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MUNICIPAL WATER DESALINATION

ALAMOGORDO: NEW MEXICO'S FIRST LARGE-SCALE MUNICIPAL DESALINATION PROJECT

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INTRODUCTION

The City of Alamogordo (City) is pursuing New Mexico's first large-scale municipal desalination facility. Alamogordo is located in the Tularosa Basin in south-central New Mexico, a "closed basin" (i.e., no water leaves the watershed) that has no perennial rivers (see map, page 2). The Tularosa Basin has limited freshwater resources, but abundant brackish groundwater. Desalination of brackish water is essential for the City's present and future water needs.

ALAMOGORDO'S PRESENT WATER SUPPLY

The City's present potable water supply comes from both surface water and groundwater. The City must conjunctively manage these separate sources of supply to provide an adequate quantity and quality of potable water to the community.

Surface Water

The City receives its surface water supply from the Sacramento Mountains (east of the City) and from Bonito Lake. The supply from the Sacramento Mountains comes from La Luz, Fresnal, and Alamo canyons, with combined surface water rights from these sources of 3,969 **a**cre-**f**eet per **y**ear (afy), plus the right to divert up to 16 **c**ubic **f**eet per **s**econd (cfs) when such surface flow is available. The size of the City's infrastructure for surface water caps diversion amounts at the City's instantaneous flow rate of 16 cfs. Alamogordo also gets surface water from Bonito Lake, which is located at the headwaters of the Rio Bonito, a tributary of the Pecos River. Bonito Lake water is transported to the City via a 90-mile pipeline. The City has the right to divert 2.3735 cfs. The Bonito Lake pipeline — which takes Pecos River Basin water for use in the Tularosa Basin by Alamogordo and other entities — is one of the State's existing transbasin diversions.

Groundwater

Alamogordo's main source of groundwater is the La Luz Well Field located north of the City. In addition, the City has a few other individual wells, although not all of them contribute to the City's drinking water supply due to the poor quality of groundwater produced. As a result of several settlement agreements related to the City's desalination project, the City has the right to divert 3,931 afy of groundwater.

Desalination

Variable Supply

Hydrologic Limitations

Water Quality

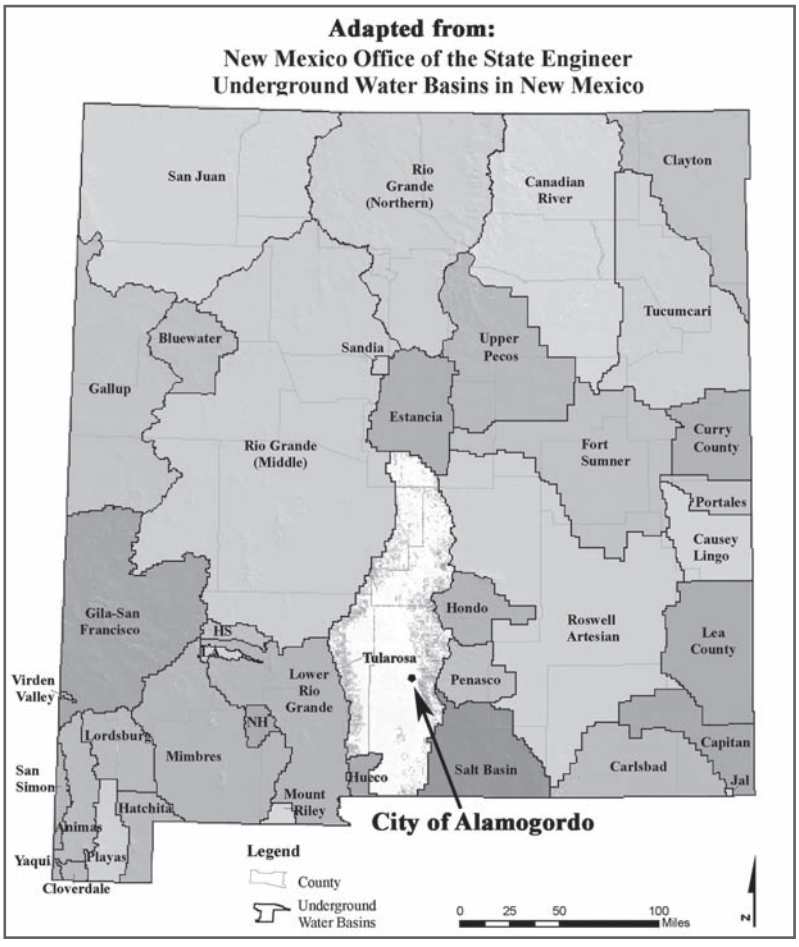
ALAMOGORDO'S POTABLE WATER SUPPLY: CONJUNCTIVE MANAGEMENT

Alamogordo differs from most municipalities in New Mexico in that the majority of its potable water supply comes from surface water. For many years, the City received its base supply from surface water, augmenting those flows with groundwater in the spring and summer months when demand increased.

This conjunctive management of surface water and groundwater is complicated by several factors. First, the majority of Alamogordo's surface water supply is from the Sacramento Mountains. The flow in these streams is dependent upon precipitation in the relatively small watershed and highly variable on a seasonal and annual basis. Second, because of topography and other factors, the City does not have the ability to construct large storage reservoirs to store excess surface water runoff — though it has constructed and uses three relatively small raw water storage reservoirs.

Third, natural hydrologic conditions prevent the City from increasing groundwater diversions from its existing sources. Such constraints include the cavitation of wells, which occurs when the aquifer cannot yield an adequate water supply. Cavitation is a phenomenon of cavity formation (or formation and collapse, especially in regard to pumps), when the absolute pressure within the water reaches the vapor pressure — thereby causing the formation of vapor pockets (*Groundwater and Wells*, Fletcher G. Driscoll, Second Edition, 2003). In addition, the City must contend with the presence of iron bacteria — which causes incrustation on the well screens that reduces water flow.

Fourth, water quality drives the decisions the City must make in terms of conjunctive management of its surface water and groundwater supplies. The City's surface water supplies are generally good quality, ranging from 200 to 800 mg/l **t**otal **d**issolved **s**olids (TDS). The City's existing groundwater supply is lower quality, in the range of 1,000 to 1,500 mg/l TDS. Accordingly, Alamogordo must blend the better quality surface water when it is available with lower quality groundwater to reach an acceptable result. The City's water quality goal is 800 mg/l TDS. The limit recommended by the New Mexico Environment Department (for aesthetic purposes) is 500 mg/l TDS. The actual quality of the City's blended water supply varies from about 800 to over 1,000 mg/l TDS when the City's wells are used extensively. The City would prefer to provide potable water with less than 800 mg/l TDS, but that would entail enormous cost to treat all groundwater to reduce TDS to 500 mg/l on an annual basis.



The Water Report
(ISSN 1946-116X)
is published monthly by
Envirotech Publications, Inc.
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Eugene, OR 97402

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Subscription Rates:
$249 per year
Multiple subscription rates available.

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Desalination

DECREASED SUPPLIES & INCREASED DEMAND

Because of its availability and better quality, the City historically relied heavily on surface water to meet the needs of its citizens. However, increasing population and recent droughts dictate that such heavy reliance on surface water is no longer a viable option.

Surface Water Supply

Between 1990 and 1997, the City was able to obtain 87 pecent of its total water supply from surface flows. With the subsequent drought, those surface supplies decreased significantly. From 1997 to 2002, only 55 pecent of the City's water was available from surface sources. Although the City owns more surface water rights, it was only able to divert a fraction of those rights because the "wet" water was simply not there to divert. In 2002, for example, the City was only able to divert 3,595 afy from all surface water sources combined. Persistent drought conditions and variable weather patterns indicate that this trend is likely to continue.

Groundwater Use

As surface water supplies decreased, the City was forced to rely on more groundwater. Rather than diverting for a only few months each year, Alamogordo began diverting groundwater year-round to meet demand. Groundwater supplies were historically responsible for approximately 20 pecent of the City's total water supply, and at times as low as 13 pecent. With the substantial decrease in available surface water supply since 1997, the City's groundwater diversions increased to as much as 45 pecent of the total supply. This increased use from existing groundwater sources is not sustainable because of hydrologic conditions and poor groundwater quality.

At the same time Alamogordo was experiencing decreasing water supplies, demands were increasing due to population growth. The population was approximately 36,000 in 2000. According to the University of New Mexico Bureau of Business and Economic Research, the City's population is projected to increase to nearly 59,000 by 2045.

As a consequence of decreasing supplies and the need to obtain water for future demands, in the mid-to late 1990s the City began carefully assessing then-existing water uses and looking for new sources of water.

ALAMOGORDO RESPONSE & ANALYSIS OF OPTIONS

Additional Supply through Conservation and Reclaimed Water

Conservation Efforts

The City's water conservation efforts were initiated well before the drought that began in the late 1990s. In the early 1990s, Alamogordo's water use was approximately 260 **g**allons **p**er **c**apita per **d**ay (gpcd). The City undertook a number of water conservation measures to drop its per capita water use. Alamogordo became a leader in New Mexico for innovative water conservation projects.

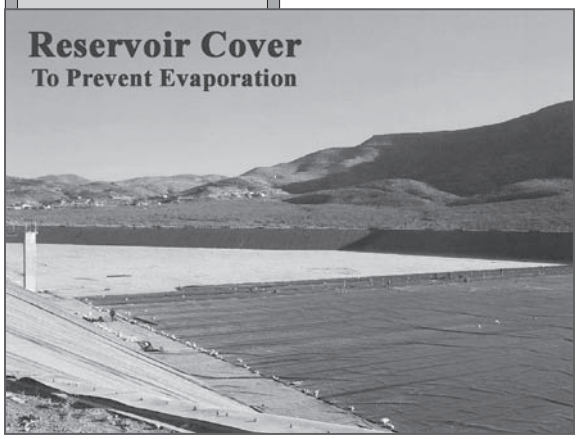
Reclaimed Water

In the mid-1990s, New Mexico's first municipal tertiary treatment wastewater facility was constructed whereby all of the City's effluent is treated and pumped back into the City and used for irrigation of parks, the golf course, recreation fields, cemeteries, and open space. Between 1,200 and 1,500 acres are irrigated with reclaimed water. This project involved constructing a tertiary treatment facility, miles of pipelines to carry the treated effluent back into town, booster stations, and a storage tank — at a cost of more than $12 million. The project reduced the City's potable water diversions by approximately 3,300 afy.

Alamogordo has three relatively small reservoirs that store raw water and two relatively small reservoirs that store treated effluent. All five reservoirs have been lined to prevent leakage and are covered to prevent evaporation. The City spent $2 million on this project — saving between 500 and 600 afy.

Aggressive Restrictions

To further stretch its existing supply, the City passed a number of water conservation ordinances beginning in the 1990s to encourage decreased use. As a result of all of these actions, water usage was reduced from over 260 gpcd in the early 1990s to 165 gpcd in the period 1999-2001, a nearly 40 pecent reduction in ten years.



Facing the drought that began in the late 1990s, the City stepped up its conservation efforts and adopted very aggressive ordinances that limited watering days and instituted water use surcharges. The City was concerned that without these additional restrictions, there was a real possibility it could run out of water. With these restrictions, the City was able to reduce its per capita water use even lower to stretch its water supply during this harsh drought, down to approximately 120 gpcd. However, these lower per capita rates of water use were a drought-driven response and not viewed as being sustainable — i.e. the City did not want to establish such strict standards as the norm for its customers. A detailed description of the City's water conservation program is set forth in the report entitled *City of Alamogordo Water Conservation Program Overview*, Third Edition, Revised November, 2006.

Desalination

Analysis of New Sources of Supply

While Alamogordo made tremendous progress and continues to use its existing water supply as efficiently as possible, it was also apparent that conservation alone could not provide an adequate, additional source of water for both present and future needs. The City had to find a new independent, reliable source.

City staff and its consultants undertook an extensive evaluation of alternatives. First, the City established criteria for a new water supply that could be used conjunctively with the City's existing supplies.

New Supply Criteria

Major new water supply considerations included:

- Identifying a drought resistant supply — the City was already overly-reliant on surface flows that are susceptible to drought
- Finding a good quality supply that could be blended with existing sources to meet overall water quality objectives
- Identifying an independent source that could be used conjunctively with the existing water rights in a way that would compliment and maximize use of the existing water resources
- Pursuing a large enough supply to justify a major public works project, so the City would not have to incur much greater time and expense that would result from smaller acquisitions and transfers
- Identifying a project that would provide operational flexibility vis-à-vis it's other water sources
- Finding a project that is cost-competitive and cost-effective compared to other alternatives

[*See City of Alamogordo's 40-Year Water Development Plan 2005-2045,* Livingston & Associates, November, 2006]

New Rights Not Feasible

The City was aware that new appropriations of surface water and fresh groundwater were not feasible options. The surface waters of the Sacramento Mountains are fully appropriated; thus, the City did not have the option of applying to appropriate additional surface water. Moreover, the lack of surface water rights had not constrained the City in the past, but rather, it was the lack of surface water being available when needed. Similarly, the Rio Bonito is fully appropriated and no additional surface water rights were available from Bonito Lake. With respect to new appropriations of fresh groundwater, Alamogordo is located within the area covered by the *Tularosa Underground Water Basin Administrative Criteria for the Alamogordo-Tularosa Area*, NMOSE, May 1997 ("*Tularosa Basin Administrative Criteria").* Accordingly, the City was not able to seek new appropriations of groundwater of any significant magnitude within this area because of the restrictions on allowable groundwater level declines.

Maximizing Existing Rights

In terms of maximizing existing water rights, the City retrofitted many of the spring boxes in the Sacramento Mountains to capture as much surface water as possible. In conjunction with Holloman Air Force Base, which also owns water rights in Bonito Lake, most of the Bonito Lake pipeline was replaced. The City also retrofitted its La Luz Well Field to produce as much groundwater as physically possible from this source. The *Tularosa Basin Administrative Criteria* severely limits the option to drill supplemental wells or transfer water rights into existing wells.

Purchase Option

The City considered a program to buy irrigation water rights to be transferred to municipal use. Because the City cannot divert more water from its existing wells for both hydrologic and legal reasons, even if a purchase was consummated it would have been necessary to use the irrigation wells at their present locations and construct pipelines to the City. Any such irrigation rights would also effectively be reduced by approximately 50 percent, since New Mexico law only allows the "consumptive use" portion (i.e. the amount of water actually being consumed) of a right to be transferred — as opposed to the "paper" water rights. 9.26.2.11(B) NMAC (1/31/2005); see generally *W.S. Ranch Company v. Kaiser Steel Corp*., 79 N.M. 65, 439 P.2d 714 (1968) and 1 W. Hutchins, *Water Rights in the Nineteen Western States* 631 (2004). [Editor's Note: "Paper" rights refers to the quantities as listed in the water rights on file with the State Engineer's Office; this differs from the amount of water actually "consumed" in the use of a water right.]

Transfer Reduction & Costs

Less than 20 percent of all "paper" water rights are actually used in this portion of the Tularosa Basin (State Engineer's Technical Division Hydrology Report 05-01 (*Revised Model of the Tularosa Basin*, November 2005, Eric Keyes). Accordingly, the State Engineer is bound to closely scrutinize all such transfers and in specific cases, would likely reduce the amount of water that could be transferred from a claimed irrigation right. With such reductions, a majority of the irrigated land in the Alamogordo/Tularosa area would have to be removed from agricultural production to supply as much water as the City believes can be obtained from the Snake Tank Well Field (see below). Moreover, each transfer from agricultural to municipal use would almost certainly be protested, adding significant administrative costs to each transaction. The City Commission ultimately decided it was not good public policy to cause such a severe effect on one segment of the local economy (agriculture), plus the cost would be higher than other options.

Desalination

Other Options

Desalination Evaluation

Other alternatives were evaluated by the City such as importation from the Salt Basin, Rio Bonito Watershed enhancement, outside bulk water purchases, agricultural water exchange, and aquifer storage and recovery. Each of these alternatives may hold promise as an additional source of supply in conjunction with the desalination project, but for various reasons, the City thought it most prudent to pursue the desalination project first.

Desalination was evaluated since brackish groundwater is very abundant in the Tularosa Basin compared to fresh water. Livingston Associates, PC conducted four pilot test studies at different sites north of Alamogordo with different levels of brackish water (*Permit Nos. T-3825 through T-3825-S-9 and the Alamogordo Regional Water Supply Project*, Livingston Associates, P.C., Nov. 2006). In addition, the pilot tests analyzed different methods of desalination and different membranes. The results showed that desalination was an efficient and cost-effective alternative.

After the pilot tests were concluded and extensive analyses of the other options were completed, the City concluded that the only way to obtain a large drought-resistant appropriation — without decades of applications for small appropriations and/or transfers of groundwater — was to pursue a well field that would divert brackish groundwater, which would then be treated by a desalination facility.

DESALINATION PROJECT

Infrastructure

The major infrastructure components of the City's desalination project include the Snake Tank Well Field (STWF), pipelines to transport the raw water supply to the desalination facility, the desalination facility, facilities for concentrate disposal, and pipelines to transport the treated water into the City's existing drinking water supply system. The information in this section is summarized from the expert report entitled *Permit Nos. T-3825 through T-3825-S-9 and the Alamogordo Regional Water Supply Project*, Livingston Associates, P.C., Nov. 2006.

Snake Tank Well Field

The decision was made to locate ten wells approximately 26 miles north of Alamogordo and east of Highway 54 near Snake Tank Road, in what became known as the Snake Tank Well Field (STWF). This was one of the pilot test areas.

Source Factors

Numerous factors made STWF the best location, including:

- Availability of unappropriated brackish groundwater that was otherwise unusable
- Large quantity of such groundwater in storage
- Relatively even and acceptable water quality for brackish water desalination
- Opportunity for gravity flow into a treatment plant to reduce energy costs
- Long distance to existing water rights compared to other areas (by avoiding close proximity to other users, the City reduced potential impacts)
- Location that was outside the *Tularosa Basin Administrative Criteria* area

Tularosa Basin National Desalination Research Facility

Research Facility

The Tularosa Basin National Desalination Research Facility is located in Alamogordo. This is a national research facility that tests next generation products and advances desalination technology. Alamogordo was chosen as the site because of the varied water qualities and abundant brackish groundwater available for testing and because the City was pursuing a municipal desalination project. The City will work closely with the Tularosa Basin National Desalination Research Facility in the final design and construction of its desalination plant, employing cutting-edge technology.

Desalination Facility

Reverse Osmosis

The City's present plan is to locate the desalination facility in town near the Tularosa Basin National Desalination Research Facility. The City will construct a **r**everse **o**smosis (RO) plant. RO is a pressure-driven process where brackish water flows through a semi-permeable membrane under pressure. The membrane openings are large enough for a water molecule to pass through, but not salts or minerals. These impurities are rejected by the membrane and flow away as brine concentrate on the high pressure side while the treated water, or permeate, passes through the membrane to the low pressure side. This process can be repeated through several stages until the desired water quality is obtained.

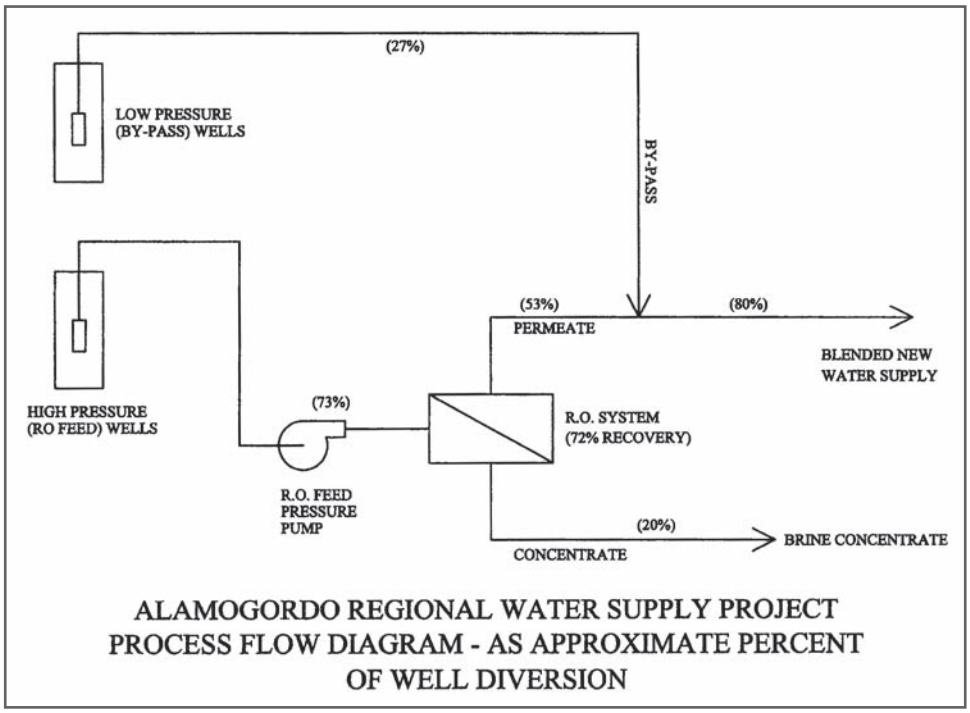
Based upon field testing, Alamogordo estimates an RO recovery of about 72 percent. However, because the treated permeate is of bottled water quality (50 mg/l TDS) and relatively expensive, the City

Desalination

Blending

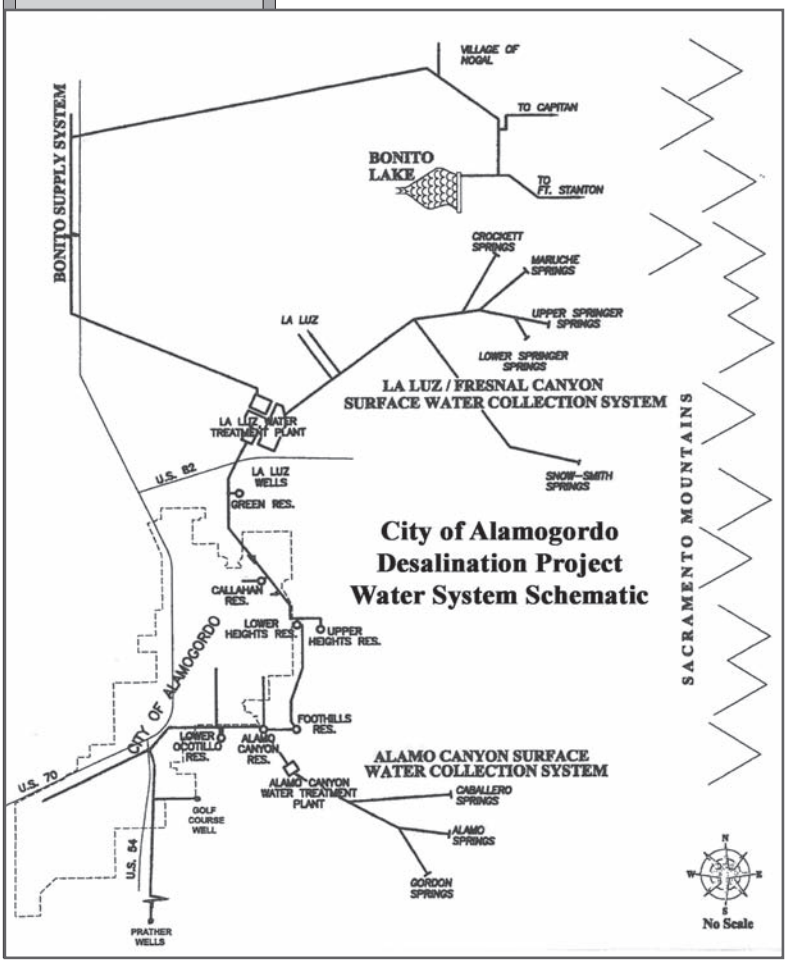
will blend a portion of its untreated brackish water in an appropriate ratio to produce potable water of about 800 mg/l TDS. By blending untreated water with the permeate, the City will achieve an overall recovery of approximately 80 percent (see flow diagram below). The desalination plant can be built in stages to phase in capital costs. The desalination process takes place in RO trains, or individual units that can be added to a plant over time. A facility can be built large enough to add RO trains over time as demand increases.

Reverse Osmosis Diagram



ALAMOGORDO REGIONAL WATER SUPPLY PROJECT
PROCESS FLOW DIAGRAM - AS APPROXIMATE PERCENT
OF WELL DIVERSION

Brine Disposal



Concentrate Disposal

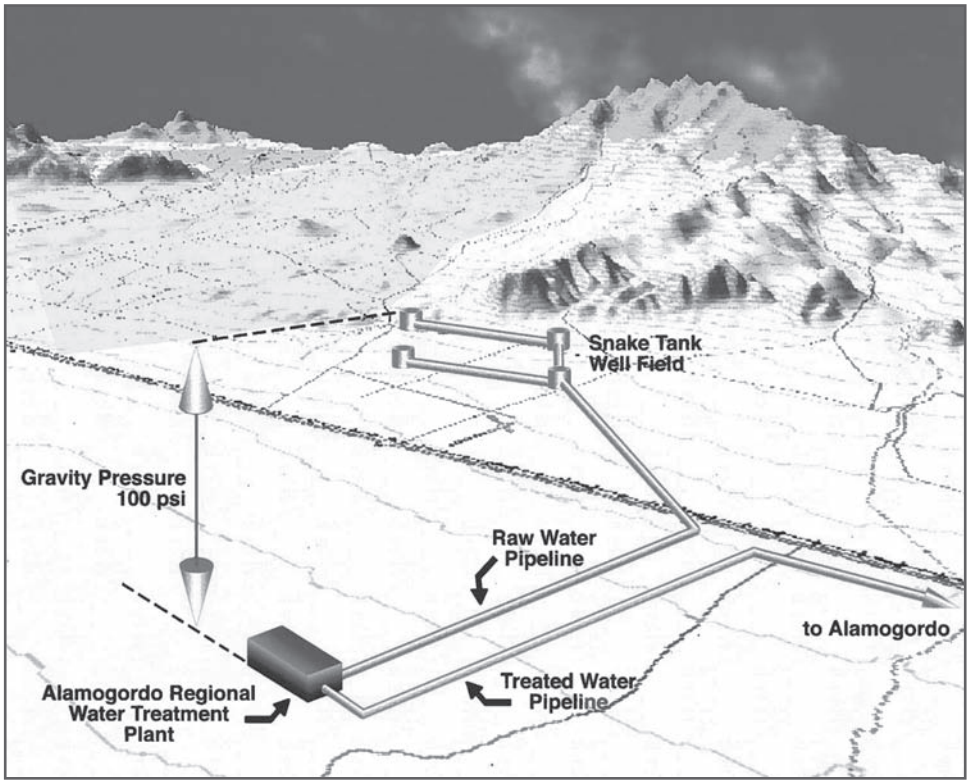
The unused concentrate flow, also known as brine, is high in TDS. Given the parameters of Alamogordo's desalination project, the brine is expected to be around 8,400 mg/l TDS. The City is planning on using deep-well injection to dispose of the concentrate. Other disposal methods that were considered include evaporation ponds and the sewage treatment plant. If evaporation ponds had been used, the brine or solids remaining after evaporation could be beneficially used because the source water is high in calcium-sulfate and any solids after evaporation are not considered toxic. Potential beneficial uses of the brine or solids include irrigation on certain types of plants, aquaculture, livestock, or production of gypsum boards. A groundwater permit must be issued by the New Mexico Environment Department for discharge.

Costs

The City estimated that the desalination facility would cost $54 million for the entire project. More than half of that cost is for the 24" pipeline to transport groundwater from STWF to the desalination plant. Preliminary estimates are that operation and maintenance costs will average about $275 per acre-foot per year. Funding could come from state, federal, and local sources.

Desalination

Water Route Graphic



Drought Reserve

Conjunctive Management

The City intends to use the desalination plant as a "peaking" facility (providing service during periods of highest water use) or as a drought reserve. When the City has surface water in sufficient quantity, it will always use it first because it is the least expensive water supply and the water quality is good. The City's next least expensive source of supply is its existing groundwater rights, which it blends with surface water. The last source will be STWF, as it is the most expensive water to produce. The City envisions using STWF and the desalination facility as a drought reserve when demand cannot be met from existing sources, and to assist in improving water quality by blending with existing sources. Over time, STWF will be phased-in for use on a regular basis as the City's population and demand increase.

PERMIT NO. T-3825 *et al.*

Brackish Groundwater

Application No. T-3825 *et al*.

With an analysis of the desalination facility completed at a planning level, in September of 2000 the City filed Application No. T-3825 *et al.* seeking a new appropriation of brackish groundwater from ten wells. *See* NMSA 1978, § 72-12-3 (2001). The depth of the wells was 1,000 feet and the expected water quality was about 2,500 mg/l TDS. The desalination project was contemplated as a regional water supply and the City increased its application amount to account for other municipal and military entities in the region. There were 13 protests to the application. Prior to the administrative hearing, Alamogordo and the Village of Tularosa reached a settlement whereby Tularosa could use the desalination facility as a backup/emergency water supply and Tularosa withdrew its protest. Two other protests were dropped before the State Engineer administrative hearing.

Appropriation Criteria

Administrative Hearing: First Municipal Desalination Facility

In October of 2003, a two-week administrative hearing was held on the City's applications. The issues included the standard statutory criteria for a new appropriation of groundwater.

New Mexico criteria for new groundwater appropriation includes:

- Whether there was unappropriated water available for the City's appropriation
- Whether granting the application would impair existing water rights
- Whether granting the application would be contrary to the conservation of water within the State
- Whether granting the application would be detrimental to the public welfare of the State

NMSA 1978, § 72-12-3 (2001).

Need

In addition, the City needed to demonstrate that the quantity of water that it sought to appropriate was needed under the City's 40-year water plan. NMSA 1978, § 72-1-9 (2006).

Desalination

Because this project involved New Mexico's first municipal desalination facility, it was necessary to provide a thorough explanation of desalination technology and to address the unique aspects of a desalination project. The City prepared written expert reports and introduced expert testimony on several points in this regard.

Potential Impacts

Impairment of Existing Water Rights

The hydrologic assessment examined potential impacts on existing groundwater and surface water rights. STWF is located on federal land managed by the US Bureau of Land Management (BLM). The High Nogal Ranch has a federal grazing lease on these same lands. There were livestock and domestic wells and springs in the vicinity of STWF where potential hydrologic effects were analyzed. To the south lies a pecan orchard with irrigation groundwater rights owned by HFR Corporation (HFR) and to the north lies Three Rivers Cattle Company (Three Rivers) with irrigation and livestock wells. Farther away were Tularosa Creek (from which surface water rights are diverted), and smaller individual domestic and irrigation wells in and near the Village of Tularosa. The hydrologists analyzed potential impacts to all of these existing water rights.

Quality Impairment

One hydrologic issue evaluated by the experts was potential water quality impairment. This involved the potential for saltwater encroachment on fresh groundwater supplies due to the proposed diversions of brackish water from STWF. When large amounts of brackish groundwater are withdrawn from an aquifer, the possibility exists for contamination of nearby fresh water. In the end, the experts concurred that given the geology, the existing aquifer, and the quantities of water involved, saltwater encroachment was not likely. Nonetheless, as part of a later settlement, the City agreed to construct monitoring wells, take groundwater level measurements, and to collect water samples for water quality analysis.

Supply Increase

Conservation

To ensure that it met its burden of proof to show that granting the applications would not be contrary to the conservation of water within the State, the City introduced evidence of its past conservation efforts and its ongoing water conservation programs. In addition, because of the distinct aspects of the desalination facility, the City introduced evidence related to the efficiency of the desalination project. In essence, desalination takes otherwise unusable, unappropriated brackish groundwater and converts it into a useable, drinking water supply. Through expert reports and testimony, the City showed that desalination is efficient for Alamogordo, as the overall process will recover approximately 80 percent of the diverted groundwater (determined by field pilot testing and analysis). Not only is desalination *not* contrary to the conservation of water within the State, it inherently promotes the conservation of fresh groundwater.

Public Welfare Promoted

Public Welfare

Most of the expert reports and testimony that were unique to the desalination project related to the City's position that granting the applications would not only *not* be detrimental to the public welfare of the State — the desalination would actually promote the public welfare of the State.

The City introduced public welfare evidence that:

- Desalination is a widely accepted technology for creating freshwater resources from non-potable brackish groundwater.
- Desalination is used elsewhere in the area and worldwide.
- Desalination is economically feasible for Alamogordo as determined through field pilot testing on the brackish groundwater in STWF.
- Desalination is environmentally safe, as evaluated by an independent environmental engineering firm.
- Desalination is drought-sensitive, making it one of the few reliable alternatives evaluated.
- Desalination of unappropriated brackish groundwater will provide the long-term supply needed by Alamogordo and is the most feasible alternative evaluated.
- The concentrate from the desalination process will be managed in an environmentally safe manner.

Application Granted

Permit No. T-3825 *et al.*

In December of 2004, the State Engineer granted the application in part and issued Permit No. T-3825 *et al.* with conditions of approval. Without other regional entities as co-applicants, the State Engineer limited the new groundwater appropriation to what was determined to be necessary for the City's 40-year water demand and at a level that avoided impairment to existing water rights. The State Engineer also found that there was unappropriated groundwater available for appropriation, and that granting the application was not contrary to the conservation of water within the State, or detrimental to the public welfare of the State.

Desalination

Appeal to the Twelfth Judicial District Court

The State Engineer's decision was appealed to the Twelfth Judicial District Court for a *de novo* review before Judge Counts, the local Water Judge. Prior to trial in District Court, additional hydrologic tests were conducted on several wells in STWF and the City reached additional settlements with several parties.

Purchase Option

Settlement Agreement between the City and Christophers

On January 24, 2007, the City settled with the High Nogal Ranch, the ranch that held the grazing lease on BLM lands where STWF was proposed. The City agreed to convey test Well No. T-3837 to the Christophers, the owners of the High Nogal Ranch, for specified purposes in specific amounts and the City retained the right to use the well for testing and monitoring. In addition, the City agreed to buy bulk water from the Christophers if their application to appropriate water from Maxwell Spring is approved for 300 afy or more, prior to the City making any diversions from STWF. The Christophers agreed to waive any claims of impairment against their water rights caused by the City's diversions under Permit No. T-3825 *et al.* and the Christophers withdrew their protest and appeal to Permit No. T-3825 *et al.* Importantly, this settlement satisfied Condition of Approval No. 7 in Permit No. T-3825 *et al.* as issued by the State Engineer on December 28, 2004.

Planning Period

Settlement Agreement between the City and State Engineer

Initiated as a result of the new hydrologic information, the City and State Engineer began discussions, reviewing and re-evaluating various elements of Permit No. T-3825 *et al*. Those discussions resulted in a settlement agreement between the State Engineer and the City dated July 3, 2007. In the settlement agreement, the two parties agreed that the City's 40-year demand would be 10,644 afy in 2043. The State Engineer concluded that the 40-year planning period should run from 2003, the date of the last amendment of the application, to 2043. The City and the State Engineer also agreed that the City's total reliable water supply for purposes of the settlement agreement was 7,444 afy. As a compromise to address one of the State Engineer's concerns, the City agreed to reduce its "paper" groundwater rights by 2,427 afy, which the City's hydrologists said could never actually be produced from City wells. The State Engineer agreed that a better approach to determining a reliable number for current surface water supply was to find the lowest amount of surface water the City has been able to produce historically and use that number, rather than to assume it was the average production of surface water as had been done for Permit No. T-3825 *et al*. Subtracting the City's total reliable water supply from the 40-year estimated need created a net deficit of 3,200 afy. As a result of the additional hydrologic information collected during the well tests, the estimated recovery rate changed from 84 percent to 80 percent. Using an 80 percent recovery rate in the desalination process, the City would need to divert 4,000 afy.

Groundwater Rights Reduced

Impairment Limitation

The State Engineer and the City also carefully examined the effects of the City's proposed diversion of up to 4,000 afy on all existing water rights. The City and the State Engineer agreed to use the State Engineer's model to assess impairment. As set forth in the settlement agreement, both parties agreed that there was unappropriated groundwater available for appropriation and no impairment to any existing water rights or water quality degradation, if the City diverts 4,000 afy — with a temporary increase in annual diversions up to 5,000 acre-feet — provided that the sum of annual diversions for any consecutive five-year period does not exceed 20,000 acre-feet. In addition, the State Engineer and the City agreed that the use of desalination to convert otherwise unusable brackish water to potable water promotes the conservation of water within the State and is beneficial to the public welfare of the State.

Monitoring Plan

As a result of the new evaluations, the State Engineer and the City agreed to advocate for Revised Permit No. T-3825 *et al.* that captured the elements of their agreement. The City and the State Engineer also agreed to proposed conditions of approval to be included in Revised Permit No. T-3825 *et al.*, most of which were the same or similar to those contained in original Permit No. T-3825 *et al.* Significant among the conditions is a requirement that the City propose and implement a monitoring plan, acceptable to the State Engineer, involving the monitoring of groundwater levels and water quality.

Nearest Water Users

Settlement Agreement: The City, HFR, and Three Rivers

Because HFR and Three Rivers are the nearest water users and the most likely to be affected by the proposed pumping, the City, HFR and Three Rivers discussed settlement. Peter White, counsel for the Tularosa-area protestants, was aware of the settlement discussions but indicated he did not need to participate because if HFR and Three Rivers reached a settlement, his clients would be protected as well. The Tularosa-area protestants' wells are located over six miles south of the southern end of STWF, while HFR's wells are within two miles south. White and Jeffrey Fornaciari, counsel to HFR and Three Rivers, kept in contact during these settlement negotiations.

Desalination

Water Quality Degradation

Groundwater Decline

Protection for Users

Appropriation Trail

Review Declined

A settlement agreement was reached among the City, HFR, and Three Rivers on November 20, 2007. In this settlement agreement, the City agreed to a monitoring plan, very similar to the monitoring plan that was ultimately adopted by the State Engineer. In addition, the City, HFR, and Three Rivers agreed to acceptable levels of groundwater decline in all three monitoring wells and acceptable water quality degradation in two of the monitoring wells. If the agreed upon triggers are exceeded for three consecutive years, the settlement specifies remedial action to be taken by the City. The settlement agreement also defines areas where certain parties may or may not exercise water rights under specified conditions.

To arrive at acceptable levels of groundwater decline in the monitoring wells as between the City, HFR, and Three Rivers, the parties agreed to use the State Engineer's model. Numerous assumptions were made for the modeling runs, including regional drawdown (declines in the groundwater level without the City's permit) and the incremental effect caused by City pumping. The City agreed to generate the tables and graphs that reflect the acceptable levels of groundwater decline in the monitoring wells as if there were going to be constant diversions of 3,000 afy, every year, by the City. The City agreed to this approach because it knew it would operate the desalination facility as a peaking facility (as noted above) and not use 3,000 acre-feet in each year. The City was also aware that the State Engineer model was extremely conservative and will in all likelihood over-predict regional drawdown. Given the hydrologic analysis and the manner in which it intends to operate the desalination facility, the City was confident that if the Court accepted Revised Permit No. T-3825 *et al.* and a diversion of 4,000 afy, it would not exceed the acceptable levels of groundwater decline in the monitoring wells set out in the settlement agreement with HFR and Three Rivers.

Only the parties (the City, HFR, and Three Rivers) can enforce this settlement agreement. While there are no third-party beneficiaries to the settlement agreement, the Tularosa-area protestants did gain a significant degree of protection as a result of the agreement because HFR, Three Rivers, and their predecessors-in-interest will protect their water rights. If the City ever exceeds the groundwater level declines for three consecutive years as set forth in the settlement and the City responds by reducing diversions, the Tularosa-area protestants will be protected by the actions of HFR (Tularosa-area protestants are to the south of STWF and HFR, with HFR between STWR and the protestants). As part of the settlement agreement, HFR and Three Rivers agreed not to oppose Revised Permit No. T-3825 *et al.* or the settlement agreement between the State Engineer and the City.

Trial

The only party with whom settlement could not be reached was the Tularosa-area protestants, a small group of individual well owners in the Tularosa area. Accordingly, a one-week trial was held in the Twelfth Judicial District Court in January of 2008. The City put on a complete case on all elements required for approval of a new appropriation of brackish groundwater and conversion of that supply into a new source of municipal drinking water. NMSA 1978, §§ 72-12-3 (2001) and 72-1-9 (2006). As part of the trial proceeding, the City also submitted a monitoring plan that was acceptable to the State Engineer, fashioned largely after the agreement with HFR and Three Rivers. After trial, Judge Counts entered his decision on April 7, 2008, making his own findings of fact and conclusions of law, and adopting Revised Permit No. T-3825 *et al.* *Minute Order*, April 7, 2008.

Appeal to the New Mexico Court of Appeals

The Tularosa-area protestants appealed the District Court's decision in May of 2008. Requests were made for oral argument. However, the Court of Appeals resolved the matter in the City's favor on November 4, 2009, without oral argument. *Memorandum Opinion*, November 4, 2009. The Tularosa-area protestants filed a motion seeking a rehearing which the Court of Appeals denied.

Petition for Writ of Certiorari to the New Mexico Supreme Court

Because review by the New Mexico Supreme Court is not automatic, the Tularosa-area protestants filed a Petition for a Writ of Certiorari to the New Mexico Supreme Court on December 24, 2009, asking it to review the case. The City responded with a brief filed on January 11, 2010, arguing that the New Mexico Supreme Court should not take the case. On January 21, 2010, the New Mexico Supreme Court denied the Petition for a Writ of Certiorari. *Order*, January 21, 2010.

The City now has a final Revised Permit No. T-3825 *et al.* to divert groundwater from STWF pursuant to the permit's terms and conditions.

Desalination

EIS Release

NEPA

Because STWF and portions of the pipeline and related infrastructure are on federal land managed by BLM, the National Environmental Policy Act of 1969, 42 U.S.C. 4321 *et seq.* requires the preparation of an Environmental Impact Statement (EIS). The City pays a consultant to prepare the EIS at the direction of the consulting federal agency, BLM. Because the City is not a co-lead, its only role in the preparation of the EIS is to ensure that the project description is correct. Along with other members of the public, the City can provide written comments and attend public meetings to discuss the Draft EIS. The City has recently been told that a draft EIS should be released to the public in May or June of 2010.

Injection Well

NMED PERMIT FOR DISPOSAL

The City is proposing deep well injection as its preferred method of concentrate disposal. This will require a permit from the New Mexico Environment Department. This method is being evaluated as part of the NEPA process.

FUNDING

In addition to its own local funding, the City has already received state and federal money to assist in the development and construction of the desalination project. Continued work will be required at the local, state, and federal levels to obtain the required funding for the project.

Desalination Advances

CONCLUSION

Alamogordo's new desalination project will cost an estimated $54 million to provide an independent and reliable water supply. This project is important not only to the City, but also to the region and the continued viability and growth of Holloman Air Force Base. The City's desalination project is expected to work in cooperation with the Tularosa Basin National Desalination Research Facility in equipping the City's plant and using next generation products and advances in desalination technology. The desalination facility also has the potential to be used by other regional entities in need of commercial, industrial, and municipal water supplies.

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Tribal Water Rights

TRIBAL SURFACE WATER RIGHTS

HYDRAULIC CONNECTION EQUALS PROTECTION
GROUNDWATER IMPACTS & FEDERAL JURISDICTION

by David C. Moon, Editor

INTRODUCTION

Some interesting issues in western water law were recently addressed in a Ninth Circuit Court of Appeals decision involving tribal water rights and later allocations of groundwater by the Nevada State Engineer. The Ninth Circuit emphasized the importance of the hydraulic connection between surface water and groundwater, resulting in the protection of tribal surface water rights for the Pyramid Lake Paiute Tribe of Indians from later groundwater allocations by the State Engineer of Nevada.

ORR DITCH DECREE & GROUNDWATER ALLOCATIONS

Orr Ditch Decree

The Truckee River begins at Lake Tahoe and runs most of its course in Nevada, ultimately flowing into Pyramid Lake, northeast of Reno. The Ninth Circuit noted the one hundred year history of the "Orr Ditch Decree" going back to the Reclamation Act of 1902, which:

> "authorized the federal government to pursue efforts to reclaim arid lands in certain western states. In one of these efforts, the Newlands Reclamation Project, the government planned to irrigate an area of western Nevada with water from the Truckee and Carson Rivers, which flow through and around Lake Tahoe and Reno, Nevada. Because private landowners and the Indians of the Pyramid Lake Indian Reservation had already-established water rights, the United States filed an action in 1913 to quiet title to all water rights in the Project area. The resulting legal activity became known as the Orr Ditch litigation." *U.S. v. Orr Ditch Co.*, No. 07-17001 (April 7, 2010), *Slip Op.* at 5261, 5265-5266.

Tribal Decreed Rights

In 1944, the Orr Ditch Decree allocated rights to water in the Truckee River, including a grant of the two most senior water rights on the Truckee River to the Pyramid Lake Paiute Tribe of Indians (Tribe). *United States v. Orr Water Ditch Co*., Equity No. A3 (D. Nev. 1944). A substantial portion of the water in the Tribe's senior decreed rights has been transferred "temporarily" from irrigation to instream use in order to allow the water to flow into Pyramid Lake. *United States v. Orr Water Ditch Co*. (Orr Ditch III), 391 F.3d 1077, 1079 (9th Cir. 2004).

Tribal State Rights

The Ninth Circuit also noted that the Tribe received additional water rights in November 1998 from the Nevada State Engineer (State Engineer) — the Tribe was granted the right to all of the water remaining in the Truckee River after the Orr Ditch Decree rights and other rights were satisfied. An appeal of that ruling is pending in Nevada state court and as pointed out by the Ninth Circuit, the "Tribe's rights under the Engineer's 1998 ruling are based on Nevada law rather than the Orr Ditch Decree." *Slip Op.* at 5266.

TRIBAL ASSERTION: GROUNDWATER IMPACT ON TRUCKEE RIVER

The Ninth Circuit decision involves the allocation of groundwater rights by the State Engineer in the Tracy Segment Hydrological Basin (Basin). See Map. The Basin also includes thirty miles of the Truckee River as it flows to Pyramid Lake. As noted by the court, area groundwater is known to contribute to the Truckee River's flow:

Gaining Stream

> "According to a study published by the United States Geological Survey in 2006 and relied upon by the State Engineer, the Truckee River is a gaining stretch as it runs through the Basin, receiving an average net gain of about 11,000 acre-feet per year from the Basin's groundwater *unless* there has been an over-allocation of that water." *Id.* at 5267 (emphasis added).

The Ninth Circuit succinctly set out other pertinent details:

GW Allocations

> "Between 1998 and 2003, several parties applied for new groundwater allocations in the Basin. The Tribe and Churchill County opposed the majority of the applications, contending that the groundwater of the Basin was already fully appropriated and that the requested allocations would reduce the base flow of the Truckee River. They contended that this reduction would interfere, *inter alia* [among other things], with decreed water rights under the Orr Ditch Decree." *Id.*

Tribal Water Rights

Over-Allocated

Over-allocation of water, naturally, is always an issue when a state agency or State Engineer is determining whether or not to issue new water rights. One of the fundamental tenets of the Prior Appropriation Doctrine is that new water rights will only be granted if there is water "available" for appropriation, i.e. the source has not already been fully appropriated. The Ninth Circuit's commentary on the State Engineer's decisions is, therefore, telling:

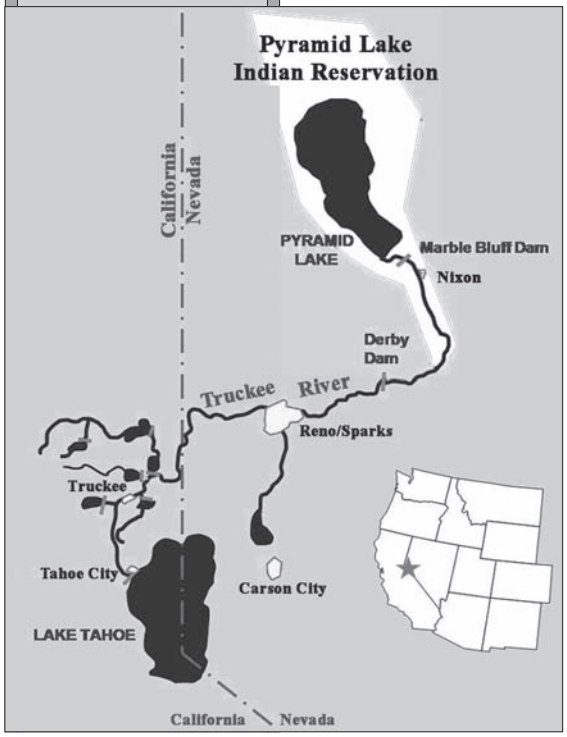
"In June 2007, in Ruling 5747, the State Engineer granted most of the groundwater applications. The Engineer noted that the United States Geological Survey had previously estimated that the 'perennial yield' of the Basin is approximately 6,000 acre-feet per year resulting from groundwater recharge from precipitation. Even before the current applications were considered, groundwater allocations of 7,976 acre-feet per year had been granted. If the estimate of 6,000 acre-feet per year perennial yield is accurate, groundwater in the Basin was thus already over-allocated. After considering a wide range of estimates, the Engineer revised upward the estimated perennial yield of the Basin to approximately 11,500 acre-feet per year. Based on the revised estimate, the Engineer granted some of the new applications, concluding that they would not result in over-allocation of the groundwater in the Basin." *Id.* at 5267-5268.

Scope of Decree

"The Engineer concluded further that even if the new allocations were to result in over-allocation of the groundwater and a diminution of the base flow of the Truckee River, this would not conflict with any of the decreed rights to water in the river. Quoting an earlier Engineer ruling, the Engineer concluded 'that the ground-water discharge to the Truckee River should not be counted as part of the [Tribe's] surface-water rights in the Truckee River…established under Claims No. 1 and 2 of the Orr Ditch Decree.' The Engineer wrote that 'there is nothing in the Orr Ditch Decree that indicates possible ground-water discharge to the Truckee River was even contemplated by the decree court as part of the water of the river.' The Engineer also concluded that the ground-water discharge to the river should not be counted as part of the Tribe's rights established under the 1998 ruling in which the Tribe was granted, as a matter of state law, rights to the remaining flow of the river after all of the decreed water rights were satisfied." *Id.* at 5268.

Allegations in Case

The Tribe alleged in this case that the State Engineer's Ruling 5747, allocating new groundwater rights in the Basin, adversely affected the Tribe's water rights under the Orr Ditch Decree (Decree). The Tribe appealed the decision by the State Engineer to the federal district court for the District of Nevada. The Tribe maintained that the federal court had jurisdiction to review the State Engineer's decision and its affect on both the decreed water rights from the Orr Ditch Decree and the Tribe's additional 1998 state-granted water rights. The State Engineer contended that regardless of any effect the groundwater allocations might have on the Tribe's rights, the federal district court did not have jurisdiction over the appeal because the Decree only adjudicated rights to surface water in the river.



The federal district court granted the State Engineer's motion to dismiss, ruling that it did not have subject matter jurisdiction over the State Engineer's groundwater allocations.

NINTH CIRCUIT DECISION: PROTECTION FROM GROUNDWATER ALLOCATIONS

The Ninth Circuit set forth the two issues in the case:

"First, does the Orr Ditch Decree forbid an allocation of groundwater by the State Engineer that has an adverse effect on the Tribe's decreed rights to water in the Truckee River? Second, if the Decree forbids such an allocation of groundwater, does the district court have subject matter jurisdiction over an appeal from a ruling of the Engineer that allegedly conflicts with the Decree?" *Id. at 5270.*

The Ninth Circuit stated that the State Engineer had determined that the Decree only granted the Tribe surface water rights in the Truckee River. Based on that fact, the Ninth Circuit noted the State Engineer's view:

"In the view of the Engineer, the Decree provided no protection against allocations of groundwater that would diminish the amount of surface water and thereby adversely affect the Tribe's decreed rights." *Id.*

Tribal Water Rights

Language Interpretation

Purpose of Reserved Right

Hydraulic Connection

Purpose of Reservation

***Winters* Rule**

Treaty Interpretations

Unusual Facts

While the Ninth Circuit recognized that there was no explicit language in the Decree that protected the Tribe's decreed surface water rights from impacts due to groundwater withdrawals by other users, the court said that the State Engineer had "overstated the matter" when he wrote that there was nothing in the Decree "that indicates possible groundwater discharge to the Truckee River was even contemplated by the decree court as part of the water of the river." Instead, the Ninth Circuit provided its view regarding the language in the Decree and how that language should be interpreted:

> "The Decree indicates that the water rights granted to the Tribe in Claims No. 1 and 2 were intended to fulfill the purpose of the United States in withdrawing land from the public domain for the Tribe's reservation and reserving 'a reasonable amount of water' for use on the reservation. It is inconsistent with that purpose to allocate water to other users if that allocation diminishes the Tribe's reserved water supply." *Id.* at 5272.

Next the Ninth Circuit turned to the crux of the groundwater/surface water issue:

> "Surface water contributes to groundwater, and groundwater contributes to surface water. The reciprocal hydraulic connection between groundwater and surface water has been known to both the legal and professional communities for many years." *Id.*

The decision cited two Supreme Court cases, one from 1907 and another from 1923, that discussed groundwater and then quoted a law review article from 1942 that "emphasized the importance of the hydraulic connection." The Ninth Circuit concluded that "the district court entering the Orr Ditch Decree [in 1944] would have known about the relationship between surface water and groundwater." *Id.* at 5272-5273.

RESERVED WATER RIGHTS: UNITED STATES INTENT

This case is also important due to the Ninth Circuit's discussion of the intent of the United States when the Pyramid Lake Indian Reservation was established and thus, the precedent set for federal reserved rights.

First, the Ninth Circuit returned to its interpretation of the language of the Decree concerning the purpose of the United States in establishing the Tribe's reservation:

> "In the words of the Decree, that purpose was to withdraw from the public lands 'the lands comprising the Pyramid Lake Indian Reservation,' and to 'reserve' a 'reasonable amount of water of the Truckee River' to meet the 'needs of the Indians on the reservation.' This statement of intent to reserve a reasonable amount of water makes clear that the proper construction of the Decree is that the water rights granted in Claims No. 1 and 2 [Tribe's rights] cannot be defeated by allocation of water to others — whether by allocation of surface water or groundwater." *Id.* at 5273.

The Ninth Circuit provided an additional rationale for its decision, however, referring to the seminal Indian water rights case of *Winters v. United States*, 207 U.S. 564 (1908):

> "The Court in *Winters* held that sufficient water was reserved to serve the needs of the Indians, despite the absence of clear words so specifying in the agreement establishing the reservation. The Court [in *Winters*] invoked a rule of interpretation that would further the purpose of the agreement… ."

The Ninth Circuit then quoted the rule of interpretation from *Winters*:

> "By a rule of interpretation of agreements and treaties with the Indians, ambiguities occurring will be resolved from the standpoint of the Indians. And the rule should certainly be applied to determine between two inferences, one of which would support the purpose of the agreement and the other impair or defeat it. On account of their relations to the government, it cannot be supported that the Indians were alert to exclude by formal words every inference which might militate against or defeat the declared purpose of themselves and the government[.]"
> *Winters* at 576-77.

SUBJECT MATTER JURISDICTION

The Ninth Circuit began its discussion of jurisdiction by saying that the federal district court's "subject matter jurisdiction over appeals from decisions of the State Engineer is an odd amalgam. The court's jurisdiction is based on the ability of a court of equity to enforce and administer its decrees." *Slip Op*. at 5274. The "odd amalgam" arises from the unusual set of facts in this case. The Orr Ditch Decree was based on an action filed by the United States that resulted in a decree entered in federal court to settle the

Tribal Water Rights

existing water rights. Most water decrees or "adjudications" in the western United States occur in state courts. Meanwhile, the State Engineer's groundwater decision obviously was based on Nevada state law. Finally, the Tribe appealed the State Engineer's decision to federal district court where it is currently seeking review of that decision.

Continuing Jurisdiction

In a previous case before the Ninth Circuit, that court noted the "highly extraordinary" jurisdictional arrangement. "The district court's jurisdiction is established as an adjunct to its jurisdiction over the quiet title action originally filed by the United States…The district court's equity jurisdiction was properly invoked to review the Engineer's decision in order to 'provide full vindication of the admitted federal interests in the operation of federal reclamation projects.'" (citation omitted) *United States v. Alpine Land & Reservoir Co.* (*Alpine I*), 878 F.2d 1217 (9th Cir. 1989), 1219 n.2. *Slip Op*. at 5274-5275.

Nevada Law Support

This "unique jurisdiction arrangement" before a federal court, is also supported by Nevada law according to the Ninth Circuit. That court cited Nev. Rev. Stat. § 533.450(1) concerning review of a State Engineer decision, which states that review "must be initiated in the proper court of the county in which the matters affected or a portion thereof are situated, but *on stream systems where a decree of court has been entered, the action must be initiated in the court that entered the decree*." (emphasis added by Ninth Circuit). *Slip Op*. at 5275.

Protection of Decree

Those findings led the Ninth Circuit to its basic conclusion regarding the Orr Ditch Decree:

> "We hold today that the Decree protects the Tribe's water rights under Claims No. 1 and 2 from diminution resulting from allocation of groundwater rights. This holding necessarily means that any allocation of groundwater rights by the State Engineer that allegedly diminishes the Tribe's decreed water rights comes within the clause of Nev. Rev. Stat. § 533.450(1) that provides for appellate review 'in the court that entered the decree.' The decree in this case was entered by the federal district court for the District of Nevada." *Id*. at 5275.

Jurisdiction of Tribe's State Rights

Jurisdiction of the Tribe's 1998 water rights, on the other hand, was found by the Ninth Circuit to properly reside in the state courts of Nevada, rather than the federal district court.

> "We note, however, that the [federal] district court does not have jurisdiction over the Tribe's appeal from that ruling insofar as it may adversely affect the Tribe's rights under the Engineer's 1998 ruling granting the Tribe the right to water remaining in the Truckee River after decreed and other rights have been satisfied. The district court does not have jurisdiction because the Engineer's 1998 ruling was based on state law. The part of the Engineer's current ruling allegedly affecting the Tribe's rights under his 1998 ruling has no effect on the Tribe's rights under the Decree." *Id*. at 5276.

CONCLUSION

Adverse Affect Forbidden

Ultimately, the Ninth Circuit held that the Orr Ditch Decree forbids groundwater allocations by the State Engineer of Nevada that adversely affect the Tribe's decreed rights to water flows in the river. The decision also held that the federal district court has jurisdiction over the appeal from groundwater allocations by the State Engineer that are alleged to adversely impact the Tribe's decreed water rights. It is important to reiterate that the federal court's jurisdiction, however, applies only to the Tribe's decreed water rights from the Orr Ditch Decree. This results in a split jurisdiction, with any issues relating to the impact of groundwater use on the Tribe's 1998 water rights (as granted by the State Engineer) being handled in state court. The Tribe is pursuing an action in state court concerning the adverse affects to its 1998 water rights from the groundwater allocation of the State Engineer.

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Stormwater Regulation

Copper Requirements

Operational Conditions

Runoff Management

State NPDES Program

This article is based on a presentation by Jeff Kray at Law Seminars International's "Clean Water and Stormwater" Workshop in Seattle, Washington on April 8, 2010.

WASHINGTON STORMWATER REGULATION

NEW INDUSTRIAL STORMWATER GENERAL PERMIT IN WASHINGTON STATE

by Jeff Kray, Marten Law Group (Seattle, WA)

INTRODUCTION

Washington has issued a new Industrial Stormwater General Permit ("New Permit" or "Permit") that places additional requirements on industrial permit holders that will likely increase their compliance costs. The New Permit requires — for the first time — that all industrial facilities sample for copper, a metal universally used in vehicle brake pads and other common products. The Permit sets an aggressive compliance level for copper and also retains stringent restrictions on discharging zinc — a metal heavily used in common products such as chain link fences and vehicle tires. The New Permit also sets new operational conditions, including mandatory quarterly vacuum sweeping, and modifies sampling and reporting requirements. It further triggers, at lower pollutant levels than the Former Permit, obligations on industrial facilities to manage and, in some cases, treat their stormwater. Even facilities that have demonstrated clean stormwater under the Former Permit are required by the New Permit to conduct at least one year of additional sampling to confirm that their stormwater is still clean. Contrary to the draft permit Ecology issued earlier this year, the New Permit does not require staff or contractors performing stormwater inspections to complete a certification course prior to conducting inspections or preparing reports required under the Permit.

The Washington Department of Ecology (Ecology) issued the New Permit on October 21, 2009. The Permit took effect on January 1, 2010 and will remain in effect for five years.

BACKGROUND

Washington's Industrial Stormwater General Permit requires industrial facilities to manage and monitor stormwater runoff to ensure that contaminated stormwater is not discharged to wetlands, creeks, rivers, and marine waters. The Permit is required under the federal Clean Water Act (CWA), 33 U.S.C. § 1342. The Permit is also required under Washington's Water Pollution Control Act (WPCA), Chapter 90.48 RCW.

The objective of CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. § 1301). Accordingly, CWA prohibits the discharge of a pollutant by any person, except in compliance with specified statutory sections (33 U.S.C. § 1311(a)). Chief among these exceptions are discharges that occur in compliance with permits under the National Pollutant Discharge Elimination System (NPDES) in Section 402 of the CWA, which includes stormwater discharge permits (*see* 33 U.S.C. §§ 1311(a), 1342(p)). EPA has delegated much of the responsibility for administering the NPDES program to the states in accordance with 33 U.S.C. § 1342(b). In Washington, Ecology develops and administers NPDES stormwater permits. Thus, a stormwater permit issued by Ecology is both an NPDES permit under the CWA and a state waste discharge permit under the WPCA.

The Former Permit, which covered stormwater discharges from over 1,100 industrial facilities in Washington, was set to expire in September 2007 but was extended and expired when the New Permit took effect on January 1st. The Permit has two primary components: sampling and response actions, and Stormwater Pollution Prevention Plan (SWPPP) implementation. The Former Permit, under Condition S4.D.2, established "benchmarks" and "action levels" for four core effluents (known as "parameters") — turbidity, pH, zinc, and petroleum (oil and grease). All facilities subject to the Former Permit were required to collect and analyze quarterly stormwater samples for the four key parameters and submit the results to Ecology. Facilities are required to perform certain adaptive management response actions in response to either benchmark or action level exceedances, including inspecting the facility and implementing additional source, operational, or treatment controls. The Former Permit also required facilities to develop and implement a site-specific SWPPP, which identified potential contaminant sources and described **b**est **m**anagement **p**ractices (BMPs) designed to limit stormwater impacts (Former Permit, Condition S9). The New Permit retains many, but not all, of the key elements of the Former Permit and implements some new elements.

ECOLOGY'S NEW INDUSTRIAL STORMWATER GENERAL PERMIT

KEY ELEMENTS

Stormwater Regulation

BMPs

Condition S3 – New SWPPP BMP Requirements

The New Permit sets forth some new mandatory requirements for industrial facilities' SWPPPs. With regard to Operational Source Control **B**est **M**anagement **P**ractices (BMPs), the New Permit mandates quarterly vacuum sweeping of paved surfaces (New Permit, Condition S3.B.4.b.i.2)a), and sets forth a series of mandatory BMPs for vehicle and equipment fueling (New Permit, Condition S3.B.4.b.i.4). With regard to Structural Source Control BMPs, the New Permit requires Permittees to perform all cleaning operations indoors, under cover, or in bermed areas that prevent stormwater runoff and run-on and capture any overspray (New Permit, Condition S3.B.4.b.ii). Permittees must also drain any wash water to a collection system for further treatment or storage.

Cleaning Operations

12 Hour Sampling Requirement

Condition S4 – New Sampling Requirements and Requalification for Consistent Attainment

The New Permit eliminates the Former Permit's confusing "qualifying storm event" requirement, making it easier to obtain and report stormwater sampling data. The New Permit requires a facility to sample within the first 12 hours of stormwater discharge or as soon as practicable after the first 12 hours (New Permit, Condition S4.B.1.c). This is a significant change from the Former Permit's requirement that a facility sample within the first hour of discharge. The change will increase sampling by facilities that had struggled to capture a timely sample during business hours under the Former Permit.

Fall Storm Event

The New Permit requires permittees to sample the "first fall storm event" each year. This means that facilities must sample "the first time after October 1st of each year that precipitation occurs and results in a *stormwater discharge* from a *facility*." New Permit, Condition S4.B.1.b (emphasis in original).

"Consistent Attainment"

The New Permit requires all facilities, including facilities that have previously established "consistent attainment," to requalify for discontinuing sampling stormwater for parameters that meet the Permit benchmarks. New Permit Condition S4.B.6.a provides that consistent attainment is achieved when: "[f]our consecutive quarterly samples, *collected after the effective date of this permit*, demonstrate a reported value equal to or less than the *benchmark* value…" (emphasis added). Some commentors on the proposed New Permit had requested that Ecology remove the "after the effective date" clause from proposed Condition S4.B.6 and allow facilities that have established consistent attainment under the Former Permit to carryover those results to the New Permit. This proposed modification would arguably have saved permit holders costs without any risk of harm to water quality. In the alternative, commentors had proposed that Ecology establish a standard for "confirmation" or "verification" of consistent attainment that is less onerous than two years of further sampling for a parameter that has previously met the consistent attainment standard. For example, Ecology could have required a facility to conduct two quarters of confirmation sampling, and file verification that the facility has not made any substantive changes to its operations or facility that would impair its historic "consistent attainment." This proposed modification would presumably have addressed any concerns Ecology may have had about the possibility of changed conditions and allowed permit holders to verify ongoing compliance at lower cost than allowed under the New Permit.

Requalification Conditions

Ecology chose something of a middle ground between the initial proposal and the comments by requiring requalification for "consistent attainment" but only requiring four quarters, instead of the eight quarters set forth in the proposed New Permit (Condition S4.B.6.a). The New Permit also clearly states, however, that for purposes of tallying "consecutive quarterly samples," if a facility does not take a sample when they should have the tally is then reset to zero (New Permit, Condition S4.B.6.b.i). If a facility does not take a sample because there was no discharge during the quarter, or the discharges occurred outside normal working hours or during unsafe conditions, those quarters are not counted in the tally but it is also not reset to zero (New Permit, Condition S4.B.6.b.ii). Given the eased sampling requirements, facilities may find it difficult to establish that they could not sample and, therefore, it will be important for facilities seeking consistent attainment to stay prepared to sample as soon as possible each quarter.

Sampling Suggestion

Condition S5 - Elimination of Action Levels, New Mandatory Copper Parameter, and Parameter Changes for Metals, Air Transportation, and Timber Product Industries

"Action Levels" to "Benchmarks"

The New Permit eliminates "action levels" that had driven enforcement under the Former Permit. This change means that Permit "benchmarks" — which are lower than the action levels in the Former Permit — will operate as effective action levels. This change, however, creates uncertainty about whether exceeding the benchmarks is a Permit violation and thus, puts permit holders at greater risk of citizen suits. A benchmark is a pollutant concentration used as a permit threshold, below which a pollutant is considered unlikely to cause a water quality violation, and above which it may (New Permit, Appendix 2

Stormwater Regulation

– Definitions). Under the Former Permit, benchmark values "are not water quality standards and are not permit limits. They are indicator values." Former Permit Condition S4.D.2. An action level is a pollutant concentration above which a pollutant is considered likely to cause a water quality violation. It is also not, however, a numeric water quality standard. The "action levels" in the Former Permit are substantially higher than the "benchmarks" and have played an integral role in triggering corrective action and adaptive management.

Benchmarks

The New Permit continues the Former Permit's adaptive management approach that requires facilities to monitor stormwater quality against benchmarks. Like the Former Permit, under the New Permit "[b]enchmark values are not *water quality standards* and are not numeric effluent limitations; they are indicator values." New Permit, Definition of Benchmark, Appendix 2 (emphasis in original). This definition departs, however, from a statement in Ecology's June 3, 2009 draft Fact Sheet for the proposed New Permit, which also included the phrase "discharges that exceed a benchmark value are not automatically considered a permit violation or a violation of water quality standards." The benchmarks trigger corrective action. If a facility exceeds benchmarks but does not comply with specific corrective action requirements in Special Condition S8 of the New Permit, it would be a Permit violation.

Trigger

Uncertainty

By eliminating action levels from the New Permit, Ecology has arguably made the benchmarks the effective action levels, in some instances at much lower levels than the action levels under the Former Permit. For example, the New Permit reduces the 50 NTU (**N**ephalome**t**ric **U**nit) action level in the Former Permit to what is effectively a 25 NTU action level (the same level as the turbidity benchmark under the Former Permit).

Copper Parameter

The New Permit also adds copper as a mandatory sampling parameter for all industrial facilities covered by the Permit (New Permit, Condition S5.A (Table 2)). This change is driven in part by efforts to protect endangered salmon. Ecology has set different benchmarks for facilities in Eastern and Western Washington. The Eastern benchmark is 32 µg/L and the Western benchmark is 14 µg/L. Notably, both benchmarks are lower than the Former Permit's 63.6 µg/L copper benchmark for facilities that triggered copper sampling by exceeding the zinc benchmark and substantially lower than the 149 µg/L copper action level in the Former Permit. Given that motor vehicles are a predominant source of copper, facilities that utilize trucks and forklifts in their stormwater exposed industrial activities or are located near heavy urban traffic may find it particularly difficult to meet the copper benchmark in the New Permit.

pH Eased

The only parameter for which Ecology *eased* the benchmark in the New Permit is pH. For pH, Ecology changed the range from 6.0-9.0 standard units in the Former Permit to 5.0-9.0 standard units in the New Permit (Condition S5.A (Table 2)).

Industry Specific

The New Permit also makes significant changes for certain industries. Facilities within the Primary Metals, Metals Mining, Automobile Salvage and Scrap Recycling, and Metals Fabricating industries must sample for Total Petroleum Hydrocarbons (TPH). New Permit, Condition S5.A (Table 3). Facilities within the Air Transportation industry must meet the New Permit's 2.1 mg/L Ammonia benchmark, down from the 19 mg/L benchmark in the Former Permit. *Id.* Air Transportation facilities will also need to begin sampling for a new parameter, Chemical Oxygen Demand (COD), which is used to measure organic matter loading and has a 120 mg/L benchmark in the New Permit. *Id.* The New Permit also requires the Timber Products industry to begin sampling COD and meet the 120 mg/L benchmark; and also begin sampling for Total Suspended Solids (TSS) and meet a 100 mg/L benchmark for that parameter. *Id.*

Condition S6 – Numeric Effluent Limits for Dischargers to 303(d)-Listed Waters

TMDL Tie In

Beginning July 1, 2010, facilities discharging to 303(d)-listed waterbodies that do not have an EPA-approved Total Maximum Daily Load (TMDL), will be required under the New Permit to comply with numeric effluent limits, including site-specific limits for certain parameters, and additional sampling requirements (New Permit, Condition S6.C). Facilities could request a compliance schedule for relief from Condition S6 but must have done so in writing by January 31, 2010.

"New Dischargers" Difficulty

New Permit Condition S6 will make it very difficult for "new dischargers" to 303(d)-listed waterbodies to obtain coverage under the Industrial Stormwater General Permit. Such "new dischargers" are not eligible for coverage under the New Permit unless the facility either prevents all exposure to stormwater of the pollutants for which the waterbody is impaired; or documents that such pollutants are not present at the facility; or provides Ecology with data to support a showing that the discharge is not expected to cause or contribute to an exceedence of a water quality standard. New Permit, Condition S6.B. Facilities meeting these requirements are eligible for coverage if Ecology makes an "affirmative determination that the discharge will not cause or contribute to the existing impairment." *Id.*

Stormwater Regulation

Visual Inspections

Condition S7 – New Requirement for Monthly Inspections

The New Permit increases the frequency of visual inspections from quarterly to monthly (New Permit, Condition S7.A.1). As a result, Ecology has eliminated the "Dry Season" and annual comprehensive inspections that were required under the Former Permit. This change results in additional onsite record-keeping but facilities are not required to make these reports available to Ecology unless requested (New Permit, Condition S7.C.1).

Adaptive Management

Condition S8 - Modified Corrective Action Process

The New Permit modifies the corrective action process from that expressed in the Former Permit. Corrective action is the "adaptive management" process of making incremental revisions to a facilities' SWPPP, including additional BMPs to improve stormwater pollution control. Adaptive management "requires monitoring, evaluation, and reporting requirements to ensure that stormwater discharges are controlled by adequate BMPs that prevent violations of water quality standards." New Permit "Fact Sheet" at p. 54.

Response Levels

The New Permit has three levels of response. The New Permit changes the former term "Level Response" to "Corrective Actions," but retains the three level structure from the Former Permit.

New Permit corrective action levels include:

- A Level One Corrective Action, involving inspections of the facility, possible remedial actions, and an internal summary report, is focused on operations source control BMPs and is required whenever sampling results exceed a benchmark.
- A Level Two Corrective Action, involving all the elements of a Level One Corrective Action, and adding a source control report to Ecology, is focused on structural source control BMPs and is required whenever any two quarterly sampling results in a calendar year exceed benchmark levels for any single parameter.

Treatment Requirement

- A Level Three Corrective Action, involving all the elements of Level One and Level Two Corrective Actions, and adding a requirement to consider and employ stormwater treatment or request a waiver from Ecology, is focused on treatment BMPs and is required whenever three quarterly sampling results in a calendar year exceed benchmarks levels. This is one fewer adverse sampling result than was necessary to trigger a Level Three Response under the Former Permit.

The Former Permit only triggered a Level Two or Three Response when the applicable number of sampling results exceeded an action level, which in all instances was higher than the benchmarks in the New Permit. As a result, many more facilities will trigger Level Two and Three Corrective Actions than did so under the Former Permit.

Annual Report

Condition S9 – New Annual Reporting Requirement

The New Permit will require all Permittees to submit an Annual Report to Ecology (New Permit, Condition S9.B). The first reports under the annual reporting requirement, set forth in new Condition S9.B, will be due on May 15th each year, beginning in 2011. The annual reports must be on a form provided by or approved by Ecology and must include summaries of all Level 1, 2, and 3 Corrective Actions.

SIGNIFICANT PERMIT CHANGES ECOLOGY PROPOSED BUT DID NOT ADOPT

Changes Not Adopted

No Level Four Corrective Action

Ecology proposed but ultimately rejected adding a Level Four Corrective Action. A Level Four Corrective Action would have been triggered when a facility that previously triggered a Level Two or Three Response under the Former Permit exceeded any benchmark value for any eight monitoring periods under Level Two or any facility exceeded any benchmark value for any twelve monitoring periods under Level Three. Under Level Four Corrective Action, the burden would have been on Ecology to act.

Level Four

Ecology could have:

- Issued an administrative order to the facility requiring: a "receiving water study" of water quality in the water body to which the facility's stormwater discharges; an engineering report of the facility's stormwater discharges; additional water quality monitoring; additional pollution prevention and/or treatment measures at the facility, including but not limited to the installation of an "Active Stormwater Treatment System"
- Notified the permittee to apply for a "Modification of Permit Coverage"
- Notified the permittee to apply for and obtain an individual permit or obtain coverage under another more specific general permit

Stormwater Regulation

- Notified the discharger that coverage under the permit is no longer appropriate, and any actions required by the permittee in order for coverage under the permit to remain effective
- Terminated coverage under a general permit

Any action Ecology had taken under a Level Four Corrective Action would have substantially increased a facility's costs.

Level Two Report

No Mandatory Level Two Corrective Action

Another proposal that Ecology rejected was mandatory Level Two Corrective Action for facilities that had "triggered Corrective Action Level 2 and/or Level 3" under the Former Permit. As proposed, Ecology had prepared an appendix to the proposed New Permit listing facilities that would be required to submit a Level Two Corrective Action whether or not the facility had already completed and submitted to Ecology an equivalent "level two source control report" under the Former Permit. By rejecting this proposal, Ecology avoided placing administrative burdens and costs on facilities that have already addressed corrective actions.

Inspector Certification Rejected

No New Inspector Training

Ecology also rejected proposed New Permit Condition S7.A.2 which would have required that, beginning January 1, 2012, "visual inspections shall be conducted by a Certified Industrial Stormwater Manager (CISM), Certified Professional in Stormwater Quality (CPSWQ), or Professional Engineer." This provision would likely have increased — perhaps substantially — permit holders' costs for completing visual inspections.

CONCLUSION

The New Permit makes substantial changes from the Former Permit. These changes require facilities to modify their operational and source control BMPs, alter their sampling and inspection schedules, and update their SWPPPs. For many facilities, the New Permit will also trigger more Corrective Actions. Industrial Permittees should promptly review the New Permit and plan for current and future compliance. Such planning should include reviewing and revising each facility's SWPPP. Given the stakes involved, many Permittees should consider seeking professional engineering and legal guidance on compliance with the New Permit.

For Additional Information:
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Jeff B. Kray is a partner at Marten Law PLLC in Seattle, Washington where he leads the firm's Water Resources/Water Quality Practice Group. He specializes in environmental litigation – with a particular focus on water issues. Jeff joined Marten Law in February 2003 and before that he practiced for more than ten years in the Washington Attorney General's Office as an Assistant Attorney General representing a diverse range of state agencies, including the Washington Department of Ecology. In February 2008, Jeff chaired the 26th Annual ABA Water Law Conference in San Diego, California. He is a Vice Chair of the American Bar Association's Water Resources and Water Quality and Wetlands Committees and the editor the ABA Water Resources Committee Newsletter. Jeff regularly speaks and writes on water quality, water, and other environmental topics.

WATER BRIEFS

PAIUTE TRIBE PREVAILS: ILLEGAL DIVERSIONS OF WATER TO BE "RECOUPED"

by David Moon, Editor

On April 20, the Ninth Circuit Court of Appeals (Court) upheld most of a lower federal court decision that ordered the Truckee-Carson Irrigation District (TCID) to pay back billions of gallons of water it illegally diverted from the Truckee River during the 1970's and 1980's to the Pyramid Lake Paiute Tribe of Indians (Tribe). *U.S.A. v. TCID, et al*., No. 05-16157 (April 20, 2010). The Tribe was also the beneficiary of another Ninth Circuit ruling handed down earlier in April (see article, page 12).

The Ninth Circuit found that US District Court Judge Howard McKibben in Reno correctly held that the irrigation district "willfully failed to comply" with the "1973 OCAP" — the "operating criteria and procedures" that a federal court in Washington, D.C. had ordered the Secretary of the Interior to implement following a much earlier lawsuit (*Pyramid Lake Paiute Tribe of Indians v. Morton*, 354 F. Supp. 252, 256 (D.D.C. 1973)). *Slip Op*. at 5857.

The "1973 OCAP" limited the maximum diversions from the Truckee and Carson Rivers that irrigation districts could make. As noted in the present case, the 1973 OCAP was challenged by TCID but the Ninth Circuit "upheld it in *TCID v. Secretary*, 742 F.2d at 532, yet TCID has refused to follow it." *See Truckee-Carson Irrigation Dist. v. Sec'y of Dep't of Interior*, 742 F.2d 527 (9th Cir. 1984).

The case has come to be known as the "recoupment decision." The ongoing dispute between the Tribe and TCID had not been resolved, so in 1990 the US Congress stepped in to resolve the dispute by enacting the *Fallon Paiute Shoshone Indian Tribes Water Rights Settlement Act of 1990*, Pub. L. No. 101-618, 104 Stat. 3289 ("Settlement Act"). One of the Settlement Act's provision provided that the Secretary of the Interior "shall...pursue recoupment of any water diverted from the Truckee River in excess of the amounts permitted by any such operating criteria and procedures." Settlement Act § 209(j)(3). The US instituted this suit by "filing a complaint against TCID, its board members, and all water users in the Project as a class, seeking to recoup over one million acre-feet...of water diverted in excess of applicable OCAPs from 1973-1988." *Slip Op*. at 5856-5857.

The Ninth Circuit held that the Settlement Act created a judicially enforceable cause of action to recoup excess diversions for past violations of the 1973 OCAP based on Section 209(j)(3) of that Act. "The stated purpose demonstrates that Congressional intent was to restore the Lake, not to maintain the status quo." The Court also found that the 1973 OCAP was valid and enforceable. *Slip Op*. at 5859 and 5861-5862, respectively.

Judge McKibben in the federal district court previously found that TCID had illegally diverted excess water totaling just under 200,000 acre-feet of water and must pay the Tribe that amount of water as recoupment. That court also awarded postjudgment interest — in water, not money — of two percent per year on the balance of water remaining to be recouped to replenish the waters of Pyramid Lake.

The total amount of water to be recouped, however, will grow upon remand in favor of the Tribe. All the parties on appeal challenged the amount of water ordered recouped. The Court reversed the district court regarding a calculation concerning gauge error and affirmed the district court's calculations on all the other issues. The recoupment award was based on government flow data from gauge measurements that included some margin of error, represented by a "confidence interval." The Court found that "the district court accounted for statistical uncertainty in the flow data by subtracting the confidence interval from the published quantities, effectively assigning all of the uncertainty against the Tribe." In addition, the Court noted that there "was no evidentiary basis for preferring values at the lower bound of the margin of error to the government's published quantities, which were already adjusted to take account of river condition, and which TCID never showed to be skewed in the Tribe's favor." On remand, the district court must "recalculate the amount of the diversions based on the government's published quantities and without regard to the confidence intervals." *Id*. at 5869.

The fascinating issue of interest on the judgment to be paid in water is still pending in the case. The federal district court will be addressing the question of whether or not to award "interest" in water, and if so how much, as opposed to a monetary award. The Court vacated the district court's rulings with respect to interest and remanded the decision for the lower court "to explain the legal basis for its unprecedented award of interest that must be repaid in water." *Slip Op*. at 5858.

The Ninth Circuit did provide some guidance on the water interest issue at 5865:

> Because neither case authority nor statutory authority authorize the district court's award of water interest, there appears to be no legal basis for an award. We do not foreclose the possibility of an equitable basis for such an award. *See Texas*, 482 U.S. at 132 n.8 ("We are unpersuaded...that 'water interest'...should be awarded unless and until it proves necessary."). But we do not believe that water interest is appropriate unless there is some factual basis for awarding more water than was originally taken so as to provide complete relief. Moreover, we do not have any explanation for why the court chose to award interest at the rate of two-percent as opposed to some other amount.

The Ninth Circuit remanded the case back to the federal district court to determine the proper amount of water to be awarded to the Tribe based on the Ninth Circuit's detailed decision, in addition to potentially awarding "prejudgment and postjudgment interest" in water. *Slip Op.* at 5872. The case is highly recommended for review, as it contains additional discussion regarding related issues that are not discussed in this brief.

For info: Ninth Circuit decision: www.ca9.uscourts.gov/datastore/opinions/2010/04/20/05-16154.pdf

WATER BRIEFS

UTAH STREAM ACCESS UT
RECREATIONAL USE LEGISLATION

On March 31, Utah Governor Gary R. Herbert signed HB 141, which addresses the "Recreational Use of Public Water on Private Property." The law takes effect on May 11, 2010. According to the Utah Division of Wildlife Resources (UDWR), the "new law does not allow recreational water users (including anglers, kayakers, tubers, hunters and others) to walk on the private bed of a public waterbody. This means that if you are fishing or recreating in public water that flows over private property closed to trespass, you may not walk on the land beneath the water without obtaining landowner permission." Despite this seemingly strict statement, UDWR goes on to note that if you encounter an obstacle while floating: "Your right to float includes the following...You may incidentally touch private property as required for safe passage and continued movement of you and your vessel...You may portage around a dangerous obstruction in the water, as long as you use the most direct route that follows closest to the water." UDWR website: http://wildlife.utah.gov/ >> Stream Access. HB 141 in its entirely is also available at this website. The law limits the recreational access to "navigable water" (73-29-201(1)(a)(i), Utah Code Annotated), in addition to other restrictions.

The contentious bill was passed to overrule a Utah Supreme Court (Court) decision, *Conatser v. Johnson*, 194 P.3d 897 (Utah 2008), that was viewed as interfering with private property rights. That decision allowed the public to walk on the private bed of a public waterbody as part of the public's easement in state waters. The Court specifically held that "the scope of the public's easement in state waters allows the public to: (1) engage in all recreational activities that utilize the water; and (2) touch privately owned beds of state waters in ways incidental to all recreational rights provided for in the easement."

It is clear, however, that the bill will not lay the issue to rest. According to Governor Herbert, "I am signing HB141 because we need to begin the process of addressing the unfortunate gulf between outdoor recreationalists and private property owners. I recognize the potential conflict between private property rights and the right of public access to Utah's waterways. Today, I pledge my commitment to work with both sides over the coming year to improve opportunities and arrive at a workable solution. My hope is that this bill puts both sides of the equation on equal footing and allows the conversation to continue in a productive fashion. While this bill largely puts the state in the position it was in prior to a 2008 Utah Supreme Court ruling on the matter, I realize that this issue is not resolved. I have tasked Ted Wilson, as head of Governor's Council on Balanced Resources, to represent my administration and interact with the legislative task force established through SB281." SB 281 is a companion bill that established a task force to continue work on the issue.

For info: *Conatser* Decision: www.utcourts.gov/opinions/supopin/Conatser071808.pdf

SDWA GUIDANCE US
PUBLIC NOTIFICATION RULE

EPA has revised and released three guidance documents for the Public Notification (PN) Rule: The Revised State Implementation Guidance for the Public Notification (PN) Rule, the Revised Public Notification Handbook, and the Revised Public Notification Handbook for Transient Noncommunity Systems. These documents provide implementation guidance to assist EPA Regions and states exercising primary enforcement responsibility (primacy) under the federal Safe Drinking Water Act (SDWA) as well as guidance to aid public drinking water systems in complying with the PN Rule.

For info: www.epa.gov/safewater/publicnotification/compliancehelp.html

WATER PLANNING NM
$100,000 EPA GRANT

EPA has awarded $101,000 to the New Mexico Environment Department (NMED). The funds will be used to provide assistance to NMED with water quality management planning activities in the Middle Rio Grande and Cimarron River watersheds including the completion of water quality standards for these watersheds. The funding will also be used to develop strategies to reduce E.coli contamination in the Albuquerque Middle Rio Grande and for the water quality management planning project on Burn Lake.

For info: www.epa.gov/region6/gandf/index.htm

KLAMATH RIVER TMDL CA
ACTION PLAN APPROVED

On March 24, 2010, the California Environmental Protection Agency's (CEPA's) North Coast Regional Water Quality Control Board adopted Resolution No. R1-2010-0025 and Resolution No. R1-2010-0026 amending the Water Quality Control Plan for California's North Coast Region to include the "*Action Plan for the Klamath River Total Maximum Daily Loads addressing Temperature, Dissolved Oxygen, Nutrient, and Microcystin Impairments in the Klamath River in California and the Lower Lost River Implementation Plan*" (Action Plan). The Board also incorporated a recalculated Site Specific Dissolved Oxygen Objective for the Klamath River in California.

The Action Plan includes temperature, dissolved oxygen, nutrients, and organic matter **t**otal **m**aximum **d**aily **l**oads (TMDLs) for the Middle and Lower Hydrologic Areas of the Klamath River, and references the Lower Lost River TMDLs established by EPA.

The Action Plan also contains an implementation plan applicable to actions within the entire Klamath River basin (or watershed) in California, including the Lost River watershed. The implementation actions are necessary to achieve the TMDLs and attain temperature, dissolved oxygen, biostimulatory substances, and toxicity water quality standards, including the protection and restoration of the beneficial uses of water in the Klamath River basin. The Action Plan sets out the loads and conditions to be considered and incorporated into regulatory and non-regulatory actions in the Klamath River basin. The Lost River Implementation Plan sets out the conditions to be considered and incorporated into regulatory and non-regulatory actions in the Lost River basin.

For info RE: Klamath River TMDLs, contact Clayton Creager, CEPA, 707/ 576-2666 or CCreager@waterboards.ca.gov; RE: Site Specific Dissolved Oxygen Objective for the Klamath River in California, contact Alydda Mangelsdorf, CEPA, 707/ 576-6735 or AMangelsdorf@waterboards.ca.gov; CEPA WEBSITE: www.swrcb.ca.gov/northcoast/water_issues/programs/tmdls/ (Klamath River)

WATER BRIEFS

VADOSE ZONE RECHARGE AZ

WATER REUSE AWARD

On May 5, the Arizona Water Association (AZ Water) presented the 2010 Water Reuse Project of the Year Award to Lockwood, Andrews & Newnam, Inc. (LAN) and the City of Surprise, Arizona, for the project team's work on the Surprise South Water Reclamation Plant (SSWRP) Vadose Zone Recharge System. See Marsh, *TWR* #74, for an article on vadose zone recharge wells, which included discussion of this project.

The SSWRP Vadose Recharge System was developed by the design team of LAN, HydroSytems Inc., and DLT&V Systems Engineering, Inc. as part of the City of Surprise's master plan to expand the SSWRP wastewater treatment capacity from 7.2 million gallons a day to 16.3 million gallons a day. To store the plant's increased volume of reclaimed water underground, 52 site-specific vadose recharge wells have been master planned for installation in multiple phases at two different locations in the city service area. Other project elements in this recharge system include associated delivery pipelines, booster pump station modifications, geo-membrane reservoir cover and a SCADA control system.

To date, five initial vadose zone recharge wells and associated facilities have been installed at the SSWRP site. In addition to the recharge well system, the associated infrastructure, consisting of 4,700 linear feet of 20-inch pipeline, well delivery manifold, a floating reservoir cover and pressure control stations to recharge an estimated 2.2 MGD of Class A+ reclaimed water, was constructed. LAN provided project management, planning, civil engineering and construction management services for the project.

For info: Floyd L. Marsh**,** LAN, FLMarsh@lan-inc.com

EXEMPT WELLS DECISION WA

FEEDLOT USE EXEMPTED

Washington Superior Court Judge Carrie Runge issued a verbal ruling from the bench on April 2, dismissing a lawsuit against Easterday Ranches Inc. (Easterday) concerning a planned feedlot. The Judge ruled that the plaintiffs did not have "standing" in the case because their injury claims (negative impacts on their own wells) were speculative. The Judge also noted that in any case, Washington's exempt well statute is "clear and unambiguous" in its grant of unlimited groundwater use for stockwater purposes. *Five Corners Family Farmers, et al. v. State of Washington, et al*., Franklin County Superior Court Cause No. 09-2-51185-6 (April 2010).

The legal battle involves a 1945 Washington statute that exempts groundwater wells from the normal permitting process required for new water rights. Neighboring farmers, the Sierra Club, and the Center for Environmental Law & Policy had argued that stockwater use was limited to 5,000 **g**allons **p**er **d**ay (gpd) under the statute, similar to the 5,000 gpd restrictions for domestic and industrial purposes (RCW 90.44.050). See Paschal Osborn, *TWR* #71 for additional details.

Easterday's proposed stockwater use will supply a 30,000-head cattle finishing feedlot near Eltopia, Washington. In 2008, Easterday proposed the third (known) explicit use of the unlimited stockwater exemption, although the dairy industry in Washington has estimated that approximately 70% of the 450 commercial dairies in the state are already withdrawing groundwater without water right permits.

In a May 5th press release, the Washington Farm Bureau (WFB: one of the intervenors in the case) hailed the "Clear Victory for Agriculture." WFB noted that the summary judgment order issued by the court on May 5 reinforced that there is no limitation on the watering of livestock from exempt wells. "This ruling provides certainty to our livestock industry which has relied on the permit exemption since 1945," John Stuhlmiller, WFB Director of Government Relations, said.

For info: Dept. of Ecology: www.ecy.wa.gov/programs/wr/rights/easterday.html

CWA ENFORCEMENT AZ

ADEQ CONSENT JUDGMENT

The Arizona Department of Environmental Quality (ADEQ) and Arizona Attorney General's (AAG's) Office have announced that Asarco LLC will pay $20,000 in civil penalties under a consent judgment for discharging tailings into the Gila River without a permit and surface water quality violations.

The incident occurred in February 2007 when a pipeline straddling the river and connecting Asarco's Hayden concentrator to the tailing ponds ruptured, releasing an estimated 1,500 gallons of tailings onto the banks and main channel of the river.

ADEQ issued Asarco a Notice of Violation in April 2007 for discharging without a permit in violation of the federal Clean Water Act, which is administered by the state under the Arizona Pollutant Discharge Elimination System program. The incident also caused violations of the state's surface water quality standards that require the water to be free of oil, grease and other pollutants that cause a deposit on a shoreline or aquatic vegetation or change the color of the surface water from natural background levels.

Asarco ultimately spent more than $1 million in replacing the pipeline with one designed and engineered to prevent other such incidents in the future.

The consent judgment is subject to court approval.

For info: Mark Shaffer, ADEQ, 602/771-2215; Molly Edwards, AAG, 602/542-8019

TOXICS INVENTORIES US

EPA PROPOSES TRI EXPANSION

EPA is proposing to add 16 chemicals to the Toxics Release Inventory (TRI) list of reportable chemicals, the first expansion of the program in more than a decade. Established as part of the Emergency Planning and Community Right to Know Act (EPCRA), TRI is a publicly available EPA database that contains information on toxic chemical releases and waste management activities reported annually by certain industries as well as federal facilities.

EPA has concluded, based on a review of available studies, that these chemicals could cause cancer in people. The purpose of the proposed addition to TRI reporting requirements is to inform the public about chemical releases in their communities and to provide the government with information for research and potential development of regulations.

Four of the chemicals are being proposed for addition to TRI under the **p**olycyclic **a**romatic **c**ompounds (PACs) category. The PACs category includes chemicals that are **p**ersistent, **b**ioaccumulative, **t**oxic (PBT) and are

WATER BRIEFS

likely to remain in the environment for a very long time. These chemicals are not readily destroyed and may build up or accumulate in body tissue.

EPA will accept public comments on the proposal for 60 days after it appears in the Federal Register.
For info: www.epa.gov/tri/lawsandregs/ntp_chemicals/index.html; More information on TRI: www.epa.gov/tri

WATER CONSERVATION CO

EFFICIENCY LEGISLATION

LOCAL PROVIDERS FAVORED

Governor Bill Ritter signed HB 1204 on April 5. The Governor stated that "Conservation is a critical component in managing one of our state's most precious resources — water. Our state's livelihood depends upon a reliable water source, from recreation to agriculture to business to our families, and we must be prudent with our use of it."

Conservation standards under HB 1204 include water efficiency fixtures and installation guidelines that meet or exceed national standards. The bill also encourages the use of locally produced materials. "By adding 'conservation' to the plumbing code, the legislature will send a clear message that we need to ensure the future availability of clean water for all Coloradans," Sen. Lois Tochtrop, one of the bill's sponsors, said.
For info: Megan Castle, Governor's Office, 303/ 319-8513 or megan.castle@state.co.us

HABITAT CONSERVATION US

$66 MILLION FOR ESA PROJECTS

The Interior Department recently announced nearly $66 million in grants to enable 25 states to work with landowners, conservationists and other partners to protect the habitat of threatened and endangered species.

The grants, awarded through the Cooperative Endangered Species Conservation Fund, will benefit numerous species ranging from the desert tortoise to the Indiana bat.

Authorized by Section 6 of the federal Endangered Species Act, the competitive grants enable states to work with private landowners, conservation groups and other agencies to initiate conservation planning efforts and acquire and protect habitat to support the conservation of threatened and endangered species.

This year, the Cooperative Endangered Species Fund provides: approximately $10 million through the Habitat Conservation Planning Assistance Grants Program; $41 million through the Habitat Conservation Plan Land Acquisition Grants Program; and $15 million through the Recovery Land Acquisition Grants Program. The three programs were established to help avoid potential conflicts between the conservation of threatened and endangered species and land development and use.

Habitat Conservation Plans (HCPs) are agreements between a landowner and the US Fish & Wildlife Service (FWS). An HCP allows a landowner to undertake otherwise lawful activities on their property, even if they may result in the death, injury or harassment of a listed species, when that landowner agrees to conservation measures designed to minimize and mitigate the impact of those actions. HCPs may also be developed by a county or state to cover certain activities of all landowners within their jurisdiction and may address multiple species.

Under the HCP Land Acquisition Grants Program, FWS provides grants to states or territories for land acquisition that complements the conservation objectives of approved HCPs. Among recipients of these HCP Land Acquisition grants is the state of Montana, which is receiving a $6 million grant to acquire 3,600 acres in the Northern Rocky Mountains. The purchase of this acreage will complement the Plum Creek Native Fish Habitat Conservation Plan, protecting high-quality riparian habitat for the bull trout, westslope cutthroat trout and mountain whitefish. Acquiring these lands will link adjacent protected wilderness and roadless areas, which also benefit the grizzly bear, Canada lynx, and gray wolf. This acquisition involves a model conservation partnership with several diverse parties that have created the momentum for the largest conservation effort in the country, including the Blackfoot Challenge and the even larger initiative to protect as much of the Crown of the Continent as possible.

The HCP Planning Assistance Grants Program provides grants to states and territories to support the development of HCPs through funding of baseline surveys and inventories, document preparation, outreach and similar planning activities. The Recovery Land Acquisition Grants Program provides funds to states and territories to acquire habitat for endangered and threatened species with approved recovery plans. Habitat acquisition to secure long term protection is often an essential element of a comprehensive recovery effort for a listed species.

For a complete list of the 2010 grant awards for these programs, see: http://endangered.fws.gov/grants/section6/index.html.
For info: Valerie Fellows, 703/ 358.2285 or Valerie_Fellows@fws.gov

TRIBAL WILDLIFE GRANTS US

FISH & WILDLIFE PROJECTS

The US Fish and Wildlife Service recently issued a request for grant proposals from federally recognized Tribes for projects that will conserve fish and wildlife resources. The Tribal Wildlife Grants program supports projects on a competitive basis that benefit habitat, or fish and wildlife, including species that are not hunted or fished. This grant request is for fiscal year 2011. Proposals and grant applications must be postmarked by September 1, 2010. The maximum award for any one project under this program is $200,000.

In FY 2010, the Tribal Wildlife Grant program awarded more than $7 million to 42 Tribes for projects ranging from comprehensive surveys of plants, fish and wildlife, to habitat and fish restoration, to development of new resource management plans and techniques.

The Tribal Wildlife Grants program began in 2003 and has provided a total of more than $60 million to hundreds of Tribes across the nation, enabling them to develop increased management capacity, improve and enhance relationships with partners, address cultural and environmental priorities and heighten the interest of tribal students in fisheries, wildlife and related fields of study. A comprehensive report on projects awarded between 2003 and 2006 is available at: www.fws.gov/nativeamerican.
For info: Grant application kit or regional Tribal grants contact: www.fws.gov/nativeamerican

WATER BRIEFS

PHOSPHORUS TMDL WA

SPOKANE RIVER TMDL UPHELD
DISPUTE RESOLUTION OUTCOME

The Washington Department of Ecology (Ecology) has determined that the Spokane River's water quality improvement plan should be upheld. Ecology's decision follows a review of the plan by a dispute resolution panel to hear concerns raised by stakeholders.

When implemented, the Spokane River/Lake Spokane Dissolved Oxygen Water Quality Improvement Report, referred to as the **t**otal **m**aximum **d**aily **l**oad (TMDL) report, will guide work toward bringing the Spokane River into compliance with water quality standards for dissolved oxygen. Dischargers will have up to 10 years to comply with new discharge limits specified in the TMDL, with extension up to 20 years possible under some limited circumstances.

The plan calls for a reduction in phosphorus pollution from industrial and municipal pipes by approximately 80,000 pounds of phosphorus a year. Phosphorus encourages algae growth, which then depletes oxygen from the water that fish need to live. Due to the sensitivity of the Spokane River system, the phosphorous limits for industrial and municipal discharges are among the most stringent in the country.

Several dischargers objected to the new limits. They asked to enter into dispute resolution — a process that considers stakeholder concerns not resolved during the TMDL development process. Inland Empire Paper company, the City of Coeur d'Alene, the City of Post Falls, the Hayden Area Regional Sewer Board, Avista Corp. and the Sierra Club all requested dispute resolution.

Ecology created a panel of experts not previously involved in the TMDL development process to review the details of the disputes, listen to oral presentations by the disputants and make a recommendation to Ecology regarding whether the TMDL should be revised. Following the April 5 meeting the panel found that the issues raised don't necessitate a change in the TMDL.

EPA still has to approve the water quality plan before it is considered final.

For info: Electronic copies of the Spokane River/Lake Spokane Dissolved Oxygen Water Quality Improvement Plan can be downloaded at: www.ecy.wa.gov/biblio/0710073.html

PERCHLORATE STANDARD US

EPA IG'S ASSESSMENT
NATIONAL STANDARD DEEMED SUFFICIENT

EPA's Office of Inspector General (IG) released a scientific analysis of perchlorate on April 19. The IG report criticized EPA for relying on an "outdated single chemical risk assessment approach." Perchlorate is only one of several chemicals that stress the thyroid's ability to uptake iodide. The IG conducted a cumulative risk assessment to evaluate the risk to thyroid function from multiple stressors. Results from this analysis led the office to conclude that setting a drinking water standard lower than 25 **p**arts **p**er **b**illion (ppb) would "not provide a meaningful opportunity to lower the public's risk."

In 2005, EPA established a perchlorate **r**e**f**erence **d**ose (RfD) that if promulgated into a national drinking water standard would result in a maximum contaminant level of 25 ppb. California's drinking water standard for perchlorate is six ppb.

According to the report, addressing iodide deficiency in pregnant and nursing woman "appears to be a more effective approach…to reducing the frequency and severity of permanent mental deficits in children." This result is consistent with a 2005 National Academy of Sciences' report on perchlorate that recommended "consideration be given to adding iodide to all prenatal vitamins."

A regulatory determination from EPA on whether or not to issue a national primary drinking water standard for perchlorate is anticipated this summer.

For info: The full report is available at: www.acwa.com/sites/default/files/news/water-quality/2010/04/epa-oig-perchlorate-report-4_2010.pdf

KLAMATH WATER CA/OR

RECLAMATION 2010 OPERATIONS PLAN

The US Bureau of Reclamation's (Reclamation's) Klamath Basin Area Office has released the annual Operations Plan for the Klamath Project (OpPlan). Water releases from the Project will begin as soon as conditions allow, probably no earlier than May 15.

The Klamath Project is a Federal water supply project built in the early 1900s to drain lands to make them available for agriculture and to provide irrigation for land in south-central Oregon and parts of north-central California (see Spain, TWRs #70 & #71). The Project provides water to about 1,400 individual farms and ranches, totaling about 210,000 acres, and fuels a $325.0 million agriculture-dependent economy in the Upper Klamath Basin. The Project also provides water to about 55,000 acres of National Wildlife Refuges. In 2001, the combination of several years of drought and the legal requirements of two ESA BiOps resulted in a severe curtailment of water for agricultural use.

Under the current NOAA-Fisheries BiOp for threatened Coho salmon, Reclamation must provide flows in the Klamath River downstream of Iron Gate Dam. Reclamation must sustain lake level elevations in Upper Klamath Lake to protect endangered Lost River and short nose suckers under the FWS BiOp.

Irrigators can expect the following:

- Upper Klamath Lake irrigators should receive 30-to-40 percent of average annual releases or an estimated 150,000 **a**cre-**f**eet (AF) of water. The OpPlan identifies lake elevations that help protect ESA-listed suckers in the lake. Reclamation will meet with irrigation contractors on a weekly basis to examine the situation and ensure minimum lake elevations are maintained throughout the irrigation season.
- Gerber Lake's forecasted inflow and carryover will allow a release of approximately 85 percent of the average annual supply or an estimated 31,000 AF.
- Clear Lake Reservoir carryover storage and forecasted inflow indicate there will be no available water for irrigation releases in 2010. The current lake level is below the minimum level established by the US Fish and Wildlife Service (Service) Biological Opinion, and any further reduction in the levels may be detrimental to the ESA-listed sucker population.

For info: Kevin Moore, Reclamation, 541/ 880-2557 or klmoore@usbr.gov

WATER BRIEFS

WATER EFFICIENCY WEST

RECLAMATION GRANT PROGRAMS

Reclamation has announces the availability of several "WaterSMART" funding opportunities. The WaterSMART (Sustain and Manage America's Resources for Tomorrow) program is intended to address the most significant challenges facing our water supplies in the 21st century, including population growth, climate change, rising energy demands, environmental needs, and aging infrastructure.

The "System Optimization Review Funding Opportunity" seeks proposals for projects that assess the potential for water management improvements in a river basin, system, or district and identify specific improvements to increase efficiency, including a plan of action for implementing the recommendations (Funding Opportunity (FO) #R10SF80256). Applications are due by Monday, June 14.

The "Pilot and Demonstration Projects for Advanced Water Treatment Funding Opportunity" is new this fiscal year and seeks proposals for projects that address the technical, economic, and environmental viability of treating and using brackish groundwater, seawater, impaired waters, or otherwise creating new water supplies within a specific locale (FO #R10SF80342). Applications are due by June 29.

Eligible applicants that may submit proposals for funding under the System Optimization Review or Advanced Water Treatment Funding Opportunities are State or Territory agencies or departments with water or power delivery authority, Federally recognized Indian Tribes with water or power delivery authority, irrigation and water districts, municipal water or power delivery authorities, or other organizations with water or power delivery authority. Applicants must also be located in the Western United States or an authorized Territory.

The "Research Grants to Develop Climate Analysis Tools Funding Opportunity" is also new this fiscal year and seeks proposals for research projects that will lead to enhanced management of western water resources in a changing climate (FO #R10SF80326). This Funding Opportunity is open to universities and non-profit research institutions as well as organizations with water or power delivery authority. Applications are due by July 2.

All projects will be selected for funding through a competitive process and will be evaluated using established criteria listed in each Funding Opportunity Announcement. It is anticipated that awards will be made by the end of September.

For info: WaterSMART website: www.usbr.gov/WaterSMART/.

TRI-STATE PROJECTS-AZ/CA/NV

YUMA DESALTING PLANT PILOT

DROP 2 STORAGE RESERVOIR

With the Colorado River still struggling with record drought, US Department of the Interior officials recently joined representatives from three municipal water agencies from California, Nevada, and Arizona to launch a one-year pilot run of Reclamation's Yuma Desalting Plant. The ceremony also celebrated the construction of the Drop 2 Storage Reservoir Project about 30 miles west of Yuma, which is about 97 percent complete.

Drought, population growth, and the impacts of climate change on water in the Southwest have increased the stress on the Colorado River. Collaborative efforts between the Metropolitan Water District of Southern California (MWD), Central Arizona Water Conservation District (CAWCD), and Southern Nevada Water Authority (SNWA) are intended to stretch available supplies to meet both current and future water needs.

The Yuma Desalting Plant (YDP) pilot run was scheduled to begin May 3. The purpose of the pilot run is to operate the plant at one-third capacity for a period of one year to gather critical information about its capability to be used in the future to reliably produce water that could be used for a multitude of purposes.

Under the partnership, MWD, CAWCD, and SNWA are funding nearly $14 million of the pilot run's estimated $23.2 million cost. In return, each agency will receive credit in Lake Mead through a water conservation mechanism known as "Intentionally Created Surplus" (ICS). The amount of storage credits each agency receives will be proportionate to its funding contribution.

In total, about 21,700 **a**cre-**f**eet (AF) of desalted water will be produced during the pilot run. This water will be combined with 7,300 acre-feet of untreated irrigation drainage water and the total amount — 29,000 AF — will be discharged into the Colorado River and included in Treaty deliveries to Mexico. The pilot run will allow retention of about 30,000 AF of water in Lake Mead that otherwise would have been released as part of required deliveries to Mexico.

The Drop 2 Storage Reservoir Storage Project, located just north of the All-American Canal in southern California about 30 miles west of Yuma, will store Colorado River water that has been released from Parker Dam. The reservoir, which is 97 percent complete, will allow capture of water supplies that have been released from Lake Mead but are no longer needed because of changed weather conditions, high runoff into the river, or other factors. An average of about 70,000 AF of this formerly non-storable water will be conserved each year by the Drop 2 Storage Project for use in the US, resulting in a similar reduction in necessary water releases from Lake Mead.

Like the YDP, the $172 million Drop 2 project is being constructed by Reclamation with funding provided by SNWA, CAWCD, and MWD. In return, these entities will share 600,000 AF of ICS water credits in Lake Mead. SNWA will receive 400,000 AF of ICS water, at a maximum of 40,000 AF a year, until 2036, and CAWCD and MWD will each receive 100,000 AF of ICS water, at maximum of 65,000 AF a year, from 2016 through 2036. After 2036, all water conserved by the Drop 2 project will become system water and available to any lower Colorado River water contractors.

For info: Doug Hendrix, Reclamation, 928/ 343-8145

CALENDAR

May 15 WA
Water Rights in Washington Conference, Vancouver. Clark College, Foster Hall 126. Presented by WSU Clark County Extension. For info: Erin Harwood, Extension, 360/ 397-6060 x7720 or erin.harwood@clark.wa.gov

May 16-21 OR
Building Blocks of Floodplain Management Conference, Oklahoma City. Sponsored by Assn of State Floodplain Managers. For info: ASFPM, 608/ 274-0123 or registration@floods.org

May 17 CO
Water on the Land: Water Rights & Land Conservation Workshop, Silverthorne. Presented by Colorado Water Trust. For info: CWT, 720/ 570-2897 or www.coloradowatertrust.org

May 18 WA
Forests & the Health of Puget Sound Conference, Seattle. NHS Hall, UW Botanic Gardens, 3501 NE 41st Street, 1-5pm. UW Denman Forestry Issues Series. For info: Ellen Matheny, UW, 206/ 685-9477 or ematheny@u.washington.edu

May 18 WA
Potential of Micro-Algae for the Production of Biofuels & Bio-Products Lecture, Seattle. UW Kane Hall 130, 6:30pm. For info: http://efuturemay18.eventbrite.com/

May 18 WA
Rain Garden Design & Construction Workshop, Duvall. For info: Stacey Gianas, Stewardship Partners, 206/ 292-9875, sg@stewardshippartners.org or www.stewardshippartners.org

May 18-20 OR
Bridging Conservation & Recreation 2010: RMS & NARRP Symposium, Portland. Red Lion Hotel on the River. For info: www.river-management.org/symposium-2010/home.htm

May 19-20 WA
Upstream Fish Passage - Fish Behavioral, Engineering & Related Considerations Course, Yakima. Yakima Valley Museum, 2105 Tieton Dr. For info: NWETC, 206/ 762-1976 or www.nwetc.org/

May 19-21 CA
Developing a Sustainable Ground Water Management Policy Forum, Tahoe City. For info: National Ground Water Ass'n, 800/ 551-7379 or www.ngwa.org

May 19-21 MT
14th Annual Summer Water School, Helena. Helena College of Technology, 1115 N. Roberts St. RE: Water & Wastewater Related Presentations. For info: Barb Coffman, 406/ 753-2378 or www.msun.edu/grants/metc

May 20 WA
Permitting Small, Medium & Large Projects in Washington: Crossroads of Environmentalism & Regulation Conference, Seattle. Red Lion Hotel o 5th. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 20-21 CO
Colorado Water Law Conference, Denver. Ritz-Carlton. For info: CLE International, 800/ 873-7130 or website: www.cle.com

May 20-21 CA
California Water Law Conference, San Francisco. Hotel Nikko, 222 Mason Street. For info: CLE International, 800/ 873-7130 or website: www.cle.com

May 21 WA
Water Right Transfers in Washington Seminar, Seattle. Grand Hyatt. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 21 OR
"Should the Oregon Constitution be Amended to Protect the Environmental Rights of Future Generations" Debate, Portland. UO's White Stage Location, 70 NW Couch Street, 8-9:30am. Presented by Sustainable Future Section (Oregon BAR). For info: Oregon BAR 503/ 431-6413 or www.osbarcle.org

May 21-24 UT
National River Rally 2010 Conference, Snowbird. For info: Deb Merchant, River Network, 503/ 542-8392 or www.rivernetwork.org

May 24-25 FL
14th Annual Water Reuse & Desalination Research Conference, Tampa. Grand Hyatt Tampa Bay. Sponsored by Water ReUse Association. For info: WRA website: www.watereuse.org/

May 25 CA
Overview of Water Law & Policy in California, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

May 25 WA
2012 Hanford Budget & Cleanup Priorities Workshop, Richland. WSU-Tri Cities, 2710 University Drive. For info: Hanford Cleanup, 800/321-2008 or www.hanford.gov

May 25-26 WY
Energy Resources & Produced Waters Conference: Water Quality, Management, Treatment & Use, Laramie. Hilton Garden Inn, UW Conference Ctr. Sponsored by UW's School of Energy Resrouces & the Ruckelshaus Institute of Environment & Natural Resources. For info: uwyo.edu/enr

May 25-27 FL
2010 National Environmental Partnership Summit, Orlando. For info: www.environmentalsummit.org

May 26 MT
Montana Water Laws & Regulations Seminar, Helena. Holiday Inn Downtown. For info: HalfMoon LLC, 715/ 835-5900 or www.halfmoonseminars.com/

May 26 OR
Water Rights Boot Camp, Sisters. Aspen Lakes Golf Club. Sponsored by Water for Life. For info: Schroeder Law Offices, www.water-law.com; Helen Moore, WFL, 503/ 375-6003 or helen.moore@waterforlife.net

May 26-27 CO
EPA's Numeric Limits to Construction Site Stormwater Discharge & BMPs to Achieve Course, Greenwood Village. Wingate by Wyndham-Denver Tech Ctr. For info: NWETC, 206/ 762-1976 or www.nwetc.org/

May 26-27 WA
Construction Site Erosion & Pollution Control, Shoreline. For info: UW Engineering website: www.engr.washington.edu/epp/cee/wet.html

May 27 WA
Fisheries & Hatcheries: Legal & Regulatory Frameworks Seminar, Seattle. Red Lion Hotel on 5th. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 28 WA
Project Permitting Strategies Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

May 28 CO
Water on the Land: Water Rights & Land Conservation Workshop, Fort Collins. Presented by Colorado Water Trust. For info: CWT, 720/ 570-2897 or www.coloradowatertrust.org

June 1 CO
Colorado Water Trust's 2nd Annual RiverBank: Investing in Colorado's Water Future, Denver. EventGallery 910Arts, 910 Santa Fe Drive, 5:30-8:30pm. RE: Networking/Fund Raising Auction. CWT, 720/ 570-2897 or www.coloradowatertrust.org/

June 2 MA
MEPA & NEPA Conference, Boston. Hilton Back Bay. For info: Law Seminars Int'l, 800/ 854-8009 or www.lawseminars.com

June 2-3 WA
Community Energy Roadmap: Planning, Policy & Projects Conference, Bellevue. Meyenbauer Ctr. For info: www.communityenergyroadmap.com

June 2-3 CA
Successful CEQA Compliance Intensive Seminar, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 2-4 WA
Model Toxics Control Act Series Course, Seattle. NWETC Headqtrs, 650 South Orcas Street. For info: NWETC, 206/ 762-1976 or www.nwetc.org/

June 2-4 CO
Past, Present & Future of Our Public Lands: NRLC 2010 Martz Summer Conference, Boulder. UC Law School. Sponsored by Natural Resources Law Center. For info: NRLC, 303/ 492-1286, nrlc@colorado.edu or www.colorado.edu/law/centers/nrlc/

June 3 WA
Renewable Energy Landscapes Lecture, Seattle. UW Kane Hall 130, 6:30pm. For info: http://efuturejune3.eventbrite.com/

June 3 CA
Habitat Conservation Planning Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 3-4 WA
Water Law in Washington Seminar, Seattle. Sheraton Hotel. For info: Law Seminars Int'l, 800/ 854-8009, registrar@lawseminars.com or www.lawseminars.com

June 3-4 WA
Model Toxics Control Act Cleanup Levels Workshop, Seattle. EOS Alliance HQ, 650 Orcas Street. For info: NWETC, 206/ 762-1976 or www.nwetc.org/

June 4 OR
Toxics Summit, Portland. World Trade Center, 121 SW Salmon. For info: Holly Duncan, Environmental Law Education Center, 503/ 282-5220, hduncan@elecenter.com or www.elecenter.com

June 6-10 TX
16th Int'l Symposium on Society & Resource Management: Tyranny of "Or": Conservation or Development? Preservation or Utilization?, Corpus Christi. For info: www.issrm2010.iasnr.org/

June 7-11 France
River Restoration: Fluvial-Geomorphic & Ecological Processes Shortcourse, Lyon. For info: http://institutbeaumont.com

June 8 OR
2010 Conference on the Willamette River Basin: Water Quality & Environmental Cleanup, Portland. World Trade Center, 121 SW Salmon. For info: Holly Duncan, Environmental Law Education Center, 503/ 282-5220, hduncan@elecenter.com or www.elecenter.com

June 8-10 OH
Principles of Groundwater: Flow, Transport & Remediation Course, Westerville. For info: National Ground Water Ass'n, 800/ 551-7379 or www.ngwa.org

June 8-10 CA
EPA Resilient Water Management Strategies for a Changing Climate: Developing Decision-Support Tools Local Communities Conference, San Francisco. For info: Matt Small, EPA Region 9, 415/ 972-3366

June 8-11 NV
New MODFLOW Course: Theory & Hands-On Applications, Las Vegas. For info: National Ground Water Ass'n, 800/ 551-7379 or www.ngwa.org

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

CALENDAR

(continued from previous page)

June 9 OR
Solar Installation Seminar, Portland. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

June 9 CA
NEPA Overview & Refresher Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 9-10 AZ
Creating New Leadership for Arizona's Water & Environment in a Time of Change Conference, Tucson. UA Student Union. Presented by the Water Resources Research Center (U of Arizona). For info: WRRC, 520/ 621-9591, wrrc@cals.arizona.edu or http://cals.arizona.edu/azwater

June 10 CA
California Water Projects & Urban Water Supplies Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 10-11 CA
California Wetlands Seminar, Sacramento. Hilton Hotel. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 10-11 TX
Endangered Species Act Conference, Austin. Omni Downtown. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 11 WA
Financing Renewable Energy Seminar, Seattle. For info: The Seminar Group, 800/ 574-4852, email: info@theseminargroup.net, or website: www.theseminargroup.net

June 13-16 FL
Southeast Desalting Ass'n Spring Seminar: "Back to the Basics" Captiva Island. For info: SEDA, 772/ 781-7698, admin@southeastdeslating.com or www.southeastdesalting.com

June 14-18 OR
Water Goverance & Conflict Management Course, Corvallis. OSU. For info: Lynette de Silva, OSU, 541/ 737-7013, desilval@geo.oregonstate.edu or www.transboundarywaters.orst.edu/training/Water%20Governance/home.html

June 15-16 OR
1st Annual Pacific Northwest Climate Science Conference, Portland. PSU, Hoffman Hall. Presented by Oregon Climate Change Research Institute. For info: OCCRI at: http://occri.net/

June 15-17 CA
Toward Sustainable Groundwater in Agriculture: An Int'l Conference Linking Science & Policy, Burlingame. Hyatt Regency Airport. Organized by UC Davis & Water Education Foundation. For info: Dr. Thomas Harter, UC Davis, email: ThHarter@ucdavis.edu or www.ag-groundwater.org/

June 15-18 BC
Infrastructure, Information & Environment: What is Our Water Legacy? Conference, Vancouver. Hyatt Regency. Canadian Water Resources Ass'n 63rd National Conf. For info: www.cwra.org/national_conference.html

June 16-18 CA
WESTCAS 2010 Annual Conference, San Diego. Catamaran Resort. For info: Dawn Moore, 770/ 424-8111, email: westcas@mindspring.com or www.westcas.org

June 21-23 CA
California Rapid Assessment Method Course (Riverine-Part I), Moss Landing. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 23 CA
Water Supply & Conservation Planning in California Course, Sacramento. Sutter Square Galleria, 2901 K Street. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 23-24 NC
National Ecosystem Markets Conference, Raleigh-Durham. For info: www.regonline.com/builder/site/default.aspx?EventID=822073.

June 23-24 ID
EPA's Numeric Limits to Construction Site Stormwater Discharge, Coeur d'Alene. Best Western Coeur d'Alene Inn. For info: NWETC, 206/ 762-1976 or www.nwetc.org/

June 24-25 CA
California Rapid Assessment Method Course (Estuarine-Part II), Moss Landing. For info: UC Davis Extension, 800/ 752-0881 or http://extension.ucdavis.edu

June 24-25 CA
Green Building Conference, San Francisco. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 24-25 FL
Florida Water Quality Regulation Conference, Tampa. Westin Harbour Island. For info: CLE International, 800/ 873-7130 or website: www.cle.com

June 25 CO
Water on the Land: Water Rights & Land Conservation Workshop, Granby. Presented by Colorado Water Trust. For info: CWT, 720/ 570-2897 or www.coloradowatertrust.org

June 27-29 MT
Western Governors' Association Summer Meeting, Whitefish. For info: www.westgov.org