policy & Tribal Water Settlements

State v. Federal Authority

Legal scholars distrusting of sovereign State water management have written extensively about the degradation of these congressional directives through subsequent judicial decisions and the enactment of other Federal environmental law. *See, e.g*., Joseph L. Sax, *Problems of Federalism in Reclamation Law*, 37 U.Col. L.Rev. 49 (1964) (analysis of evolving Federalism outcomes under the Reclamation Act); and Reed D. Benson, *Deflating the Deference Myth: National Interest vs. State Authority under Federal Laws Affecting Water Use*, 2006 Utah L.Rev. 241 (2006) (exploring Federalism deference in early Federal law as less so when confronted with contemporary Endangered Species Act and Clean Water Act, among others). For a proposal on the complete evisceration of Federal deference to State water management grounded in the advocacy for a national response to climate change, see Robin Kundis Craig, *Adapting Water Federalism to Climate Change Impacts: Energy Policy, Food Security, and the Allocation of Water Resources*, 5 Envt'l & Energy L. & Pol'y J. 183 (2010) (proposing, among others, assertions of a national interest in water including, but not limited to, Federalization of rivers, development of a national water inventory, national water planning, and Federalized priority in State water rights permitting).

However, as will be discussed below, three components of Federal Indian water policy, individually or collectively, are not antithetical to State sovereignty.

Federal Indian Water Policy

CONTRIBUTIONS FROM THREE CO-EQUAL BRANCHES OF GOVERNMENT

Winters Doctrine

The Judicial Branch: The *Winters* Doctrine Fills the Gap of Imperfect Lawmaking

The doctrine established by the US Supreme Court in *Winters v. United States*, 207 U.S. 564 (1907), is perhaps the most influential judicial pronouncement on Federal reserved water rights. The *Winters* doctrine provides that when a reservation is set aside for an Indian Tribe, an implied right to water in an amount sufficient to fulfill the purposes of the reservation is also created. Indian water rights under the *Winters* doctrine have been described as ''a shadow body of law'' looming over existing uses in many water basins of the West where Indian water rights have yet to be decreed. Charles F. Wilkinson, *The Future of Western Water Law and Policy, in Indian Water 1985: Collected Essays* 51, 54-55 (Christine L. Miklas & Steven J. Shupe, eds., 1986).

Non-Indian Irrigators

Congress had established the Fort Belknap Reservation in 1888 based on a treaty between the US and the Blackfoot, Blood, Gros Ventre, Piegan, and River Crow Tribes. As approved by Congress, the Fort Belknap Reservation Treaty did not address water. Montana was admitted into the Union the following year, and irrigators began diverting substantial amounts of water from the Milk River around 1900, before the Fort Belknap Reservation had begun much water use. Under principles of prior appropriation, the non-Indian water users would have secured a senior water right that would have effectively deprived the Reservation a major source of water.

Implied Reservation

In *Winters*, the US Supreme Court (Supreme Court) held that Congress had impliedly reserved the waters needed for irrigation of the reservation's arid lands, which would otherwise be nearly worthless for agriculture. To interpret the treaty otherwise would have been contrary to its purpose of converting the Tribes from a "nomadic and uncivilized people" to a "pastoral and civilized" one. *Winters*, 207 U.S. at 576. The Supreme Court confirmed Congressional power to reserve waters needed to fulfill the purposes of Federal reservations. The Supreme Court also found that the water rights that had been so "reserved" in the Fort Belknap Reservation, during the brief period prior to statehood, survived Montana's admission to the Union. "It would be extreme to believe that within a year [after approving the treaty creating the Fort Belknap Reservation] Congress destroyed the reservation and took from the Indians the consideration of their grant, leaving them a barren waste," as a result of Montana's statehood. *Winters*, 207 U.S. at 577.

The *Winters* doctrine is the cornerstone of Federal Indian water policy. The intersection of the Federal-State interests at stake and the potential violence to orderly State management of water has been eloquently articulated by the Senate Committee on Indian Affairs:

Senior Tribal Rights

> Because in many areas the establishment of Indian reservations preceded the initiation of most non-Indian water uses, Indian reserved water rights often have priority over the rights of other water users whose rights are based in State law. Accordingly, if Indian Tribes were to exercise long-dormant but senior *Winters* rights at times when there are insufficient flows available to satisfy the needs of all users, Indian and non-Indian alike, existing non-Indian water users with rights based on the State-law systems of prior appropriation would often face the subordination of their rights to divert and use water.

S. Rpt. No. 108–389, at 2 (2004).

The Executive Branch: *Criteria and Procedures*

POLICY FOR NEGOTIATION FOR THE SETTLEMENT OF INDIAN WATER RIGHTS CLAIMS

Policy Framework

Since 1990, every Administration has negotiated and evaluated Indian water rights settlements through a policy framework referred to as the *Criteria and Procedures*. *Criteria and Procedures for the Participation of the Federal Government in Negotiations for the Settlement of Indian Water Rights Claims*, 55 Fed. Reg. 9223 (March 12, 1990). The *Criteria and Procedures* provide Executive Branch policy guidance on, among other elements, the appropriate level of Federal contribution to settlements. The policy

Federal Policy & Tribal Water Settlements

incorporates consideration of calculable legal exposure plus costs related to Federal trust or programmatic responsibilities, and other considerations for Federal participation in settling Indian water rights. *Criteria* 4 and 5 in the *Criteria and Procedures* provides as follows:

> 4. The total cost of a settlement to all parties shall not exceed the value of the existing claims as calculated by the Federal Government.
> 5. Federal contributions to a settlement should not exceed the sum of the following two elements:
> a. First, calculable legal exposure–litigation cost and judgment obligations if the case is lost; Federal and non-Federal exposure should be calculated on a present value basis taking into account the size of the claim, value of the water, timing of the award, likelihood of loss.
> b. Second, additional costs related to Federal trust or programmatic responsibilities (assuming the U.S. obligation as trustee can be compared to existing precedence.)– Federal contributions relating to programmatic responsibilities should be justified as to why such contributions cannot be funded through the normal budget process.

55 Fed. Reg. at 9223.

Legal Costs Exposure

Relative happiness with the *Criteria and Procedures* depends on the constituent. To Indian Country, too often the *Criteria* "are narrowly and technically construed by the Administration simply to avoid fiscal costs associated with a fair and honorable settlement." H.R. Rep. No. 110-67 at 23 (2008) (Statement of John Echohawk on behalf of the Native American Rights Fund). Some voices in Indian Country have called for outright reform of the *Criteria and Procedures*. For example, the Hon. Charles W. Murphy, Chairman, Standing Rock Sioux Tribe, stated in a Prepared Statement: "The criteria limit the Secretary's discretion to agree to the Federal investment of funding to implement a settlement based upon the United States' exposure to liability. It exposes conflicting duties upon the Secretary. The Secretary is tasked to act, 'consistent with the Federal Government's responsibilities as trustee to Indians,' while at the same time ensuring that, 'Federal contributions to a settlement should not exceed the sum of…calculable legal exposure… .' The Secretary should review and update the criteria. The process for resolving conflicts arising from Federal water development needs to be clarified. The constraints on the Federal investment of funds for Tribal development as part of settlements must be re-examined." S. Rep. 112-634 at 60-61 (2012) (citations omitted).

Conflicting Duties

On the other hand, like it or not, the *Criteria and Procedures* "has withstood the test of time. The *Criteria and Procedures* guide Executive Branch decisions on water settlements and affirm that the taxpayers are entitled to a sound financial resource allocation and a reasonable return on its investment for peace with Indian water rights." *See* S. Rep. 112-634, supra n. 5, at 46 (Prepared Statement of Michael Bogert).

Financial Considerations

The Legislative Branch: The 114th Congress

JUSTIFICATION, FUNDING, AND COST-BENEFITS OF INDIAN WATER RIGHTS SETTLEMENTS

In a letter dated February 26, 2015, Chairman Rob Bishop of the House Resources Committee memorialized a multi-pronged approach by which the Committee will review Indian water rights legislation for approval. The letter addressed to Attorney General Eric Holder and Secretary of the Department of the Interior Sally Jewell set forth several elements by which the Committee will scrutinize Indian water rights settlement legislation.

Settlement Scrutiny

These elements (among others) included:

1. Information through a statement to the Committee that the proposed settlement adheres to the *Criteria and Procedures*;
2. Affirmation by the Justice Department and the Department of the Interior, pursuant to *Criteria and Procedures* 4 and 5(a)(b), [*see* above] "to ensure that the American taxpayers deriv[e] benefits from any such settlement prior to Committee consideration;"
3. Before forwarding settlement legislation to the Committee for consideration, the Attorney General must have conveyed to a court and all the settling parties that a written agreement has been reached by all settling parties;
4. Requirement that the Justice Department, the Interior Department and all settling parties have approved the legislative text needed to codify the settlement before it is transmitted to the Committee;
5. That the Department of Justice be available to testify on any legislation appearing before the Committee;
6. A list of the legal claims being settled in any document transmitting the legislative text to the Committee; and
7. No language in any legislation financially authorizing claims already settled by Congress or providing for claims with no legal basis.

Letter to the Honorable Eric Holder and the Honorable Sally Jewell from Rob Bishop, Chairman, House Resources Committee (February 26, 2015) (Bishop Letter).

Federal Policy & Tribal Water Settlements

Congress' Role

Settlement v. Liability

Uncertainty

McCarran Amendment Negotiation

Tribal Distrust

Opportunities of Settlements

Federal Laws Addressed

In transmitting this letter to these senior Obama Administration representatives, Chairman Bishop avowed that it is "the long-standing policy of the United States that disputes regarding Indian water rights should be resolved through negotiated settlement rather than through litigation," and that "settlements, if crafted correctly, can also provide relief to the United States from burdensome legal obligations and benefit all American taxpayers." *See* Bishop Letter at 1.

This Indian water rights policy by the House Resources Committee is a logical outgrowth of previously established principles for Committee scrutiny of settlement legislation. Representative Tom McClintock, former Chairman of the House Subcommittee on Water and Power (the primary subcommittee with jurisdiction over Indian water rights settlements), has long called for the Justice Department to assess for the Subcommittee the prospect of a litigated outcome between Indian Country and other parties to Indian water rights settlements. "It is important that Congress play a role in settling Indian water rights claims, some of which comprise the oldest standing litigation in the federal court system. Settling legal claims not only resolves litigation but also can help establish water supply certainty for water users on and off reservations. But Congress must also answer key questions when it considers these and other settlements and should not be just a rubber stamp. For example, one of the most important questions involving a settlement — especially when American taxpayer dollars will be used — is whether resolving the litigation will be advantageous to the federal government compared to its liability under current law." *See* H. Rep. 111-395 at 25 (Taos Pueblo Indian Water Rights Settlement Act, Additional Views of The Honorable Tom McClintock):

Winters* and the McCarran Amendment — *Criteria and Procedures

The US Supreme Court's 1907 decision in *Winters* was a means by which the Judicial Branch remedied the imperfect work product of the Legislative Branch. It has become a powerful Federal water policy tool. However, as touched on earlier, unsettled *Winters* claims consign uncertainty over State-law systems of water management. Under *Winters*, Indian water rights cannot be lost due to nonuse and Indian water rights have a priority date no later than the date of the creation of a reservation. Accordingly, any litigation over Indian water rights will always have the *Winters* doctrine lurking in the background.

Despite the potential destabilization to State water management by potential *Winters* claims, the McCarran Amendment — i.e., the vehicle by which Tribes and the US must come to the negotiating table — provides benefits protective of State water management systems. If a McCarran Amendment negotiation process is truly functioning, the *Winters* doctrine evolves into simple senior water rights claims by Tribes as a part of a risk/exposure conversation among and between in-State constituencies. The views of Idaho's Governor Kempthorne illustrate this point: "Governor [Kempthorne]...said, 'In my view, the Nez Perce tribal members are Idahoans as well, and I don't believe that a litigation outcome is the means by which we pit Idahoan vs. Idahoan. In any way, shape, or form that we can mediate these claims in an appropriate platform for us to come to the table, we should.' And thus we did." Remarks of Michael Bogert, *Off Reservation Instream Flows: The Nez Perce Settlement, in The Future of Indian and Federal Reserved Water Rights: The Winters Centennial* 266 (B. Cosens and J. Royster, eds. 2012) (*Winters Centennial*).

Notwithstanding possible distrust by Indian Country in conceding to State jurisdiction, there have been a number of fruitful outcomes for Tribes through McCarran Amendment proceedings. As noted in a Press Release of the State of Oregon on March 7, 2013 (The Oregon Water Resources Department Completes Klamath River Basin Adjudication (1975–2013), "[T]he most senior determined claims in the Klamath River Basin Adjudication are claims held by the United States in trust for the Klamath Tribes. These claims carry a priority date of 'time immemorial.'" Indeed, successful outcomes have emerged from State general stream adjudications that began with hotly contested litigation losses by Indian Country. This was exemplified by the Nez Perce Settlement. The initial 1994 claims filed by the Nez Perce Tribe accounted for 105% of the average annual flow of the Snake, Clearwater, and Salmon Rivers combined. A ruling by the Snake River Basin Adjudication (SRBA) court defeated the Tribe's instream flow claims.

This prong of Federal Indian water policy benefits State sovereignty in another important context: the opportunity by State constituencies to *directly* confront the impact of powerful Federal law such as the Endangered Species Act (ESA) and the Clean Water Act (CWA). The most recent example of this is the outcome in the Bill Williams River Water Rights Settlement Act of 2014. In addition to providing economic benefits to the Hualapai Tribe in Arizona and settlement of non-*Winters* water rights, that Settlement Act provided a contribution to the Lower Colorado River Multispecies Conservation Program, an ESA habitat development initiative. *See* H.R. 4924, Pub. L. 113-223 (Dec. 16, 2014), the Bill Williams River Water Rights Settlement Act of 2014. Among other terms, the settlement afforded Freeport Minerals Corporation to donate 3,400 acres of land at the Planet Ranch to the Arizona Game and Fish Department to be managed as part of the State's responsibility under the Multi-Species Conservation Program (MSCP) in the lower Colorado River. The MSCP is a 50-year federal/State/local habitat conservation plan for Arizona, California, and Nevada. It was created to accommodate "current water diversions and power production, and will optimize opportunities for future water and power development by providing [Endangered Species Act] compliance." H.R. Rep. 113-638 at 12.

Federal Policy & Tribal Water Settlements

Outside Obligations (ESA)

State Interests Protected

Federal Interests

Settlement Platform

Expectation Management

Congressional Review

The innovative settlement emerged in the absence of an appropriate nesting spot in Arizona's general stream adjudication. The Hualapai Tribe, the US and Freeport Minerals Corporation negotiated a separate peace in one of Arizona's watersheds, the Bill Williams River, in an effort to advance particular interests as a precursor to complete resolution of the Tribe's *Winters* claims. Still ahead for Arizona and the other constituencies is a complete settlement of all outstanding remaining water rights, in addition to discussion about the US' obligation to fund water infrastructure for the Tribe. "It is expected that future negotiations will address the Tribe's water right claims in two other river basins, the Colorado and the Verde, with the intent of achieving a comprehensive settlement of all the Tribe's water right claims for its main reservation." *See id.*

One lesson among many of the Snake River Act is that to the extent such powerful Federal law is impacting the daily lives of State constituents, finite discussion as to the operation of that law can appropriately be threaded into conversations between Federal agencies with enforcement and implementation obligations. These agencies have the potential to contribute to implementation by certain constituencies. Snake River Water Rights Act of 2004, tit. X of Division J in the Consolidated Appropriations Act of 2005, H.R. 4818, 108th Cong. (2004) (enacted). The US agreed to terms in the Snake River Act settlement agreement providing that "the water provided under this settlement shall fully satisfy any ESA requirements for the diversion and use of water, as specifically provided in each of the components of this agreement. Compliance with this agreement satisfies all CWA obligations for flows for the benefits of such species for the term of this agreement." S. Rep. 108-389 at 39 (Mediator's Term Sheet, Part IV.C).

These sovereign-to-sovereign negotiations protect State interests from top-down imposition of the ESA and CWA and also afford State partnership opportunities with Indian Country. This would not be possible, in the most recent generation of Indian water rights settlements, absent the conjoining of *Winters* and the McCarran Amendment.

Professor Reed Benson of the University of New Mexico, on the other hand, takes a slightly different view of the opportunities afforded by such negotiations: "Why should federal environmental laws defer to State water resource laws? Through the CWA and the ESA, Congress has recognized and protected significant national interests in water quality and biodiversity; those who argue for deference to States must make a case for it that is stronger than the need to ensure continued protection of these national interests. Arguing that the [F]ederal government should continue to defer to States because it has always done so is neither very accurate nor very compelling." Benson, *supra*, n. 8, at 313.

One response is that it might be easier to actually satisfy the aspirations of the ESA and CWA — provided there is some nexus to actions proposed in a potential settlement — if the interests of the US, Indian Country, and the States are better understood. An Indian water rights settlement provides that platform, as is evidenced by the contribution of Idaho water for ESA purposes that emerged through the Snake River Act. The Act describes the Snake River Flow Component of the Agreement which anticipated biological opinions for the 30-year term of the Agreement and addressed issues relating to flows from the Snake River above Brownlee Reservoir and the use of water for flow augmentation, including measures for minimum flows and a flow augmentation program. *See* S. Rep. 108-389 at 5. Presumably, any party to a settlement (including a State) would prefer a negotiated outcome and a contribution to a greater whole rather than a potential involuntary relinquishment of sovereignty through, for example, responding to a citizen suit. The flow augmentation program in the Snake River Act was willingly negotiated and ultimately blessed by the State of Idaho; the same program would never be replicated as an outcome to litigation.

It is great sport to denigrate the *Criteria and Procedures*, but good Executive Branch government can always be better Executive Branch government. The *Criteria and Procedures* appropriately frame what should be an expectation management discussion with Indian Country as well as interested participants on Capitol Hill. For better or worse, the *Criteria and Procedures* is the best policy available to bring some semblance of discipline to the early structuring of Indian water settlements, and it has survived — happily or not — for several decades and Administrations of both political influences.

With its oversight authority over the Executive Branch as well as the power of the purse, Congress is legitimately entitled to a modicum of precision by settling parties to Indian water rights settlements in exchange for funding the invoice presented for payment on Capitol Hill. The Bishop Letter's formalization of policy review of Indian water settlement legislation, when fully incorporating the *Criteria and Procedures*, signals that in this Congress, the House will have no appetite for "rolling" certain parties to Indian water rights settlements, including the US. In this genre of legislation, it is not unusual during the fury of a post-election Lame Duck session for Congress to deliver on pent up demand for ratification and funding of Indian water rights settlements. *See, e.g.*, Claims Resolution Act of 2010, resolving settlement with seven Indian Tribes in Arizona, Montana and New Mexico. The bill passed the Senate on November 19, 2010, the House concurred in the Senate amendments on November 30, and the president signed H.R. 4783 on December 8, 2015. Pub. L. 111-291, 124 Stat. 3064 (2010). The Bishop Letter seemingly commands that Indian water settlements that are not yet fully negotiated due to a gap in certain (and likely controversial) issues will not be brokered for resolution on the Hill.

Federal Policy & Tribal Water Settlements

Flexibility & Future Cooperation

Federal Policy

Litigation Risks

State Law Process

The *Criteria and Procedures* rightly raise key settlement scoping issues, but they also provide for flexibility — what the author has previously characterized to Congress as an opportunity for "Peace in the Valley." H.R. Rep. No. 110-67 at 10 (Prepared Statement of Michael Bogert, Chairman of the Working Group on Indian Water Settlements, U.S. Department of the Interior). Criterion 7 declares that ''[s]ettlements should be structured to promote economic efficiency on reservations and tribal self-sufficiency.'' 55 Fed. Reg. at 9223. Criterion 10 of the *Criteria and Procedures* addresses the goal of fostering cooperation more directly, stating that ''Federal participation in Indian water rights negotiations should be conducive to long-term harmony and cooperation among all interested parties, *through respect for the sovereignty of the States* and Tribes in their respective jurisdictions.'' *Id*. (emphasis added). Presumably, one of the interested parties to an Indian water rights settlement is a State, and a return on a relationship investment between the US and a State is a working platform of future cooperation and to avoid endless conflict over water. This is yet another example of Federal Indian water policy finding a comfortable nesting place within the sphere of State sovereignty.

CONCLUSION

That conspicuous Federal Indian water rights policy even exists in the first instance might be surprising. But such Federal Indian water policy, when broken down and examined carefully, does not offend the several express Federal directives requiring accommodation of State water management. This is because Indian water rights settlements are different and unusually subject to the political elasticity inherent in all difficult decisions requiring investment by the three branches of government (and in this case, after *Winters*, the usual jurisdiction for Judicial Branch participation in *State*, not *Federal* court). Each Indian water settlement negotiation is unique, very much a product of a moment in history, and is, of course dependent on adequately satisfying the interests of the Tribe and the other negotiating constituencies.

Parties to Indian water rights settlements well understand the risks of aggressive litigation in the absence of negotiations based inherently in compromise. "Wyoming has been used as a poster child for how not to quantify reserve water rights — through pure hard-fought litigation. We got off on the wrong foot and found it almost impossible to stop the litigation chain. There are positive aspects: a huge settlement on a broad set of non-tribal federal reserved water rights and the resolution of many other issues through settlement processes. But clearly, the hard-fought litigation left ill will among the parties. It damaged relationships. And it damaged the neighborhood." Gordon "Jeff" Fassett, *Results Following Litigation, the Wind River Tribe/Big Horn River*, in *Winters Centennial*, at 174. Even the so-perceived most "onerous" of Federal environmental laws — the Endangered Species Act and the Clean Water Act — can, if proven capable of local relevance, be made workable through a State law process and settlement. Likewise, self-sufficiency in Indian Country and avoiding costs related to protracted litigation are worthy paths to protecting the public treasury. Such interests can appropriately be packaged in State sovereignty when it comes time to make the journey up Capitol Hill to convince Congress that the hard work, compromise, and relationship-building critical to a successful Indian water rights settlement should command legislative approval.

For Additional Information:
Michael Bogert, Parsons Behle & Latimer, 208/ 562-4907 or MBogert@parsonsbehle.com

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Michael Bogert works in Parsons Behle & Latimer's Boise and Washington, D.C. offices. He is the former counselor to Interior Secretary Dirk Kempthorne, a position he held for two and a half years following his appointment by President George W. Bush on July 10, 2006. He is also the former regional administrator of the US Environmental Protection Agency's Region 10 office in Seattle (appointed by President Bush in 2005). As counselor to the secretary under Dirk Kempthorne, he advised the secretary on various policy issues in the areas of endangered species and served as the secretary's lead policy negotiator on Tribal water rights settlements, including the landmark Klamath Basin Restoration Agreement, among others. As the regional administrator for EPA Region 10, he was responsible for leading EPA's partnerships with the states of Washington, Oregon, Idaho, and Alaska, as well as the 271 federally recognized Tribes in the Region. Michael also served as the principal legal advisor to Governor Dirk Kempthorne of Idaho for over five years (1999-2004), advising the executive office and agencies on legal implications of state policy and legislation, with an emphasis on environmental issues and matters within the jurisdiction of the Idaho Department of Environmental Quality and the Idaho Department of Water Resources. Mr. Bogert has also worked as counsel to the office of Governor-Elect Arnold Schwarzenegger of California (2003), and was chief deputy legal affairs secretary to Governor Pete Wilson of California (1995-1998). Michael attended The George Washington University, L.L.M. Program, Environmental Law, 1994-1995, and received degrees from the University of Idaho College of Law, J.D., 1985, and the University of Santa Clara, B.A. (History), 1979.

Colorado Water Markets

COLORADO WATER MARKETS

"ALTERNATIVE TRANSFER MECHANISMS"

by P. Andrew Jones, Lawrence Jones Custer Grasmick, LLP (Johnstown, CO)

INTRODUCTION

Water Markets

Water markets have been a topic of discussion in the arid Western United States for decades.[1] For many years, enthusiasm for the concept of establishing more robust water markets was confined to economists and natural resource scholars, with little application in practice. However, in the last decade, interest has spread beyond academia and found a place in state-level policy discussions.[2] The purpose of this article is to describe Colorado's growing interest and early experiences in improving the number and quality of water markets in the state based upon "**a**lternative **t**ransfer **m**echanisms" (ATMs) that do not result in the dry-up of agricultural lands, and to provide recommendations for possible avenues of additional growth. These recommendations include: rulemaking to establish uniform, transparent, conservative terms and conditions for changes in use; creation of regional ATM market entities; and amendments to change in use standards to permit quantification of existing rights for all beneficial uses.

BACKGROUND

Water Law Principles

Colorado water rights are usufructory in nature and governed by the doctrine of prior appropriation.[3] Colorado's Constitution makes it clear that "[t]he water of every natural stream," including tributary groundwater, is the "property of the public…dedicated to the use of the people of the state, subject to appropriation."[4] The right to divert and apply the state's waters "shall never be denied," and "priority of appropriation shall give the better right as between those using the water for the same purpose."[5] Colorado water rights owners do not "own" water; rather, they "own the right to use the water within the limitations of Colorado's prior appropriations system."[6] Hence, the principle that water rights are "usufructory" in nature. Water rights are considered property rights, transferred in the same manner and entitled to protections equivalent to those enjoyed by real property.[7]

"Beneficial Use"

A Colorado water right is developed by diversion and application to beneficial use.[8] A diversion consists of the in-priority capture, possession and control of a specified amount of water.[9] Colorado's 1969 Water Rights Determination and Administration Act[10] (the "1969 Act") defines "beneficial use" as "the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made."[11] Colorado created specialty water courts to adjudicate water rights. The water courts require a high degree of specificity with regard to the point of diversion and type, location, and amount of claimed beneficial uses.[12]

Transfers of Rights

Established water rights may be transferred or "changed" for new uses, provided that: 1) the depletive effect of the new use is limited to the depletive effect of the old use; and 2) the change in use does not injure other water rights.[13] As a general rule, changes of water rights must be approved by the water court in the affected basin.[14] However, several recently enacted statutes authorize the State Engineer or the Colorado Water Conservation Board (CWCB) to approve temporary changes of water rights for periods ranging from one to ten years.[15] The right to change the use of an existing water right to a new use is considered fundamental to the water right.[16] As such, the questions in water rights change in use applications do not revolve around whether a change in use should be permitted, but rather identifying appropriate terms and conditions for the change that ensure that the depletive effect of new uses do not exceed the old and that no other water rights are injured by the change in use.[17] Resolution of these questions requires a close examination of the historical uses of the water right at issue, and quantification of the historical consumptive use and "return flows" that accrued to the river system to the benefit of other water rights.[18] ("Return flows" are the water that returns to the water source that have not been used by the crops or lost to evaporation). Terms and conditions limit future consumptive use to historical amounts, and require replication of historical return flows for the benefit of other water rights.[19]

Historical Use Examination

Priority Protection

Colorado law recognizes that adjudicated water rights may be sold to third parties and that — subject to the requirement to seek water court or state engineer approval of a change in use — diversions for new uses and/or at new locations may continue under the originally adjudicated priority.[20] Thus, the most important aspect of the right, its priority date, is not lost during a transfer. Water rights purchases, effected in a manner similar to real estate transactions, are a frequent occurrence on Colorado's "front range" — the

Colorado Water Markets

"Dry-Up" Requirement

Policy Concerns

Lease Options

COLORADO'S WATER PLAN

Colorado's Water Plan is being developed to determine how to implement water supply planning solutions that meet Colorado's future water needs while supporting healthy watersheds and environment, robust recreation and tourism economies, vibrant and sustainable cities, and viable and productive agriculture. This plan provides the strategies, policies, and actions by which Colorado can address its projected future needs in a manner consistent with this vision. The plan will be accomplished through collaboration with basin roundtables, local governments, water providers, and other stakeholders. The Colorado Water Conservation Board (CWCB) is working with the Governor's Office to finalize Colorado's Water Plan no later than December, 2015.

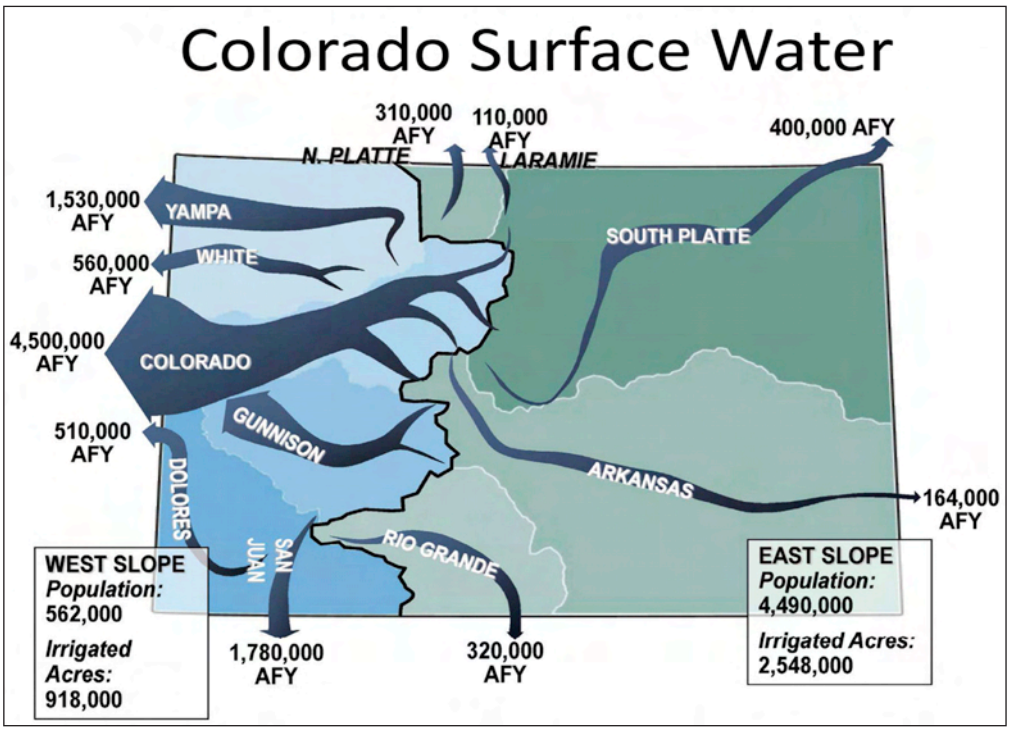
portion of the state located East of the Rocky Mountains, which contains 80% of the state's population. The majority of sales involve an agricultural seller and a municipal buyer. The municipal buyer will purchase the agricultural user's water rights — often represented in the form of shares in a mutual ditch company — "lock, stock and barrel," and secure a covenant from the agricultural seller that the farm will be "dried up." Cessation of irrigation on the farm is intended to prevent expanded use of water by preventing the application of other shares in the same mutual ditch company to the lands formerly irrigated by the shares now dedicated to new uses. While this "dry-up" requirement is effective at limiting demand and thereby preventing expanded use of shares remaining in irrigation under the affected ditch, it has significant economic and environmental externalities impacting the local community.[21]

ALTERNATIVE TRANSFER MECHANISMS

Colorado's purchase and sale or "buy and dry" market is functioning. Willing buyers and willing sellers come together under the umbrella of established law that provides the property rights foundation for the transaction and sets forth a process for transitioning the water right to the buyer's uses. The existing water court change in use process provides a reliable means of processing changes in use while protecting existing water users. However, some Colorado water users have expressed significant policy concerns with both the process and the outcome.[22] From a process standpoint, the water court process has been criticized as being difficult, costly, time consuming, and risky.[23] Calls are made for increased efficiency in the process, specifically, a reduction in transaction cost and risk.[24] Substantively, Colorado's draft water plan suggests that in the absence of intervention, the status quo "buy and dry" approach will result in cessation of irrigation of as much as 424,000 productive acres in the South Platte Basin alone if growing municipal demands are to be satisfied.[25] This anticipated "mass dry-up" phenomenon is uniformly perceived as a negative outcome.

As a result, there has been significant interest at the state level in exploring ATMs that provide yield to municipal demands while permitting some level of irrigation to continue on affected farms.[26] In 2007, the Colorado General Assembly passed Senate Bill 122, establishing a competitive grant program administered by the CWCB to fund studies exploring the potential for establishing ATM projects in Colorado.[27] Since 2007, 15 studies have been completed, and more are pending,[28] though no ATMS are yet functioning.

ATM transactions are most often framed as a lease. Water diverted pursuant to the adjudicated irrigation right is leased to a municipal or environmental end user, while the agricultural owner continues to hold title to the usufructory right. Initially, discussions centered almost exclusively on fallowing, whereby agricultural users cease use of the water on a specified parcel for a specified period of time, and the lessee takes delivery of the consumptive use portion of the water that would have been applied to the farm.[29] In subsequent iterations, the ideas of reduced consumptive use cropping and regulated deficit irrigation emerged.[30] In a reduced consumptive use cropping scheme, the agricultural user plants crops that consume



Colorado Water Markets

Lease Water Upstream

less water than the crops historically grown on the property, and leases the "saved" consumptive use.[31] In regulated deficit irrigation, the agricultural user shorts the crops by decreasing water use in a strategic way to reduce consumptive use, achieve a partial yield, and lease the amount of the saved consumptive use.[32] In all methods, historical return flows must be maintained for downstream water users.[33]

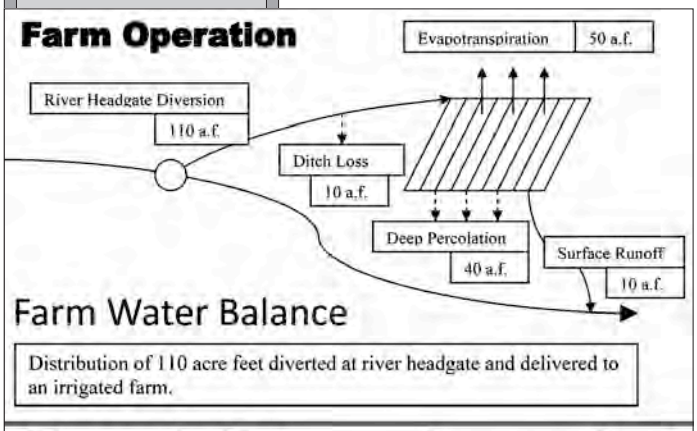
Despite widespread interest in these concepts, no ATM projects are moving wet water in Colorado. However, several conceptual models have taken root and appear to have the potential to bear fruit. In the South Platte Basin, the state's most populated basin, two ideas have emerged. The Northeast Colorado Water Cooperative, an organization conceived in the CWCB funded studies and organized in 2014, is designed to provide a mechanism for agricultural water users in the lower reaches of the South Platte River in Colorado to lease water to upstream users.[34] This group has invested resources in determining the appropriate corporate structure, assessing the potential for moving water upstream by "exchange," and exploring additional infrastructure needs to facilitate the movement of water.[35] At the outset, the group has been most focused on the potential for leasing excess supplies in the river created by alluvial recharge and "retiming," however, the corporate structure and delivery plans fit well with the future potential for the lease of senior water rights for the use of upstream users. A "retiming" or "recharge" project is one that diverts water from the river and delivers it to a shallow "recharge" basin completed into the alluvial aquifer, allowing the water to percolate into the aquifer and thereby create accretions to the river at a later date. Colorado law permits the operator of such a facility to take credit for accretions so created by applying the "recharge credits" to offset alluvial well pumping or by re-diverting the re-timed water from the river at a later date.[36]

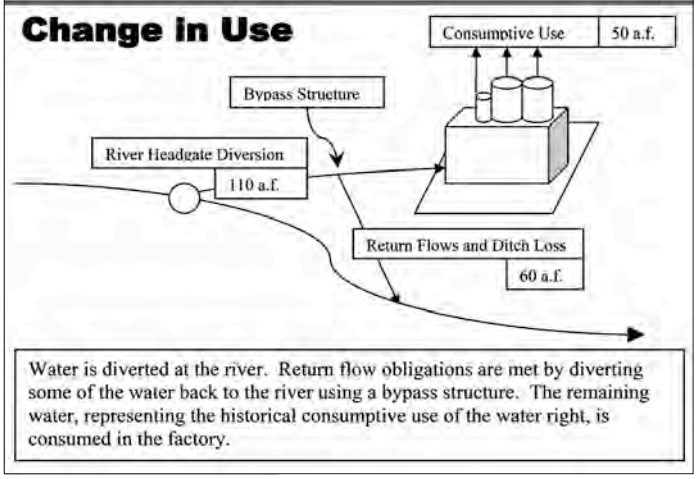
"Recharge" Project

A second South Platte driven idea resulting from the CWCB funded studies that has garnered interest is the "FLEX Use" concept.[37] Generally, Colorado water rights are adjudicated for specific uses in specific locations. If a water right is sold, the new user files a change in use case in water court, as described above, and the court approves the water right for the new user's specific uses. In a "FLEX" plan, the use of water rights would be changed to include all beneficial uses, such that the water right could be delivered to agriculture, municipal, environmental, or any other beneficial use.[38] This water court "pre-approval" of additional uses would create the possibility that an agricultural user could retain ownership of the underlying usufructory (water) right, but lease the consumptive use developed through the application of ATMs (fallowing, reduced consumptive use cropping, or regulated deficit irrigation) to other users. This option would realize some of the true value of the water right in cash flow, making it less likely that he or she would be compelled to sell the usufructory right.

"FLEX Use"

Purpose of Use "Pre-Approved"





The major effort in the Arkansas River Basin is known as the "Super Ditch" project.[39] The Lower Arkansas Valley Super Ditch Company, Inc. is an organization consisting of seven major ditch companies located in the Lower Arkansas Basin.[40] The Lower Arkansas basin has been the location of several highly publicized "buy and dry" events that have had significant impacts on the local communities.[41] In response to this threat, Super Ditch formed to provide the possibility of delivering consumptive use water via rotational fallowing to upstream parties, thereby providing agricultural users an avenue to realize the value of the water rights held and, like the FLEX concept, make it less likely that they would be compelled to permanently sell the underlying usufructory rights.[42] Super Ditch's initial attempts at wet water transfers were not successful,[43] due largely to soft lease markets and difficulties in obtaining administrative approval. However, a 2015 application filed pursuant to 37-60-115(8), C.R.S. (fallowing and leasing pilot projects) has been approved by the CWCB.[44]

The Colorado River Basin has its own CWCB funded effort to explore ATMs.[45] This study is in the process of assessing the potential for voluntary fallowing agreements to respond to an imminent or actual Colorado River compact "call" for water. (A Colorado River compact "call" could be made by a downstream state to obtain water it is entitled to under the Colorado River compact). The concept is that fallowing agreements with agricultural water users in the Colorado River and tributary basins would be reached in advance, ready to be triggered in a time of crisis to provide additional water supplies and prevent a compact call.[46]

Colorado Water Markets

Transaction Costs

Change Proceedings

Existing Rights Protection

Investment Justification

Temporary Changes

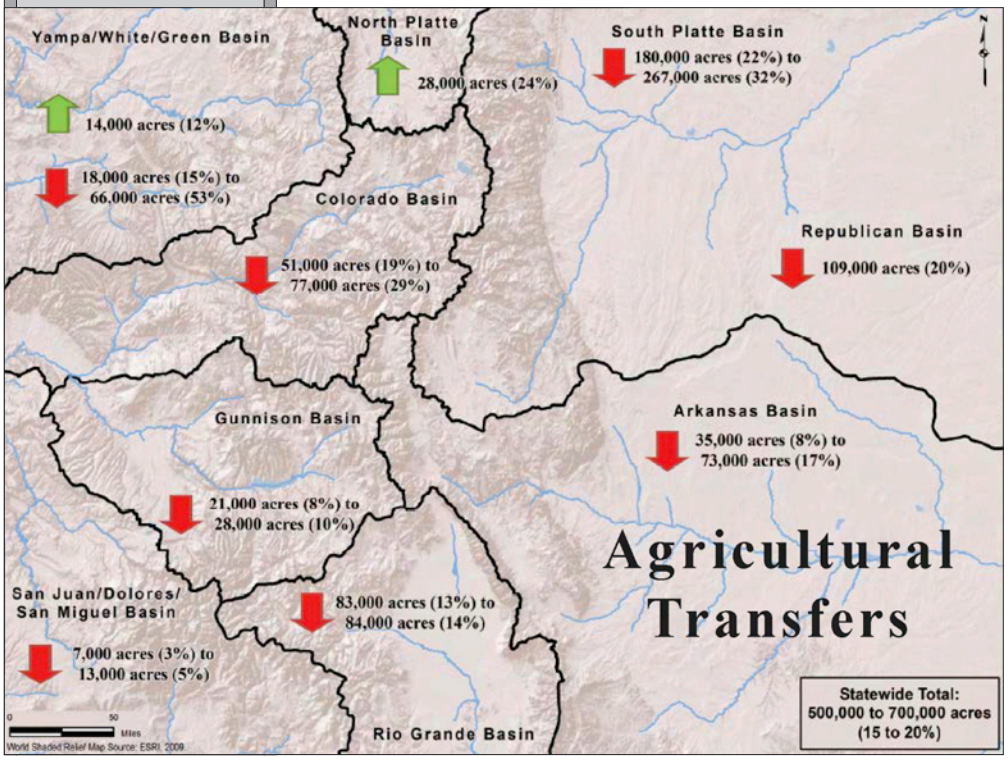
CHALLENGES TO ATM MARKETS

Colorado efforts to assess the potential for development of functioning ATM markets have brought a number of significant challenges to light.[47] Many of these challenges are inherent in the prior appropriation system, and will have to be addressed in other prior appropriation states seeking to develop markets based upon ATMs. This section describes these challenges.

High transactional cost is a significant barrier to implementation of ATM projects and development of corresponding markets.[48] Colorado's water courts are fully functioning civil courts, operating pursuant to Colorado's Rules of Civil Procedure, modified in some cases to be tailored to the highly technical nature of water matters. Full disclosure rules apply, and the parties are entitled to discovery. ("Discovery" is the method used by parties to gather relevant information from each other or from third parties). Most cases are highly complex and expert driven. Since any interested party may appear, most cases are multi-party with one or more "applicants" and a number of "opposers," each of whom are parties in their own right and entitled to participate in the proceeding. Typical cases are resolved in a timeframe of one to four years, with extraordinary cases lingering for decades. Standards for the review and approval of changes in use are highly detailed and involve a careful analysis of every element of the water balance on the affected farm. Analyses are unique to each case, with very little overlap, such that every case is "re-engineered" consistent with its own facts and prevailing engineering standards. Volumetric limits are imposed on the new uses of the changed water rights, and strict requirements are imposed for the replacement of return flows in their historic time, place, and amount for the benefit of other water rights.

Water court processes are effective in approving the new uses while protecting the interests of existing water rights. However, they are time consuming and costly.[49] It would not be unusual for attorneys and engineering fees in a typical change in use case to exceed $400,000 over the course of a three year long case, and in highly disputed cases, these figures are higher. ATM projects involve novel elements that "buy and dry" cases do not, which translate into increased complexity and cost. This level of investment might be justified for a permanent change in use, but it is prohibitive in the context of ATM projects. Parties wishing to engage in an ATM transaction — a farmer wishing to fallow his or her field and lease consumptive use to a municipality in a drought year, for example — are not likely to be able to invest $400,000 to effectuate a single-year transfer. Unless there are significant economies of scale (i.e., very large transactions), even multi-year leases fail to justify the time and expense of a water court change in use proceeding. Parties reason that if they are going to make the investment in water court, they might as well "buy and dry," and have a permanent water source at the end of the process.

As previously mentioned, Colorado has enacted a number of temporary change in use processes in the last ten years in an effort to create a lower cost, more efficient path for ATM projects to follow.[50] These provisions have been at best moderately successful in encouraging additional temporary changes in use. Though the processes are shorter in duration, the methods and standards applied are very similar to water court. Exacting, case specific engineering analyses are required to gain approval, and each application is subject to opposition by any interested party. The intent was to create a more efficient, cost effective process — water users' limited usage of these provisions is an indication that the processes are still cumbersome and costly, and that the goal has not yet been achieved. The critical policy question is whether processes can be crafted that are efficient and cost effective enough to encourage widespread leasing, while also being protective enough of existing water rights.



Requirements to replace return flows for the benefit of existing water rights represent a major hurdle to establishing functioning ATM markets. In overappropriated stream systems with widespread irrigation, it is a hydrological reality that water users rely upon one another's surface and

Colorado Water Markets

Return Flow Issue

Subsurface Return Flows

Recharge Basin

Other Supplies

Historical Use

Quantification Risks

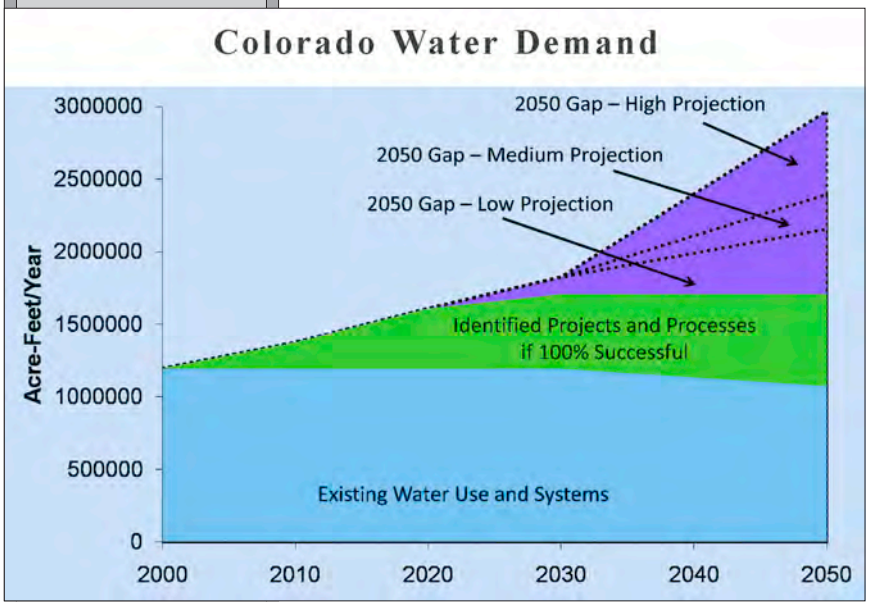
Infrastructure

subsurface return flows.[51] From a water market standpoint, it would be ideal to untangle this complex web of interdependence and allow water users to apply water rights to new uses without concern for maintaining historical conditions. However, no entity in Colorado has the jurisdiction to assess this return flow "web'"as a whole; rather, the Colorado approach is to carefully maintain each strand, one by one, if and when a change in use is sought, and to thereby preserve the historical condition. This process implements Colorado's commitment to protecting the reliability of established rights, but it creates significant problems for ATM projects.

For example, a farmer wishing to lease his or her water to a municipality for one year during a drought year must replace all surface and subsurface return flows at any time a water right senior to the date of the transfer is calling for water. Replacing the surface return flow component is the easier of the two — often, a portion of the irrigation right itself can be diverted, measured, and returned to the stream near the headgate of the diverting ditch. This process presents operational and infrastructure issues, but they are relatively straightforward and can be solved in cooperation with the ditch company. The subsurface return flow component is more difficult. Because of the delayed accretive effect of subsurface return flows, the farmer will be required to replace water to the river in the winter when the ditch is not running, and for a number of years following the year in which the temporary transfer occurs. Most farmers do not have a supply of water available in the winter to release to the river, nor do they wish to obtain "extra" water for years after the lease to return to the stream. These requirements make it difficult for the farmer to enter into the lease.

Two primary solutions have been identified to address this problem. First, it may be possible for the farmer to create a shallow recharge basin on or near the farm and deliver subsurface return flows through this structure.[52] By placing water into the aquifer in historical amounts, the farmer can replicate the historical condition during the year of the lease. These return flows accrue to the river in the time, place and amount they did historically, eliminating the need to obtain additional water supplies to return to the river in future years. Another alternative that has been successful in some cases is for the municipal lessee to agree to replace winter and future return flows from other available supplies as a part of the lease. Neither of these solutions is ideal.

Water users seeking to participate in ATM projects have a high level of risk and uncertainty with regard to potential change in use terms and conditions placed upon their water rights. Changing the use of water rights in Colorado can be a risky business. Colorado's Supreme Court has held that each request for a change in use presents the potential for "re-quantification" of the water right.[53] Many Colorado irrigation rights were decreed for more than the water users actually divert and apply to beneficial use.[54] Regardless of what a decree provides, the actual measure of a water right is its lawful historical use.[55] So long as an irrigation right owner seeks no change in use, no quantification of the water right is made based upon actual historical use.[56] A change case, however, requires the applicant to quantify and limit future uses, which is a concern to agricultural users, who would rather maintain the flexibility of the more lenient decreed limits.[57] Limits established in change in use cases are inevitably less than the decreed amounts, presenting a game that water rights owners can only lose. Monthly, annual, and 20-year rolling average diversion and consumptive use limits established in a change in use case can significantly hamper use of an irrigation right when it returns to agricultural use. Uncertainties in the law regarding the standards for establishing historical consumptive use, or whether a particular use was "lawful" and therefore countable in the historical average, create the potential for "worst case" scenarios where irrigation rights owners lose large portions or even all of the benefit of the irrigation right.[58]



Existing infrastructure is generally inadequate to deliver water yielded by ATM projects. The infrastructure in place in Colorado was designed either to deliver water to specific acreages for irrigation or to deliver water to municipalities. While there are some intersections between these systems, they were not designed to move water from irrigation uses to municipal uses and vice-versa. Ditch systems may be able to "produce" consumptive use through ATM practices, but moving this water to the points where municipalities could divert and use it presents a significant challenge.[59] As a matter of geography, the major ditch systems that would participate in ATM projects are downstream of municipalities, in some cases by hundreds of miles.

Colorado Water Markets

Exchanges of Water

No direct means of delivery exists, so the best potential for delivery at present is via river "exchanges" whereby the ditch systems deliver consumptive use to the river in a downstream location and municipalities take an equivalent amount upstream.[60] While this process sounds easy enough on paper, it is complicated in application because there must be "wet" water in the river equivalent to the amount of the exchange. Often times the existence of other water rights *between* the ditch companies and the municipal point of diversion "dry up" the stream and make exchange impossible for portions of the year. Storage is tremendously helpful in facilitating delivery by exchange, as water can be "leapfrogged" upstream from reservoir to reservoir during windows when exchange is possible. Reservoirs in the Arkansas River basin present this kind of opportunity; the South Platte basin lacks on stream reservoirs downstream of Denver and is severely limited in this regard. However, strategic infrastructure at dry up points, such as "bypass structures" or wells that supplement flows, could be installed to maximize exchange opportunities.[61]

Permanent Supply

The need for a permanent supply discourages municipal providers' participation in temporary leasing.[62] Municipalities are in the business of providing water on a permanent basis to a customer base. While there are some opportunities for leasing to meet a demand during or following a drought to refill reservoirs, on the whole, municipal investment tends strongly towards securing water permanently. Because of their emergent nature and the lack of established markets, ATM projects are not seen as a reliable base supply. In addition, ATM projects present novel elements that increase transaction cost and risk, and make investment in "buy and dry" strategies a more efficient decision in the short term.

Buyer / Seller Imbalance

Finally, there is a consistent imbalance between the municipal buyers and agricultural users with regard to access to information, legal and engineering services, and financial resources. Municipalities are well-funded, have full time staff dedicated exclusively to securing water supplies, and have access to the best legal counsel and engineering consultants. Agricultural owners are frequently capital rich and cash poor, are employed full-time farming, and have less access to water professionals. Even well-intentioned municipalities entering into negotiations with individual farmers or groups of farmers encounter difficulty establishing the trust sufficient for effective transactions.

RECOMMENDATIONS

Action Needed

Colorado has identified ATM projects as a major source for meeting future municipal demand.[63] Current challenges, identified above, prevent spontaneous generation of ATM markets. Decisive action is needed if the state intends to make good on its commitment to ATMs in the state water plan.[64] Three suggestions follow.

Regional Standards (Transfers)

Rule Uniformity

Rulemaking to establish uniform, transparent, conservative change in use terms and conditions could reduce transaction cost, uncertainty and risk, and help correct power imbalances with regard to financial resources and access to professional services and information.[65] Rather than continuing to adjudicate each case from the "ground up," with its own engineering analysis, rulemaking should be initiated to create regionally applicable change in use standards that could be applied by any party seeking a change in use. These standards should be tailored to specific locales as appropriate, and should be conservative in the sense that they would tend to under-quantify historical consumptive use and over-quantify return flows to provide a protective "cushion" for existing rights. These standards could be applied in administrative (State Engineer) approval processes leading to ATM approvals, and could serve as rebuttable presumptions in water court. (When a "rebuttable presumption" exists, the presumption is taken to be true in the court proceedings unless a party that disputes the presumption comes forward to contest it and prove otherwise). Functional online versions of the established standards and processes should be provided to the public, allowing water users to calculate consumptive use and return flows themselves. Administrative approval processes should be shortened and converted to an online process. Applicants in water court could present case specific information to achieve higher consumptive use if they believed the standards were set too strict. Conversely, opposers in water court could rebut the presumptive factors and seek lower consumptive use, if warranted.

Regional Entities

Regional ATM Markets

Creation of regional ATM market entities could provide economies of scale in the construction of needed infrastructure, assist in the replacement of return flows, provide the potential for permanent supplies via ATM processes, and correct power imbalances. Regional or local public entities are needed to administer ATM markets. As is the case with any major water supply project, funding is needed to develop infrastructure, provide administrative oversight, and administer ATM deliveries. These resources could be developed through a variety of means, including taxes, fees, and contributions from participating agricultural entities and end users.

Colorado Water Markets

Water Bank (Base Supply)

Change in Use Standards (Multiple Uses)

Ag-to-Urban "Dry-Up"

"ATM" Markets

An intermediary entity could enter into ATM contracts with agricultural users on one side, and with municipal and environmental end users on the other, providing a trading platform and water banking function. Over time, the entity would develop a broad base of ATM projects, and be able to provide an element of permanent base supply in addition to temporary leasing to respond to drought and emergency. ATM entities should be developed based upon local geography, hydrology, and needs, and could vary in size from very local to basin-wide. Infrastructure would include not only the facilities necessary to deliver consumptive use, but also to replace return flows on an aggregated scale. Participants could contract with the entity to provide this service, and achieve economies of scale not possible on the individual level. Grants and tax incentives could be offered to participants in the program.

Change in Use Amendments

Amendments to change in use standards to permit quantification of existing rights for *all* beneficial uses could incentivize agricultural users to retain their rights and participate in ATM programs.[66] As a part of a long-term solution, it makes sense to permit agricultural water rights owners to gain water court "pre-approval" of multiple uses so that they could participate permanently in ATM projects. Water court approval of multiple uses would increase the value of the water right to the agricultural owner and the utility of the right to the public, while preventing injury to existing water rights. Rights adjudicated in this manner would no longer need to rely upon administrative processes for annual approval, but could become a permanent part of Colorado's water rights landscape. The "FLEX" use concept has been the subject of bills in the Colorado General Assembly in 2014 and 2015, failing by a narrow margin each year.[67] It is a subject for discussion in the 2015 interim, and is likely to return in 2016.

CONCLUSION

Colorado has functioning, well-defined water markets that permit the permanent transfer of water rights between uses. Because of municipal growth, these processes are most often applied to remove water from irrigated agriculture, apply it to municipal and industrial uses, and permanently "dry up" irrigated lands. Many Coloradoans are concerned with the hydrologic, socioeconomic and environmental externalities associated with permanent dry up. As a result, the state has invested in studies designed to advance "alternative transfer methods" — ways to provide water for municipal growth that do not result in permanent dry up. While these "ATM" methods are not seen as a silver bullet that could eliminate "buy and dry" transactions, there is hope that large-scale implementation could mitigate its impact and preserve additional cultivated lands. Development of large scale "ATM" markets could be supported by administrative and legislative changes facilitating rulemaking to establish change in use parameters, creating regional entities to facilitate open market trades, and permitting water rights owners to add municipal, industrial, and environmental uses to existing irrigation rights.

For Additional Information:
P. Andrew Jones, Lawrence Jones Custer Grasmick, LLP; 970/ 622-8181 or paj@ljcglaw.com

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P. Andrew Jones' litigation practice concentrates on water rights issues, with particular emphasis on groundwater matters and legal issues arising out of the interaction between surface and ground water systems. A graduate of Vermont Law School, he has extensive experience representing water districts, individuals, and corporate clients in litigation at trial and appellate levels in cases ranging in size from individual water rights matters to complex, basin-wide, multi-party litigation. In the water court context, he has over 15 years of experience adjudicating augmentation plan applications, change of water rights applications, applications for absolute and conditional water rights, and applications for findings of diligence. He appears frequently before the Colorado Ground Water Commission on designated ground water matters. Mr. Jones has extensive experience advising clients in complex water rights transactions, including identifying opportunities, valuation of water rights, negotiation, contracting, due diligence and closing. Mr. Jones brings a collaborative, problem solving approach to water transactional matters. His experience in complex multi-party litigation and negotiation enhances his ability to facilitate creative, value added solutions in natural resources, environmental and land use settings. Mr. Jones' experience extends to legislative, administrative, and policy forums, where he participates in the development of water law and policy. He is extensively involved in Colorado Water Conservation Board funded studies of developing alternatives to traditional "buy and dry" water transfers, including fallowing, deficit irrigation, and the use of reduced consumptive use crops. He is an appointed member of the Colorado Supreme Court Water Court Committee. Mr. Jones is an active member of the Colorado Water Congress, and is frequently called upon to testify before Colorado General Assembly committees regarding proposed water legislation. Mr. Jones teaches classes on water rights issues in public and private forums, and is a frequently requested guest speaker. His book, *Colorado Water Law for Non-Lawyers*, written in cooperation with Thomas V. Cech, was published in 2009 by the University Press of Colorado.

Colorado Water Markets

Colorado Water Law Footnotes

1 *See, e.g.* Colby, Bonnie G, "*Transactions Costs and Efficiency in Western Water* Allocation, "paper in study entitled The Impacts and Efficiency of Agriculture-to-Urban Transfers (1990); Brewer, Jedidiah, et al.*, "2006 Presidential Address: Water Markets in the West: Prices, Trading and Contractual Forms,"* Economic Inquiry, vol. 46, No. 2, April 2008, pp. 95-97 (addressing "Water Marketing in the Economics Literature").

2 Professor Bonnie Colby has been particularly active in promoting discussion. *See, e.g.* Basta, Elizabeth and Colby, Bonnie G., "*Water Market Trends: Transactions, Quantities and Prices*," The Appraisal Journal, Winter 2010, p. 50; Colby, Bonnie G., "*Structuring Dry Year Land Fallowing to Improve Supply Reliability*," (2006) Paper 90 http://opensiuc.lib.siu.edu/ucowrconfs_2006/90; Colby, Bonnie *et al.*, "*Voluntary Irrigation Forbearance to Mitigate Drought Impacts: Economic Considerations*," Report in project entitled Enhancing Water Supply Reliability Through Improved Predictive Capacity and Response (2007); Schuster, Elizabeth and Colby, Bonnie, "*Understanding the Value of Water In Agriculture: Tools for Negotiating Water Transfers*," (2012) (one of a series of "guidebooks" for water users, other titles include: *Water Auction Design for Supply Reliability: Design, Implementation and Evaluation*; *Dry Year Water Supply Reliability Contracts: A Tool for Water Managers*; and *Water Banks: A Tool for Enhancing Water Supply Reliability*) (available at: http://ag.arizona.edu/arec/people/profiles/colby.html). *See also* Garrick, Dustin and Aylward, Bruce*, "Transaction Costs and Institutional Performance in Market-Based Environmental Water Allocation,"* Land Economics, August 2012, 88(3): 536-560; Wildeman, Richard A, Jr. and Forde, Noelani A.*, "Management of Water Shortage in the Colorado River Basin: Evaluating Current Policy and the Viability of Interstate Water Trading,"* Journal of the American Water Resources Association, Paper No. JAWRA-11-0123-P, October 2011; Hanak, Ellen and Stryjewski, Elizabeth, "*California Water Markets, By the Numbers: Update 2012*," Public Policy Institute of California (November 2012); Cronin, Amanda E. and Fowler, Lara B., "*Northwest Water Banking: Meeting Instream and Out of Stream Water Needs in the Pacific Northwest,*" The Water Report, Issue No. 102, pp. 10-16 (2012).

3 *Concerning the Application for Water Rights of Sedalia Water and Sanitation District in Douglas County*, 343 P.3d 16, 22-23 (Colo. 2015) ("*Sedalia*").

4 Colo. Const. art. XVI, §5.

5 Colo. Const. art. XVI, §6.

6 *Sedalia*, 434 P.3d at 22-23.

7 *See* §38-30-102, C.R.S.; *Navajo Developments Co., Inc. v. Sanderson*, 655 P.2d 1374, 1378 (Colo. 1982).

8 *Santa Fe Trails Ranches Property Owners Assoc. v. Simpson*, 990 P.2d 46, 53 (Colo. 1999) ("*Santa Fe Trails*").

9 *Id*.

10 §§37-92-101 et seq., C.R.S.

11 §37-92-103(4), C.R.S.

12 *See, e.g. Burlington Ditch Reservoir and Land Co. v. Metro Wastewater Reclamation District*, 256 P.3d 645, 661 (Colo. 2011) ("*Burlington*").

13 *Sedalia,* 434 P.3d at 23.

14 §37-92-302(1)(a), C.R.S.

15 *See* §37-92-308, C.R.S. (substitute water supply plans); §37-92-309, C.R.S. (interruptible water supply agreements); §37-60-115(8), C.R.S. (fallowing and leasing pilot projects).

16 *Strickler v. City of Colo. Springs*, 16 Colo. 61, 26 P. 313, 316 (1891).

17 *See, e.g. Burlington,* 256 P.d at 661-662 (Colo. 2011).

18 *See Sedalia*, 434 P.3d at 23 (historical consumptive use critical component of change in use determination); *City of Thornton v. Bijou Irrigation Co., 926 P2d 1, 65 (Colo. 1996) (*discussing replication of return flows) ("*Thornton*").

19 *See Williams v. Midway Ranches Property Owners Association*, 938 P.2d 515, 522 (Colo. 1997) (quantification); *Thornton*, 926 P2d at 6.

20 *Sedalia,* 434 P.3d at 23.

21 *See, e.g.* Howe, Charles W. and Goemans, Christopher, "Water Transfers and Their Impacts: Lessons from Three Colorado Water Markets," Journal of the American Water Resources Association, October 2002; Howe, Charles W., *et al.*, "*The Economic Impacts of Agriculture-to-Urban Water Transfers in the Area of Origin: A Case Study of the Arkansas River Valley in Colorado*," American Journal of Agricultural Economics, Vol. 72, No. 5, Proceedings Issue (Dec. 1990), pp. 1200-1204.

22 *See* "Timely, Fair and Effective Water Courts: Report of the Water Court Committee to Chief Justice Mary J. Mullarkey, Colorado Supreme Court," August 1, 2008, pp. 7-9 ("2008 Water Court Committee Report"); "FLEX Market Model Completion Report," Report to Colorado Water Conservation Board, June 2013 (reporting results of water user survey) ("June 2013 FLEX Report").

23 *Id*.

24 *Id*.

25 *See* Colorado Water Plan Draft, Executive Summary, p. 5 (www.colorado.gov/pacific/sites/default/files/CWP-ExSum-2104-Spreads-Web.pdf).

26 *See* Colorado Water Plan Draft, Chapter 6.4, "Alternative agriculture to urban transfers," pp. 189-197 (www.colorado.gov/pacific/sites/default/files/Chapter%206_0.pdf).

27 *See* Senate Bill 07-122 (www.leg.state.co.us/CLICS/CLICS2007A/csl.nsf/fsbillcont3/C1A03A4B43CB7CA187257251007C4512?Open&file=122_enr.pdf).

Colorado Water Markets

28 *See* http://cwcb.state.co.us/LoansGrants/alternative-agricultural-water-transfer-methods-grants/Pages/main.aspx (Grant web page); Colorado Water Conservation Board, "Technical Memorandum: Alternative Water Transfer Methods Grant Program Summary and Status Update," November 2012.
29 *See, e.g*. *See* Nichols, Peter D., "Development of Land Fallowing-Water Leasing in the Lower Arkansas Valley (2002-mid 2011)," Report for the Colorado Water Conservation Board, 2011.
30 *See* "Completion Report: Development of Practical Alternative Agricultural Transfer Measures for Preservation of Colorado Irrigated Agriculture," Report to Colorado Water Conservation Board, 2011, pp. ES-1, 2 ("May 2011 FLEX Report").
31 *Id*.
32 *Id*.
33 *See City of Thornton v. Bijou Irrigation Co*., 926 P2d 1, 65 (Colo. 1996) (replication of return flows) ("*Thornton*").
34 *See* May 2011 FLEX Report; "Wiggins Buying into Northeast Colorado Cooperative," For Morgan Times, February 14, 2014 (www.fortmorgantimes.com/fort-morgan-local-news/ci_25142306/wiggins-buying-northeast-colorado-water-cooperative).
35 *Id.*
36 §37-92-103(10.8), C.R.S.; *Board of County Comm'rs of Park County v. Park County Sportsmen's Ranch*, 45 P.3d 693, 705 (Colo. 2002).
37 *See* May 2011 FLEX Report; June 2013 FLEX Report.
38 *Id*.
39 *See* Nichols, Peter D., "Development of Land Fallowing-Water Leasing in the Lower Arkansas Valley (2002-mid 2011)," Report for the Colorado Water Conservation Board, 2011 ("Nichols").
40 *Id*.
41 *Id*. *See also* Howe, Charles W., et al., *The Economic Impacts of Agriculture-to-Urban Water Transfers in the Area of Origin: A Case Study of the Arkansas River Valley in Colorado,* American Journal of Agricultural Economics, Vol. 72, No. 5, Proceedings Issue (Dec. 1990), pp. 1200-1204.
42 *See* Nichols.
43 *See* "Super Ditch scuttles pilot program," Pueblo Chieftain, March 11, 2014. www.chieftain.com/special/water/2367346-120/ditch-program-super-chieftain.
44 *See* "Catlin Lease gets State's Blessing," Pueblo Chieftain, January 28, 2015 (www.chieftain.com/news/pueblo/3285662-120/arkansas-ditch-super-valley?utm_medium=twitter&utm_source=twitterfeed).
45 *See* MWH Americas, Inc., "Colorado River Water Bank Feasibility Study – Phase 1," Final Draft Report, June 2012.
46 *Id. See also* Wildeman, Richard A, Jr. and Forde, Noelani A., *Management of Water Shortage in the Colorado River Basin: Evaluating Current Policy and the Viability of Interstate Water Trading,* Journal of the American Water Resources Association, Paper No. JAWRA-11-0123-P, October 2011.
47 *See* May 2011 FLEX Report, pp. 2-13 to 2-15.
48 *Id.*
49 *See Id*.; 2008 Water Court Committee Report, pp. 7-9.
50 *See* §37-92-308, C.R.S. (substitute water supply plans); §37-92-309, C.R.S. (interruptible water supply agreements); §37-60-115(8), C.R.S. (fallowing and leasing pilot projects).
51 *See Thornton*, 926 P2d 1, 65 (Colo. 1996) (replication of return flows).
52 *See* Waskom, Reagan M., "Report to the Colorado Legislature: HB12-1278 Study of the South Platte Alluvial Aquifer," December 31, 2013, (describing, inter alia, widescale implementation of aquifer recharge in the South Platte River); Second Amended Findings of Fact, Conclusions of Law, and Decree of the Water Court, Case No. 08CW71, Colorado Division One Water Court (decree for replacement of the return flows via recharge sites) (available from author or Division One Water Court).
53 *See Burlington,* 256 P.d at 661-671 (Colo. 2011).
54 *Id.*
55 *Id*.
56 *Id*.
57 *Id*.
58 *Id*.
59 *See* 2011 FLEX Report, Sections 4-5 (discussing infrastructure and delivery issues on South Platte); 2013 FLEX Report, Sections 10-12 (same).
60 *Id*.
61 *Id*.
62 *Id*.
63 *See* Colorado Water Plan Draft, Chapter 6.4, "Alternative agriculture to urban transfers," pp. 189-197 (www.colorado.gov/pacific/sites/default/files/Chapter%206_0.pdf).
64 *Id*.
65 *See* 2008 Water Court Committee Report, pp. 43-46; 2013 FLEX Report, p. 12-4.66 *See*, *eg.* Colorado House Bill 15-1038 (www.leg.state.co.us/CLICS/CLICS2015A/csl.nsf/fsbillcont3/E26D36117EF53BE787257DB10065CF3D?Open&file=1038_ren.pdf); Colorado House Bill 14-1026 (www.leg.state.co.us/clics/clics2014a/csl.nsf/fsbillcont3/457276E1F5DF1AF787257C3000061D96?Open&file=1026_ren.pdf). *See also* Ferrell, Ian, "Colorado H.B.-1026 – Model Legislation or Trojan Horse?" Arizona Journal of Law and Environmental Policy, Vol. 4, p. 1039.
67 *See Id.*

Landfill ReUse

Leachate Discharge

Land Swap

Landfill History

MUNICIPAL LANDFILL REDEVELOPMENT

FROM LEGACY LANDFILL TO WATERSHED-PROTECTIVE SPORTS STADIUM IN ASTORIA OREGON

by Stacy J. Frost, PE and Neil R. Alongi, PE
(Maul Foster & Alongi, Inc. — Portland, OR & Vancouver, WA)

INTRODUCTION

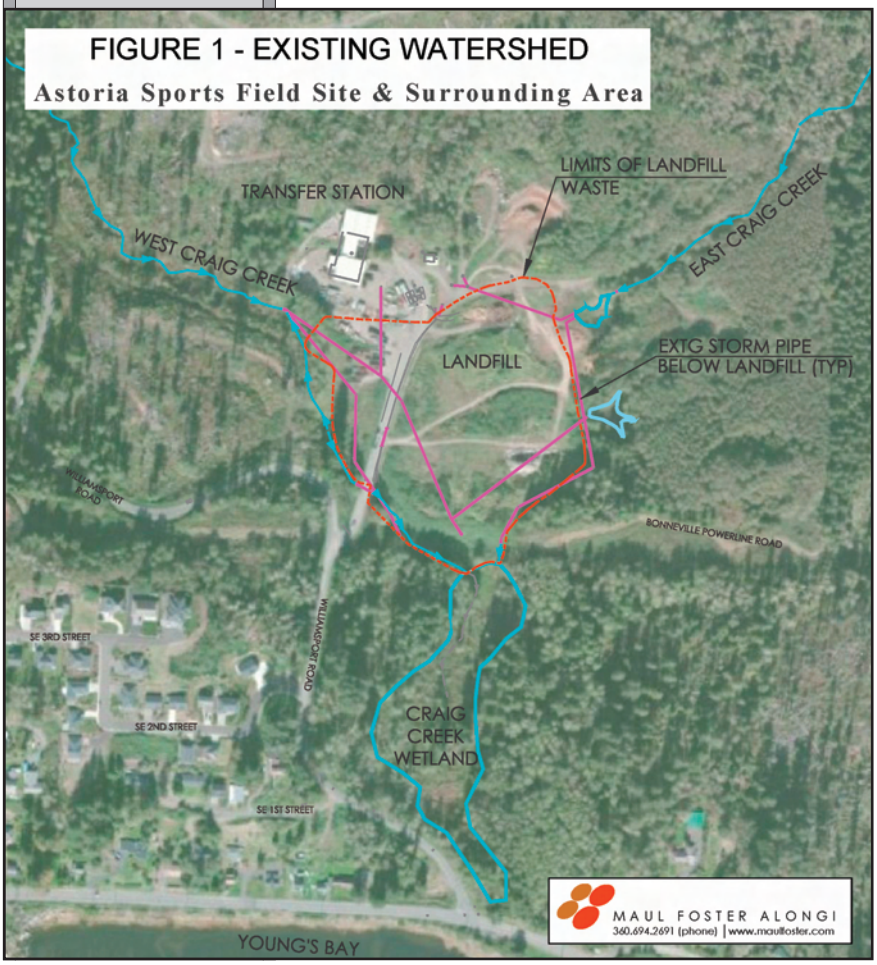
Astoria is a historic coastal town in Oregon. In 1811, just five years after Lewis and Clark wintered at nearby Fort Clatsop, it became the first permanent US settlement on the Pacific Coast. Astoria was also the home of the first US Post Office — established in 1847 — west of the Rockies. The City of Astoria (the City) began operating a municipal solid waste landfill in 1965. By 1978, uncontrolled leachate discharge to a nearby creek and wetland led the Oregon Department of Environmental Quality (ODEQ) to require closure of the landfill. Closing and capping the landfill was a long, complicated, and costly process for the City, and the closure permit from ODEQ expired in 1995 with only a small portion of the work completed.

Astoria's location at the mouth of the Columbia River and abutting the Northern Oregon Coast Range has resulted in development constraints. When Columbia Memorial Hospital, one of the largest institutions in Astoria, needed to expand, they had very limited options. The existing hospital campus was landlocked on all sides but one. To the west of the hospital stood the local high school's outdated football facility, Warren Field.

A strategic plan was formulated between Columbia Memorial Hospital, the City, and Astoria School District to do a land swap with the school district for the old football field in order to expand the hospital campus. In return, Columbia Memorial Hospital would provide the bulk of the $7.5 million required not only to officially close the landfill for the City, but also to redevelop the old municipal landfill as a new, 17-acre athletic field complex to serve the school district and the entire community.

BACKGROUND

The City began operating the landfill as a municipal solid waste disposal and open waste burning facility. The facility accepted general household waste and certain commercial industrial waste. The primary sources of the site's industrial waste were fish and seafood processing plants and the Crown-Zellerbach paper pulp mill located in nearby Wauna. As with many mid-century landfills, the Astoria landfill was unlined. It was also located in a natural ravine at the confluence of two creeks, West Craig Creek and East Craig Creek, which capture runoff from a nearly 200 acre watershed. Flows from these two creeks, along with surface runoff and groundwater, fed the 6+ acre Craig Creek Wetland (*see* Figure 1). The water flows through the Craig Creek Wetland and outfalls to Youngs Bay, which then flows to the Columbia River.



When the landfill was originally constructed, drainage pipes were installed in the bottom to convey the flows from West Craig Creek and East Craig Creek through the landfill and then discharge to the wetland. Over the years of operation, the depth of waste reached 60 feet in some areas of the landfill. This weight can compress the drainage pipes beyond their design strength and lead to separation at the pipe joints. The condition of the drainage pipes was unknown, but there was a high probability that contaminated leachate was leaking into the pipes and reaching the wetland downstream.

The location of the landfill in a ravine and the condition of the aging drainage pipes led to problems with control of landfill-created leachate, which derives from surface water or groundwater that has come into contact with the landfill waste and leached out some of the constituents. Because of this issue, ODEQ (the regulatory agency with jurisdiction over the landfill) required the City to close the landfill. However, because there were

Landfill ReUse

limited alternative solid waste disposal options, the landfill was allowed to operate on an interim basis. A solid waste transfer station, now operated by Recology Western Oregon, was finally constructed in 1985, immediately northwest of the landfill. ODEQ issued a closure permit in 1986 and the landfill stopped accepting waste. As with many small communities, the City was financially unable to proceed with ODEQ's requirements for the official landfill closure. For more than 30 years the landfill was a cost and liability posing substantial watershed risk.

PROJECT APPROACH AND DESIGN STRATEGY

Integrated Design

The project approach and strategy were to integrate landfill closure design elements with the proposed development of the athletic field complex. Not only would the final closure elements and athletic field complex improvements be constructed concurrently, but both projects could undergo a single agency review.

Redevelopment Interests

Maul Foster & Alongi, Inc. (MFA) was retained to design the closure and redevelopment of the landfill because the firm offered a diverse array of solid-waste experience and brownfield redevelopment design, as well as an integrated approach that combines engineering and environmental science. MFA worked with the City, the school district, Recology Western Oregon, and Columbia Memorial Hospital to meet ODEQ requirements for official closure, minimize the future creation of leachate and associated potential contamination, and provide the community of Astoria with a long-lasting and safe sports facility.

The new athletic field complex was programmed to include a 1,200-seat grandstand building with restrooms and concessions; surface parking for over 400 vehicles; an auxiliary locker room building with equipment storage, home and visitor locker rooms, and coaches' offices; and synthetic turfed football field, baseball field, softball field, and soccer field (*see* Figure 2).

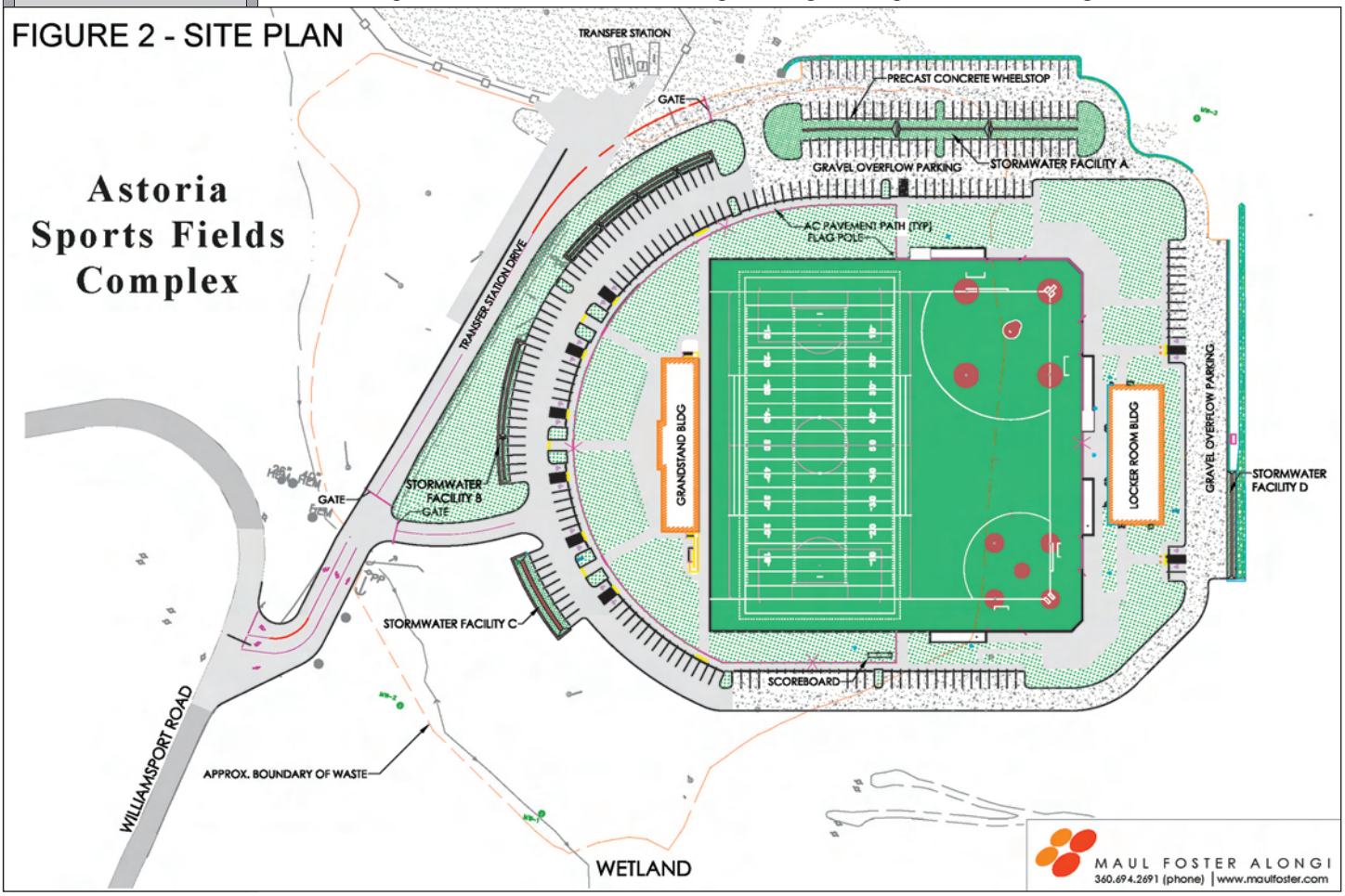
The facility design was also required to include:

- An off-site, gravity sanitary sewer main
- Potable water and sanitary sewer services
- On-site stormwater collection, conveyance, and treatment systems

Contamination Analysis

Field testing indicated that the site's groundwater and surface water had been contaminated with elevated concentrations of toxic metals, ammonia, and other contaminants. Methane had also been detected in soil gas at potentially explosive concentrations. The facility design was also required to include measures to prohibit leachate creation and to protect against exposure to methane gas.

FIGURE 2 - SITE PLAN



Landfill ReUse

Differential Settlement

Preload Placement

Drainage Design

Soil Cap & Liner

Leachate Control

To minimize the creation of leachate, the design included multiple measures: rock preloading; a grading scheme to promote positive drainage; impervious cap material and liners; impervious surface covering in high-traffic areas; and a sealed stormwater collection, conveyance, and treatment system. Since the development was to take place on top of a landfill, one major influence on the design of the facility was the consolidation of the landfill waste in the future and the potential of differential settlement (unequal settlement of the material in the subgrade). This fact had to be considered in the design of all proposed improvements above the 12.5-acre footprint of the delineated landfill. Settlement of landfill waste is inevitable, even after 30 years. If this settlement is not considered when leachate control measures are selected, then those measures may fail after settlement occurs. To minimize future settlement, 35,000 tons of rock was placed on the landfill as a preload to compact the waste. The preload was placed in three phases, each for a minimum of three months. Pre- and post-load surveys of the settlement plates found settling amounts ranging from nearly zero up to one foot.

The first round of defense against leachate creation was a grading design that promoted positive drainage. The grading design utilized a minimum slope of one percent for paved surfaces and two percent for landscaped surfaces. The exception to this scheme was the slope of the synthetic turf field. The field is 400 feet long, and a two percent slope from one end to the other would yield an unacceptable elevation difference of eight feet. For an athletic field, the grade must be nearly unnoticeable to players, yet steep enough to allow for proper surface water drainage. The design team worked with ODEQ to obtain approval of a 0.5 percent design slope, but with some additional measures of protection.

Several low-permeability layers were used to both combat leachate creation and control the landfill-created methane gas. The entire area of the delineated 12.5-acre landfill was capped with a minimum 30 inches of low-permeability clay soil, required by ODEQ to have a hydraulic conductivity of less than 1 x 10^{-6} cm/sec. This soil cap acts as an impervious layer to stop surface runoff from reaching the waste and creating leachate. It also acts to inhibit methane gas from migrating to the open air and to minimize human exposure. There was some public concern regarding health issues related to locating a youth sports facility on a former landfill site. So in addition to the clay soil cap, the client chose to install a linear low-density polyethylene liner under the synthetic turf field to provide an extra layer of protection against both leachate creation and methane gas migration. Asphalt was used as an impervious surface cover on the access road, drive isles, main parking area, and walkways around the complex. Asphalt, instead of traditional cement concrete, was selected for the walkways because it is much easier to repair if any future settlement occurs.

Stormwater Design

The design of the stormwater collection, conveyance, and treatment systems was a major undertaking, and several factors led to the final system layout. The first factor was the site location. Astoria, being a Pacific Northwest coastal community, is subject to large rain events. So the collection and conveyance system had to be sized to convey the stormwater runoff from the ten-year storm event (five inches in 24 hours) without surcharging (stormwater overfilling the pipes and backing up) in the system. Consideration was also given to the 100-year storm event (6.60 inches in 24 hours) runoff. Since the site is located at the bottom of a ravine, the design of the collection and conveyance system had to consider not only runoff from the new facility but also run-on from the entire watershed above the site. The collection and conveyance system was broken into two systems, each flowing on either side of the site, emulating West and East Craig creeks. The collection system for the athletic field complex includes area drains and catch basins, while the collection system for run-on from the upstream watershed includes rock-lined v-ditches.

In addition to surface run-on, groundwater flow was a concern. A large groundwater interceptor trench (4-foot-

Landfill ReUse

Stormwater Design

wide by 12-foot-deep trench with perforated pipe and rock backfill) was installed on the uphill side of the athletic fields. Stormwater runoff from the impervious portions of the site that are subject to vehicular traffic is conveyed to one of four stormwater quality treatment biofiltration facilities (Stormwater Treatment Facilities A-D) around the perimeter of the parking area. All of the biofiltration facilities are lined with 20 millimeter-thick polyvinyl chloride and have perforated pipe underdrains to prevent infiltration of the stormwater. Stormwater runoff from the pervious synthetic turf field percolates through a sand layer under the turf. The water moves through gravel under the sand, into low-profile drain piping, and is conveyed to the on-site storm system via a 12 inch-diameter header pipe. All stormwater runoff is conveyed in watertight, high-density polyethylene pipes and, after treatment, discharged to the Craig Creek Wetland maintaining the historical flow path of the watershed.

Leachate Creation

Wetland Impacts

Since the landfill had been sited in a ravine with a confluence of two creeks, the fill created two ponds immediately adjacent to the east of the landfill. Over time, these ponds developed some wetland characteristics. In addition to the ponds, there was a 360 linear-foot, open channel section of West Craig Creek that flowed through the delineated landfill limits of waste. To officially close the landfill and prevent the future creation of leachate, it would be necessary to fill in the ponds and install piping in the open-channel section of West Craig Creek. These impacts were mitigated by daylighting an approximately 1,000-foot section of East Craig Creek currently piped under the landfill. These areas provide limited wetland functions and values. The lost wetland functions and values were replaced through the Oregon Department of State Lands In-Lieu Fee (ILF) Program. The ILF program involves mitigation banks where large wetlands have been restored or created to generate wetland credits for sale to developers who need to offset unavoidable impacts to waters of the state. A total of 0.29 acre of credits was purchased, at an approximate cost of $21,750, to mitigate the 0.29 acre of impact. More information on the ILF program can be found at www.oregon.gov/dsl/PERMITS/Pages/mitbank_intro.aspx or www.aswm.org/pdf_lib/final_fil_instrument_dec_2008.pdf.

Mitigation Banks

Other Design Features

Unique Design Features

The project had many unique features that were incorporated into the design.

- The grandstand building was built on grade beams and steel piles through the landfill waste and into bedrock 100 feet below the surface to minimize the effects of settlement.
- Multiple membrane liners were used (liner low-density polyethylene, high-density polyethylene, and polyvinyl chloride).
- Where possible, native clay was used for a landfill cap.
- Native clay dams were used in the utility trenches to prevent landfill gas migration off site.
- Gravel surfacing was used for the overflow parking area to allow for easy repair of any areas of future differential settlement.
- The off-site sanitary sewer main was installed using micro-tunneling (remote controlled pipe jacking method without open trenching) to minimize impacts to the adjacent wetland and to reduce construction costs.
- Precast concrete wheel stops were installed instead of solid concrete curb to decrease the likelihood of vehicle damage due to differential settlement.
- A passive gas system (system without blowers or fans to extract the gas) was utilized at the building structures and piped to the rooftops to vent landfill gas to the atmosphere far above the public's breathing zone.

OUTCOMES

Public-Private Partnership

This project is a great example of an innovative private-public partnership and how a brownfield can successfully be redeveloped into a functional piece of property for the community. All parties involved in the project benefited from the redevelopment.

The City was able to close the municipal landfill and meet the requirements of official closure ordered by ODEQ. They were able to terminate the industrial stormwater discharge permit and ongoing monitoring that was required with the open landfill. They decreased the risk of hazardous landfill leachate creation polluting downstream waters.

The Astoria School District now has a new athletic field to replace the outdated football field. They now have a facility capable of hosting regional and state athletic events, as well as the potential to generate revenue for the district with the ability to rent out the facility for events.

The relocation of the sports field will allow Columbia Memorial Hospital to move forward on a much-needed expansion in the future. This expansion will allow the hospital to provide new services such as cancer diagnosis and treatment, eliminating the need for patients to travel 90 miles to Portland or 45 miles to Longview for treatments. Construction of a new cancer center would increase employment in the community and provide year-round jobs.

Landfill ReUse

Sanitary Sewer Main

Environmental Benefits

Social Benefits

The 1,400-linear-foot sanitary sewer main that was installed to serve the athletic field complex also now serves Recology Western Oregon. Before the installation of the sanitary sewer main, water used to clean the garbage collector tipping floor was directed to a holding tank, then transported to a wastewater treatment center. This process was both costly and a major inconvenience for the facility. The transfer station also now has a safer intersection at Williamsport Road (which had been a high-risk blind corner), as well as a paved access drive for the transfer station clients and service truck drivers.

The Community of Astoria is the real winner in this story. It now has a public accessible event space and a place of pride where they can watch their "Fighting Fishermen" high school teams. Closure of the landfill will minimize the possibility of contaminants from the former landfill leaching into the downstream wetland that leads to Youngs Bay and the Columbia River. Protection of these resources is important not only to the environment, but also to the continued success of Astoria's fishing-based economy.

CONCLUSION

The Fighting Fishermen's new home stadium, CMH Field, exemplifies the many benefits of multiple public and private parties coming together in the redevelopment of a brownfield to better their community. In addition to capping and closing an inactive municipal landfill, the new athletic field complex has created a potential source of revenue for the Astoria School District, while freeing developable land for a much-needed expansion of the community hospital.

For Additional Information:

Stacy Frost, Project Manager, Maul Foster & Alongi, 360/ 433-0250 or sfrost@maulfoster.com

As this issue goes to press, we have received word that the redevelopment project described in this article has received the Phoenix Award for US EPA Region 10. This annual award by the Phoenix Award Institute is given in recognition of "exemplary brownfield redevelopment and revitalization. Winning projects offer a fresh take on significant environmental issues, show innovation, and demonstrate masterful community impact."

Congratulations to All Involved!

Stacy Frost has over 14 years of experience in civil engineering and has been heavily involved in brownfield redevelopment. He has led project teams in the design of park, commercial, residential, education facility, light industrial, heavy industrial, waterfront, and port developments. His experience includes site development master planning, utility system master planning, transportation system master planning, street design, water system design, sanitary sewer system design, storm drainage system design, grading design, earthwork analysis, erosion control design, stormwater analysis, and permitting. Throughout his career, Mr. Frost has had the opportunity to design and manage a wide variety of projects ranging from small commercial developments to large industrial subdivisions. He has worked closely with both large and small project teams to develop design concepts, meet the needs of the clients, and help create developments that benefit the community.

Neil Alongi's expertise includes industrial facility siting and expansion, solid- and hazardous-waste facilities, and industrial wastewater and stormwater management. He has been the project manager and lead engineer for multimillion-dollar industrial siting projects involving master planning, permitting, civil design, and construction management. He produces high-quality designs that can be permitted and constructed within a project's time and budget constraints. He has served as an expert witness for a variety of legal proceedings, and has testified at and conducted numerous public hearings for various types of projects.

WATER BRIEFS

CURTAILMENT SUPPORT CA

RULING IN STATE'S FAVOR

The severe drought in California has led the state agency charged with managing the water system, the State Water Resources Control Board (SWRCB or Board), to issue curtailment notices to many of the large agricultural water users where SWRCB believes there is no water available. The curtailment notices led four water districts to file a lawsuit and seek a preliminary injunction to stop ("stay") SWRCB from pursuing administrative enforcement actions. Judge Shelleyanne W.L. Chang agreed with the water districts and granted a Temporary Restraining Order (TRO) against SWRCB on July 10th, ruling that the curtailment notices issues in May and June by SWRCB "were coercive in nature and went beyond the 'informational' purpose the Board [SWRCB] claimed prevented a stay…It was not a suggestion for 'voluntary cessation of activities,' but instead required Petitioners to 'immediately stop diverting water.'" Order at p. 1, *The West Side Irrigation District, et al., v. California State Water Resources Control Board, et al*., Case No. 34-2015-80002121 (August 3, 2015).

On July 15, 2015, SWRCB issued a revised curtailment notice entitled, "*Partial Rescission of April, May and June 2015 Curtailment Notices and Clarification of State Board Position RE: Notice of Unavailability for Water for Those Diverting Water in the Sacramento River Watershed, San Joaquin River Watershed and Delta, and Scott River.*" A hearing on the parties' positions was held on July 30th. SWRCB argued that given the revised curtailment notice the matter was now moot — i.e. the plaintiffs' opposition to the notices was cured by the revised curtailment notice — while the plaintiffs' continued to maintain that the "coercive language was still present in the July letter and that respondents had not corrected the offending language." *Id*. at 2.

Based on SWRCB's revised curtailment notices, Judge Chang essentially reversed her TRO of July 10th in the Order of August 3rd, and declined to issue a preliminary injunction to stop the enforcement actions. "The Court has reviewed the July letter and finds that Respondent [SWRCB] has removed the coercive language that was in the Curtailment Letters." *Id*. Judge Chang explained her ruling about the coercive language: "Here, the July Letter no longer requires recipients to cease diverting water or requires them to sign a curtailment certification form under penalty of perjury. While the July Letter does notify the recipient that the Board has information indicating that there is insufficient water available for their water right priority, such a determination, in and of itself, does not violate Due Process principles, as the July Letter makes no assessment of the recipient's legal status in light of such a determination and no longer commands the recipient to take any action."

With Judge Chang's ruling, SWRCB is moving forward with its enforcement activities. SWRCB issued a draft Cease and Desist Order to one of the petitioners, West Side Irrigation District (District), on July 16th. The District asserted before Judge Chang that the Cease and Desist Order was in retaliation for its part in the lawsuit. Judge Chang, however, found that the issue of retaliation is not properly before the Court at this time. "The only issue before the Court at the Order to Show Cause hearing was whether a preliminary injunction should issue requiring the Board to issue a revised letter/notice that is informational in nature." Chang also found, "[A] full administrative hearing with the opportunity for both sides to present evidence challenging the propriety of the Cease and Desist Order and Information Order and whether the Curtailment Certificates were improperly used as a basis for Respondents' [SWRCB's] enforcement actions against these Petitioners and subsequent judicial review of a fully developed record and the administrative determination is the appropriate procedure." *Id*. at 4.

For info: Order available at: www.courthousenews.com/2015/08/04/Chang%20Ruling.pdf

AG CONSERVATION MT

USDA PROGRAM INCENTIVES

On July 15, US Agriculture Secretary Tom Vilsack announced that beginning September 1, farmers and ranchers can apply for financial assistance to help conserve working grasslands, rangeland, and pastureland while maintaining the areas as livestock grazing lands. The initiative is part of the voluntary Conservation Reserve Program (CRP), a federally funded program that for 30 years has assisted agricultural producers with the cost of restoring, enhancing and protecting certain grasses, shrubs, and trees to improve water quality, prevent soil erosion and reduce loss of wildlife habitat. In return, the US Department of Agriculture (USDA) provides participants with rental payments and cost-share assistance. CRP has helped farmers and ranchers prevent more than 8 billion tons of soil from eroding, reduce nitrogen and phosphorous runoff relative to cropland by 95% and 85% respectively, and even sequester 43 million tons of greenhouse gases annually, equal to taking 8 million cars off the road. A record 400 million acres and 600,000 producers and landowners are currently enrolled.

The CRP-Grasslands initiative will provide participants who establish long-term, resource-conserving covers with annual rental payments up to 75% of the grazing value of the land. Cost-share assistance also is available for up to 50% of the covers and other practices to support rotational grazing or improving pasture cover to benefit pollinators or other wildlife. Participants may still conduct common grazing practices, produce hay, mow, or harvest for seed production, conduct fire rehabilitation, and construct firebreaks and fences.

USDA is also expected to announce state-by-state allotments for the State Acres for Wildlife Enhancement (SAFE). Through SAFE, also a CRP initiative, up to 400,000 acres of additional agricultural land across 37 states will be eligible for wildlife habitat restoration funding.

For info: Jennifer Cole, USDA, 406/587-6786, jennifer.cole@mt.usda.gov or www.fsa.usda.gov/crp

WATER BRIEFS

CIVIL PENALTY FOR USE CA
$1.5 MILLION FINE

On July 20th, the State Water Resources Control Board (SWRCB or Board) issued a draft Administrative Civil Liability Complaint to Byron-Bethany Irrigation District (Byron Bethany) for unauthorized diversion and use of water, and proposed a $1.5 million penalty for the alleged violations. This allegation is the first such enforcement complaint for a senior water right holder in 2015, related to drought conditions. According to Andrew Tauriainen, Prosecuting Attorney for the Board's Division of Water Rights, SWRCB is alleging that "Byron Bethany diverted water after June 12, when it knew that water was not available to serve its priority of right. The Division began investigating Byron Bethany Irrigation District shortly after the June 12 notice, and found evidence that Byron Bethany continued to divert water, despite knowing that no water was available under its priority of water right. The Byron Bethany administrative civil liability complaint is the first to be issued seeking penalties under the new enhanced penalty structure adopted last year." Tauriainen, July 16 Media Call.

Tauriainen was asked at a July 16 Media Call about the reductions that were made to the proposed penalties for Byron Bethany, from over $5 million to the amount proposed. He described what was involved in the decision to reduce the proposed penalty. "The water code also requires consideration of all appropriate circumstances in both proposing and adopting civil liability penalties. In the complaint, we describe the circumstances that the prosecution feels are appropriate and why the $1.5 million is an appropriate penalty. This is a process that we do for all administrative civil liability complaints, not just these drought-related ones…I do want to make it clear though that if this case goes to hearing before the State Board, the State Board has discretion to issue a penalty of any size it sees fit, or no penalty, up to and including the statutory maximum. So this is the first case of this kind that will likely go to the Board. Certainly the first case under the new enhanced penalty structure, and I do expect the Board to take a very close look at all the circumstances surrounding this diversion and others that may come before it when it decides what size penalty to come up with. I wouldn't be surprised if the Board came up with a penalty much higher than what is proposed here."

Byron Bethany, located in Byron, has a pre-1914 right of May 1914 to draw water from the intake channel at the Banks Pumping Plant in Contra Costa County. On June 12, 2015, the State Water Board notified all pre-1914 appropriative right holders with a priority date of 1903 or later in the Sacramento-San Joaquin watersheds and Delta that there was insufficient supply available to meet the needs of all water right holders, and that water was no longer available for diversion under their right. Diversion records kept by the California Department of Water Resources and posted to the California Data Exchange Center indicate that Byron Bethany continued to divert water until approximately June 25.

"Water Code section 1052 provides that the maximum civil liability that can be imposed by the State Water Board in this matter for the unauthorized diversion and use of the water during a drought period is $1,000 for each day of trespass plus $2,500 for each acre-foot of water diverted or used in excess of that diverter's water rights." Complaint at 6-7. The Complaint alleged that "the maximum civil liability for the alleged violations is $5,180,500 [13 days at $1,000 per day plus 2,067 acre-feet at $2,500 per acre-foot]."

For info: SWRCB Complaint available at: www.waterboards.ca.gov/waterrights/water_issues/programs/enforcement/compliance/acl_complaint_actions/index.shtml

TRIBAL WASTEWATER AZ
WATER POLLUTION FACILITY

The US Environmental Protection Agency (EPA) and the Navajo Nation EPA (NNEPA) announced a pair of settlements with the Navajo Tribal Utility Authority (NTUA) on July 7th to bring its wastewater treatment facility in Window Rock, Arizona into compliance both with the federal Clean Water Act and the Navajo Nation Clean Water Act. EPA's agreement backs up a recent ground-breaking NNEPA settlement that required the NTUA to pay a $25,000 penalty. This is the first time that a tribally-owned entity has paid a penalty for violations of the Navajo Nation Clean Water Act. NTUA has committed to bring the Window Rock facility into full compliance by December 31, 2015, or face additional penalties. NTUA has also agreed to build new infrastructure for the treatment plant at the site.

An EPA inspection revealed that since at least 2011 NTUA had been discharging pollutants above its permit limits to Black Creek, a tributary of the Puerco River that feeds into the Little Colorado River. Other violations of NTUA's National Pollutant Discharge Elimination System permit included its failure to submit complete and timely reports while inadequately operating and maintaining its existing treatment system. The plant collects and treats sanitary sewage from a population of about 13,300 in Apache County, Arizona, within the boundaries of the Navajo Nation.

The settlements require NTUA to conduct sampling, submit quarterly reports, train and certify the plant's operators, and hold regular compliance meetings with senior officials of EPA and NNEPA. NTUA will also submit a plan for EPA and NNEPA's approval for the construction of an entirely new treatment plant including a detailed schedule for commissioning and bringing the new facility on-line. Approximately $10 million in funding for the new facility was provided through the US Department of Agriculture's Rural Utilities Service Water and Waste Disposal Loans and Grants Program.

For info: Rick Abasta, NNEPA, 928-871-7925, rickyabasta@navajo-nsn.gov or http://navajonationepa.org/; EPA's Region 9 Tribal Program at: www.epa.gov/region9/tribal/

DROUGHT COMPLIANCE CA
URBAN USE REDUCED BY 27%

Despite being the hottest June on record, California's urban water suppliers reduced water use by 27.3%, a savings of 59.4 billion gallons (182,151 acre-feet), as compared to the same

WATER BRIEFS

time in 2013. June conservation efforts put California on track to achieve the 1.2 million acre-feet savings goal by February 2016, as called for by Governor Brown in his April 1 Executive Order. Water suppliers have made significant investments in their education and outreach programs to communicate the need to conserve to their customers. June's enforcement statistics highlight the growing awareness of how water is used locally as a result of these programs, according to the State Water Resources Control Board (SWRCB). Water suppliers reported that their compliance and enforcement programs saw an almost two-fold increase in the number of complaints of water waste, which resulted in a big jump in reported penalties.

Of the 405 water suppliers reporting, 265 suppliers (65%) met, or were within one percent of, their conservation standard; 53 suppliers (13%) are between one and five percent of meeting their conservation standard; and 71 suppliers (18%) are between five and 15 percent of meeting their conservation standard. However, there are 16 suppliers (4%) that are more than 15 percent from meeting their conservation standard. SWRCB will be contacting all suppliers more than one percent away from meeting their conservation standard and requiring many to provide information about their existing conservation programs and the steps they are taking to boost conservation. The suppliers furthest from meeting their conservation standard will be directed to take additional actions, such as imposing further restrictions on outdoor irrigation and increasing outreach and enforcement. SWRCB stated that it cannot delay in using its enforcement tools to ensure water suppliers reach their mandated reductions.

The June 2015 statewide conservation report (including individual supplier data), conservation compliance information, and other supporting documents are available on SWRCB's website (below).
For info: www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml

PERMIT EXEMPTIONS WA
NEW GROUNDWATER GUIDANCE

The Washington Department of Ecology has updated its website on Groundwater Permit Exemptions to include a new guidance document entitled "*Focus on New Groundwater Uses: The Groundwater Permit Exemption* (RCW 90.44.050)." The document and additional information on permit exemptions is available at the Ecology website listed below.
For info: www.ecy.wa.gov/programs/wr/comp_enforce/gwpe.html

PUEBLO WATER QUALITY NM
TRIBAL CWA AUTHORIZATION

On July 22, EPA announced that the Pueblo of Santa Ana in New Mexico has gained authority to administer its own water quality standards and certification programs under the Clean Water Act (CWA). Santa Ana is the 50th tribe of 567 federally recognized tribes nationwide to receive authority over the water quality standards and certification programs.

The Pueblo will protect public health, aquatic life and wildlife on the 78,000 acre area that includes portions of the Rio Grande, the Rio Jemez and other water bodies. Under the CWA, a tribe must be federally recognized, have a governing body, jurisdiction, and capability in order to administer a water quality standards program. EPA's approval of the tribe's water quality standards program application is not an approval or disapproval of the tribe's standards. EPA will review and take action on the tribe's water quality standards in a separate agency action.

More information on Tribal eligibility applications to administer EPA regulatory programs is available at: www.epa.gov/tribalportal/laws/tas.htm.
For info: Joe Hubbard or Jennah Durant at 214/ 665-2200 or r6press@epa.gov

DESAL & PURIFICATION US
RECLAMATION FUNDING

The US Bureau of Reclamation (Reclamation) selected nine projects to receive $1.49 million under its Desalination and Water Purification Research (DWPR) Program. Reclamation's funding will support almost $13.5 million in research.

This funding is going to support both research laboratory projects (small-scale projects used to determine if a process is feasible) and pilot-scale projects that follow research studies to demonstrate how technology works and determine the physical viability and suitability of a process on a larger scale.

The program is open for academia, private sector, non-profit entities, state and local entities and municipalities to apply. Using testing and new advanced water treatment technologies, the DWPR Program helps Reclamation and its partners identify widening imbalances between supply and demand in western water basins. DWPR Program priorities are: (1) overcoming technical, economic and social barriers for direct and/or indirect potable reuse treatment: (2) novel processes and/or materials to treat impaired waters: and (3) concentrate management solutions leading to concentrate volume minimization for inland brackish desalination.
For info: Reclamation website: www.usbr.gov/awt/

RATE CASE AWARD CA
ILLEGAL WATER RATES

On July 15, San Francisco Superior Court Judge Curtis E.A. Karnow ruled in a tentative decision that he would require the Metropolitan Water District of Southern California (Met) to pay the San Diego County Water Authority (Water Authority or San Diego) nearly $188.3 million plus interest for illegal water rates Met charged from 2011 to 2014. "San Diego has proven by a preponderance of the evidence that it was in fact damaged by paying conveyance rates that were higher than Met could have set pursuant to applicable law and regulation," Judge Karnow wrote in the July 15th tentative decision (page 16). A final ruling is expected by mid-August.

In April 2014, Judge Karnow ruled that Met's 2011-2014 rates violated California statutes and common law that require public water agencies to limit the rates they charge to the costs of providing their services. He also ruled that Met's 2013 and 2014 rates violated Proposition 26, passed by California voters in November 2010 and

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enshrined in Articles 13A and 13C of the California Constitution. Proposition 26 shifted the burden to public agencies to prove they are not charging more than the actual cost of the services they provide. Judge Karnow invalidated Met's 2011-2014 rates because they violated these provisions of law.

Judge Karnow tentatively rejected all of Met's defenses to the Water Authority's legal challenges, including the contention that the Water Authority consented to being overcharged by the Los Angeles-based wholesaler. Instead, he said the Water Authority was entitled to damages it claimed — four years of overpayments at approximately $188 million, plus interest.

In another pivotal tentative ruling, Judge Karnow said Met has been under-calculating the Water Authority's preferential right to Met water supplies. In Met's water rights formula, it has improperly excluded hundreds of millions of dollars of payments by the Water Authority for transporting the Water Authority's independent Colorado River water supplies. By law, each Met member agency is entitled to a percentage of Met's available water supplies at any time based upon all payments made to Met throughout history "excepting the purchase of water." The court tentatively found that the Water Authority has been purchasing transportation service from Met to convey water supplies the Water Authority buys from the Imperial Irrigation District and from lining the All American and Coachella canals in the Imperial Valley. The court rejected Met's argument that the Water Authority's transfer supplies were purchases of Met water excluded from the calculation of preferential rights.

Met is expected to appeal the decision. The Water Authority's Board of Directors already has determined that the agency will deduct its litigation expenses and return the remaining money to its 24 member agencies in proportion to their payment of Met's illegal overcharges over the four years in dispute.

For info: For Court documents and additional background *see* Water Authority website: www.sdcwa.org/mwdrate-challenge

COOLING WATER US

EPA WEBSITE REDESIGNED

Thousands of industrial facilities use large volumes of water from lakes, rivers, estuaries or oceans to cool their plants. Cooling water intake structures can pull large numbers of fish and shellfish or their eggs into a power plant's or factory's cooling system where they can be injured or killed. Larger organisms may be killed or injured when they are trapped against screens at the front of an intake structure. Clean Water Act section 316(b) requires EPA to issue regulations on the design and operation of intake structures, in order to minimize adverse impacts.

EPA has redesigned its website on cooling water intakes. Information about EPA's regulations to protect aquatic life from industrial cooling water intake structures can be found there.

For info: www2.epa.gov/cooling-water-intakes

WYOMING ATLAS WY

WATER & CLIMATE WEB ATLAS

On July 19, the Water Resources Data System at the University of Wyoming, in conjunction with the Wyoming Water Development Commission and WyGISC, announced the launch of The Wyoming Water and Climate Web Atlas. This online web-mapping tool explores and delivers climate, weather, snowpack, streamflow, and State water development information.

The Web Atlas allows users to visualize different water and climate data resources in specific geographic regions, and then retrieve information related to that area. For example, if a water user is interested in applying for funding for a water development project from the Wyoming Water Development Commission, they can zoom-in to their area of interests, click on the map and find out what reports, studies, or construction projects have been done in the vicinity. They can also find information related to area water rates, well depths and yields, stream gages, and where the nearest National Weather Stations are located to get information about the regions precipitation.

The goal of this mapping portal is to allow Wyoming's water users and managers to find as much information they can, in one spot, on one of the state's most precious resources.

For info: Web Atlas at: www.wrds.uwyo.edu/wcwa.html

OIL & GAS VIOLATIONS WY

OIL SPILL SETTLEMENT

EPA announced July 15th that it reached a settlement with Enid, Oklahoma-based Cottonwood Creek, Inc. (Cottonwood), with the company agreeing to pay a $170,000 penalty to resolve alleged violations of the Clean Water Act (CWA) related to oil pollution at the Bonanza Station in Big Horn County, Wyoming. The settlement requires Cottonwood to deposit the civil penalty of $170,000 into the Oil Spill Liability Trust Fund, a fund used by federal agencies to respond to discharges of oil and hazardous substances.

The agreement resolves alleged violations of the CWA's requirements for oil and gas operations at the Bonanza Station, an oil gathering, pumping and storage facility, including a March 8, 2010, pipeline discharge of approximately 162 barrels of crude oil into a tributary of the Nowood River. The agreement also resolves allegations that Cottonwood violated EPA regulations regarding the preparation and implementation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan and a Facility Response Plan (FRP). These plans are the first line of defense for preventing oil discharges and providing immediate containment measures when an oil discharge does occur. The company cleaned up the oil release and ultimately submitted an acceptable FRP. Cottonwood sold the Bonanza Station to the Washakie Pipeline Company in 2012.

The consent decree was lodged in US District Court for the District of Wyoming; a copy is available for review and public comment on the DOJ website at: www.justice.gov/enrd/Consent_Decrees.html.

For info: EPA Compliance webpage: www2.epa.gov/oil-spills-prevention-and-preparedness-regulations

CALENDAR

August 16-18 CA
Smart H2O Summit: Focus on Technology Solutions to Water Crisis, San Francisco. Mariott Marquis. For info: www.smarth2osummit.com/

August 18-21 SC
Environmental Awareness Bootcamp, Hilton Head. Holiday Inn Resort Beach House. Presented by EPA Alliance Training Group. For info: www.epaalliance.com/environmentalbootcamp-aug15.html

August 19 CA
Stormwater Strategic Initiative Workshop, Sacramento. CalEPA HQ Bldg. Presented by SWRCB. For info: www.waterboards.ca.gov/water_issues/programs/stormwater/strategy_initiative.shtml

August 19-21 SC
SPCC & Stormwater Compliance Workshop, Hilton Head. Holiday Inn Resort Beach House. Presented by EPA Alliance Training Group. For info: www.epaalliance.com/spccstormwaterworkshop-aug15.html

August 19-21 CO
Colorado Water Congress Summer Conference, Vail. Vail Cascade Resort. For info: www.cowatercongress.org/cwc_events/Summer_Conference.aspx

August 20-21 AZ
Arizona Water Law Conference, Scottsdale. Camelback Golf Club. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

August 21 CA
9th Annual San Bernadino County Water Conference, San Bernadino. California State University. For info: http://sbcwater.com/

August 24-25 CA
California Climate Change Symposium 2015: Using Climate Science to Plan for a Resilient Future, Sacramento. Sacramento Convention Ctr. Presented by Cal EPA. For info: www.californiascience.org/

August 25-27 NV
WSWC/NARF 14th Symposium on the Settlement of Indian Reserved Water Rights Claims, Reno. Peppermill Hotel & Casino. Presented by Western States Water & the Native American Rights Fund. Symposium begins 8/25, ending with an evening reception. Continues 8/26, followed by a review of the Pyramid Lake Paiute Tribe's settlement, a field trip to view settlement features. For info: www.westernstateswater.org or http://narf.org/water/

August 26-28 CA
Urban Water Institute's 22nd Annual Water Conference, San Diego. Hilton San Diego Resort. Presented by Urban Water Institute, Inc. For info: www.urbanwater.com/conference/

August 26-28 CA
One Water Leadership Summit, San Francisco. Grand Hyatt San Francisco. Presented by US Water Alliance. For info: http://uswateralliance.org/events/

August 27 WY
Snowpack Monitoring for Streamflow Forecasting & Drought Planning Workshop, Lander. The Inn at Lander. Presented by Western Water Assessment, National Integrated Drought Information System, Wyoming State Engineer's Office, Wyoming Water Ass'n & University of Wyoming Water Resources Data System; 9am-4pm. For info: RSVP to Matt Hoobler, 307/ 777-7641 or Matt.Hoobler@wyo.gov

August 27 CA
Wetlands Regulation & Mitigation Course, Sacramento. Sutter Square Galleria Center, 2901 K Street. For info: UC Davis Extension, https://extension.ucdavis.edu/section/wetlands-regulation-and-mitigation

August 28-29 CA
DesalTech 2015 International Conference: Innovative Research & Approaches for Seawater & Brackish Water Desalination, San Diego. San Diego Convention Ctr. For info: www.desaltech2015.com/

August 30-Sept. 4 CA
IDA World Congress 2015 on Desalination & Water Reuse, San Diego. San Diego Convention Ctr. For info: http://wc.idadesal.org/

August 31 CO
Special Guest Lecture by the Getches-Wilkinson Center: US Secretary of Energy Dr. Ernest Moniz, Boulder. Wolf Law Bldg., Wittemyer Courtroom. To Register: https://cuboulder.qualtrics.com/SE/?SID=SV_1Sby7wtK0ZGyL6R&Q_JFE=0. For info: www.colorado.edu/law/research/gwc/events

September 2 CA
The New Groundwater Sustainability Plans: What's Required & What's Needed Event, Modesto. DoubleTree by Hilton. Presented by Groundwater Resources Ass'n of California. For info: http://grac.org/sgma090215.asp

September 9 CO
Snowpack Monitoring for Streamflow Forecasting & Drought Planning Workshop, Broomfield. RSVP to Jeff Lukas, 303/ 735-2698 or lukas@colorado.edu; 9am-4pm. Presented by Western Water Assessment, National Integrated Drought Information System, Colorado Basin River Forecast Center, Natural Resources Consrevation Service Colorado Snow Survey & Colorado Water Conservation Board.

September 9 CA
Draft Environmental Impact Statement Re: Central Valley Project & State Water Project (Meeting), Sacramento. John E. Moss Federal Bldg., 650 Capitol Mall, 2-4pm. Presented by Bureau of Reclamation. For info: www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=49902

September 9-11 CA
Overview of Environmental Statistics Course, Davis. Plant & Environmental Sciences, 387 North Quad. For info: UC Davis Extension, https://extension.ucdavis.edu/section/overview-environmental-statistics

September 10 CA
Draft Environmental Impact Statement Re: Central Valley Project & State Water Project (Meeting), Red Bluff. Red Bluff Community Ctr., 1500 S. Jackson Street, 6-8 pm. Presented by Bureau of Reclamation. For info: www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=49902

September 13-16 WA
30th Annual WateReuse Symposium, Seattle. Sheraton Seattle. Presented by the WateReuse Ass'n. For info: www.watereuse.org

September 14-15 NM
New Mexico Water Law Conference, Santa Fe. La Fonda Hotel. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

September 14-15 WA
Proving Groundwater Contamination Claims Seminar, Seattle. Courtyard Marriott/Pioneer Square. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 15 CA
Draft Environmental Impact Statement Re: Central Valley Project & State Water Project (Meeting), Los Banos. Los Banos Community Ctr., 645 7th Street, 6-8pm. Presented by Bureau of Reclamation. For info: www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=49902

September 15-16 FL
The Water Expo: Empowering Water in the Americas, Miami. Miami Airport Convention Ctr. For info: www.thewaterexpo.com/

September 17 CA
Science of Water & Law in California Seminar, Santa Monica. DoubleTree Suites Santa Monica. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 17 CA
Draft Environmental Impact Statement Re: Central Valley Project & State Water Project (Meeting), Irvine. Hilton Hotel/Orange County Airport, 18800 MacArthur Blvd., 6-8 pm. Presented by Bureau of Reclamation. For info: www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=49902

September 17-18 CA
12th Biennial State of the San Francisco Estuary Conference, Oakland. Oakland Marriott at City Center. Presented by San Francisco Estuary Partnership. For info: www.sfestuary.org/soe/

September 18 CA
California Environmental Quality Act Seminar, Santa Monica. DoubleTree Suites Santa Monica. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 18 OR
Oregon Environmental Cleanup Conference: Remediation, Restoration & Redevelopment, Portland. World Trade Center Two, 25 SW Salmon Street. For info: Environmental Law Education Center, 503/ 282-5220, hduncan@elecenter.com or www.elecenter.com

September 21-22 ID
Water Law in Idaho Seminar, Boise. Red Lion Hotel Downtowner. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 21-25 Germany
FEFLOW 2015: Modeling the World of Groundwater with MIKE by DHI, Berlin. For info: www.feflow.com/feflow2015

September 22-23 WY
Upper Great Plains Groundwater Conference, Cheyenne. Little America Hotel. Presented by Nat'l Groundwater Ass'n. For info: www.ngwa.org/Events-Education/conferences/Pages/5010sep15.aspx

September 22-23 CA
Water Innovation Summit, Berkeley. The Claremont Hotel Club & Spa. Hosted by the Cleantech Group. For info: http://events.cleantech.com/waterinnovationsummit/

September 23-24 TX
TCEQ 2015 Water Quality/Stormwater Seminar, Austin. DoubleTree Hotel. For info: www.tceq.texas.gov/p2/events/stormwater.html

September 24 WA
Model Toxics Act Seminar, Seattle. Hotel 1000 Seattle. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

September 24-25 CA
3rd Annual Endangered Species Act Conference, San Francisco. Hotel Nikko, 222 Mason Street. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

September 25 OR
Drought in the American West: Symposium on Law, Policy & Science, Eugene. UO Knight Law Center. Presented by UO's Journal of Environmental Law & Litigation, Oregon Review of International Law and Environmental & Natural Resources Law Center. For info: http://law.uoregon.edu/explore/enr

September 27-30 OK
2015 Ground Water Protection Council Annual Forum: Where Water & Energy Mix, Oklahoma City. Courtyard by Marriott-Bricktown. For info: www.gwpc.org/events/2015-annual-forum

September 28-30 IL
WEFTEC 2015: The Water Quality Event & Exhibition, Chicago. McCormick Place South. Presented by Water Education Foundation. For info: www.weftec.org

September 30 TX
Pollution Prevention Waste Management Workshop, Austin. J.J. Pickle Center - UT Austin. Presented by TCEQ. For info: www.tceq.texas.gov/p2/events/pollution-prevention-waste-management-workshop

September 30-Oct. 1 TX
Texas Desal 2015: Innovation & Reliability, Austin. Radisson Hotel Downtown. For info: www.texasdesal.com/events/2015-conference.html

The Water Report
Water Rights, Water Quality & Water Solutions in the West
260 N. Polk Street • Eugene, OR 97402

CALENDAR

(continued from previous page)

September 30-Oct. 1 CA
Industrial Stormwater Compliance Workshop, San Francisco. UC Berkeley - San Francisco Campus. For info: UC Berkeley Extension, http://extension.berkeley.edu/search/publicCourseSearchDetails.do?method=load&courseId=18089818&utm_source=flyer&utm_medium=flyer&utm_campaign=from-david

October 1 WA
Toxics Conference: Emerging Contaminants, Fish Consumption Rates & Water Quality Standards, Seattle. Washington State Convention Ctr. For info: Environmental Law Education Center, 503/ 282-5220, hduncan@elecenter.com or www.elecenter.com

October 5 UT
Utah Water Law Conference, Salt Lake City. Marriott Downtown at City Creek. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

October 5-6 TX
Texas Water Law Conference, Austin. Omni Hotel at Southpark. For info: CLE Int'l, 800/ 873-7130 or www.cle.com

October 5-6 CA
Finding "New" Water: Evaluating "New" Water Options for Overcoming Drought & Diversifying Water Portfolios Conference, Anaheim. DoubleTree Anaheim Resort. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

October 5-8 AZ
13th Biennial Conference of Science & Management on the Colorado Plateau & Southwest Region, Flagstaff. Northern Arizona University. For info: http://nau.edu/Merriam-Powell/Biennial-Conference/

October 6-9 CA
Pacific Water Quality Ass'n Convention & Trade Show, City of Industry. Pacific Palms Resort. For info: www.wqa.org/Programs-Services/Resources/Calendar-of-Events

October 6-9 MT
Watershed Symposium: Linking Water Research to Policy and Water Management, Missoula. Holiday Inn Downtown. Presented by Montana Watershed Coordination Council & Montana Chapter of American Water Resources Ass'n. For info: www.montanaawra.org/conference/

October 7-8 NV
2015 WaterSmart Innovations Conference & Exposition, Las Vegas. South Point Hotel & Conference Ctr. For info: www.watersmartinnovations.com/

October 7-9 KS
WSWC Fall (179th) Council Meeting, Manhattan. Bluemont Hotel. For info: Western States Water Council, www.westernstateswater.org/upcoming-meetings/

October 7-9 MT
Linking Water Research to Policy & Water Management - Joint AWRA-MWCC Meeting, Missoula. Presented by MT AWRA & Montana Watershed Coordination Council. For info: Nancy Hystad, MWC, nancy.hystad@montana.edu or http://wildfish.montana.edu/awra/