

SILVER STATE



Water Environment NEWS



The organization to educate and assist those who have an interest in water quality in Nevada
October/November 2009



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NWEA SILVER STATE WATER NEWS IS GOING ELECTRONIC STAY IN TOUCH AND SUBSCRIBE TODAY!

In 2010, the Silver State Water Environment News will replace its quarterly printed edition with an electronic format including email distribution and access online at <http://nvwea.org/sswe-news>.

Our first electronic edition and distribution will be Volume I, January 2010.

To stay in touch, please subscribe online at <http://nvwea.org/subscribe>

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Brown and Caldwell

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T A B L E O F C O N T E N T S

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Cover Photo:

Submitted by Ben Sanford, SNWA

Would you like to see your photo on the cover of the newsletter? Send in your photos for possible inclusion in an upcoming NWEA Newsletter:

Rob Davies, Publications, rdavies@brwncald.com



President's Preamble Spotlight on NWEA Members Who Serve the Water Quality Community

By Dr. James

Dear Fellow NWEAer's,

There are many ways that NWEA's members can serve the water quality community and the public. Many work tirelessly behind the scenes throughout the year to provide educational and communications services. Here are several examples of the good work that they are doing. If you'd like to join any of the efforts shown below, please email me at dave.james@unlv.edu and I'll put you in touch with the right persons.

1. ***Tri-State Seminar on the River.*** NWEA members, Bruce Dacko, Keni Whalen, Dave Ruegge, Jake Jacobson and Tom Rura, working in association with members from AZ Water and the California Water Environment Association, have been hard at work organizing the Sept 22-24 2009 Tri-State Seminar. Bruce, Keni and Dave are serving on the team that is developing a renewal of the joint Arizona, California, Nevada Tri-State agreement, which will be signed early in 2010 and will support continuing the annual Tri-State seminar for the next five years. Tri-State continues to be a major draw throughout the southwest, offering an unbeatable combination of price, location, vendors, seminars, workshops and fun. You can always check out what's happening with Tri-State at their web page: <http://www.tristateseminar.com/>
2. ***Increased web-site functionality and a proposal to convert to an electronic newsletter.*** NWEA's Web-master, Suey Huey, has been working with our web host, Zee Designs, to add functionality to NWEA's web-page, <http://nvwea.org/home>, adding a module that will improve our ability to both stay up to date with changes in our membership. Newsletter editor Rob Davies and Web Master Suey Huey have initiated an effort to change our newsletter from its current combined print/electronic format to an all-electronic web-based format. In making this shift, we intend to link the newsletter to a wider range of resources available through the world-wide web, including WEF resources, and, in so doing, increase the number of visits to our web page. All subscribers will receive a quarterly email notice with a link to each new newsletter edition as soon as it is published. We hope to launch the web-based all-electronic newsletter version early in 2010.

1. **Voluntary certification professional development hours tracking.** NWEA's Certification Board has been working with NDEP to develop a set of procedures for voluntary certified water quality professionals to acquire, record and track professional development hours (PDHs). The voluntary program is expected to launch soon. For more information, please contact Assistant Administrator Jennifer McMartin at jenniferm@nvwea.org.
2. **Professional development seminars.** To accompany our voluntary certification efforts, NWEA's Professional Development committee chairs Margie Regan, Starlin Jones and John Buzzone have been organizing workshops and webinars, north and south, to provide opportunities for our water quality professionals to acquire the PDHs that they may need for certification renewals.
3. **2010 Annual Conference.** A team lead by NWEA Immediate Past-President Linda Peterson and NWEA President-elect Stephen Long is developing the call for papers, vendor arrangements and conference program for our upcoming annual conference to be held Tuesday through Thursday, April 13-15, 2010 at John Ascuaga's Nugget in Sparks, NV. In addition to an informative conference program (another great opportunity to earn PDHs for your certification and license renewals!) and a great conference venue, there still should be lots of snow in the Sierra Nevada ski resorts and great scenery around Lake Tahoe. Make your reservations early!
4. **Members serving the wider community.** Nevada continues to be very-well represented at the national level. Rick Warner, NWEA's outgoing representative to the House of Delegates for the past three years, has been nominated to a seat on WEF's Board of Trustees. NWEA Past-president Eric Leveque was elected as NWEA's WEF Delegate this past spring to replace Rick, and will begin representing Nevada at WEFTEC this fall. Eric is also serving on an Engineers' without Borders water quality team, and has recently completed a trip to Ghana. Eric's article about this trip may be seen in this issue. Starlin Jones continues his service as a national WEF Delegate-At-Large, and is constantly involved with the planning and execution of the National Operations Challenge competition. NWEA's northern Nevada YP committee chair, Candice Siwarga, is now on the planning team for WEF's next Young Professional (YP) Summit, to be held March 11, 2010 in Puerto Rico.

As you can see, many NWEA members are hard at work providing opportunities for the professional community to improve its practice of protecting our water quality. We work hard at it and also have tons of fun.

If you'd like to join us, please email me at dave.james@unlv.edu



SAVE THE DATE!

Nevada Water Environment Association

2009 Annual Conference

April 13-15, 2010

at

John Ascuaga's Nugget, Sparks, Nevada

*We are planning our 2010 conference.
Make sure you add this date to your calendar!*

*Watch for our conference agenda available on-line at
NvWEA.org in March 2010.*

*If you would like to be a presenter, sponsor or
volunteer, please contact us through the NvWEA
website.*

2009

By Bruce Dacko

The 25th Tri-State was held September 22-24 in Primm, Nevada. Being the 25th there were some extra to celebrate. There was a band, drink and munchies provided for everyone on the eve of the conference. In addition, the committee invited some of the original “old timers” to take part. Two of Nevada’s own were among the honored: Steve Cotrell and Keni Whalen

The conference had about 1300 attendees and another 500 connected with the exhibitors, which was great considering the economy.

This was the first conference going Tuesday through Thursday instead of the traditional Thursday, Friday and a half day on Saturday. This offered chances for more educational credits then in the past and for a great price.

Everything flowed very well this year. Online registration worked well, and the new scanning system got people in and out faster then any time in the past.

Tim Page and Jake Jacobsen were the program chairs for the first time and put on a program that was well received. They are already looking forward to next year and have the 2010 call for papers up on the web site!

The 2010 Tri-State Conference will be held in Primm Nevada Tuesday September 28th through Thursday the 30th. Abstracts are now being accepted. See the Tri-State Web site for additional information. <http://www.tristateseminar.com/>

Tri-State



The Ghana Experience

by Eric Leveque and Jessica Walters

Five different types of mosquito repellent, SPF 85 sunscreen, four shots, malaria medication, and some cargo shorts and we were all set for an adventure of a lifetime! From June 25 to July 8, five engineers and a UNLV journalism student from Las Vegas along with three teachers from Philadelphia traveled to a remote village in the Volta region in Ghana Africa, called Tsito Awudome. The goal - to raise the standard of living for the children of the Drifting Angels Orphanage. The mission - to build a new orphanage, water well, latrine, and sanitation system as well as working with the children to emphasize the importance of good hygiene.

The orphanage is managed by Mama Elize and Kafui, Mama Elize's husband. Mama Elize and Kafui have dedicated their entire life and savings to raising these orphans who have no other place to turn. The two support 80 children, but can only house 50. The Orphanage takes good care of the children, but the conditions are not great. Most of the children sleep on a paper-thin mat, which is laid over a hard, dirty cement floor. Right now, twenty boys share a living space no bigger than 15-by-12 feet. The rest of the children are housed by surrounding families, whom Mama Elize helps financially. Most of the children are either abandoned or both parents have died and many orphans have similar stories. Drifting Angels Orphanage receives no aid from the government. A small farm owned by Mama Elize on the edge of town is the sole source of income and food for the orphanage.

In an attempt to give the children a better standard of living, the Las Vegas Chapter of Engineers Without Borders (EWBLV) in partnership with Disaster Volunteers of Ghana (DIVOG) designed and constructed a water well and new latrine for the orphanage in 2009. The ultimate goal is to build a brand new orphanage on Mama Elize's property, large enough to house all the orphans and to eliminate the problem of rent and other expenses she currently pays to the City and other families.

The work was hard but definitely worth the struggles when you see the smiling faces of the children. Words and pictures cannot describe the condition of the existing latrine when we arrived. To state that it is essentially a hole in the ground with wooden planks suspended over the pit for the children to balance is an understatement. And those of you who have seen Slumdog Millionaire will understand that, just like in the movie, there were numerous occasions where the children of Drifting Angels Orphanage would fall into the old latrine! Needless to say, when we completed the new latrine, we all buried the old latrine with a vengeance - one we all enjoyed probably too much.

It is hard to put into words what the experience in the Ghana orphanage taught us. We learned how fortunate we are in the United States, and with as happy as Ghanaians are with so little, our experience taught us that we should never fret over trivial matters. Volunteers like EWBLV, DIVOG and the teachers, show us the power of selflessness, compassion and a readiness for action. From Mama Elize and Kafui, we saw the endurance of devotion and dedication. And from the orphans, we experienced unconditional love and happiness. We are all walking away from the Ghana Experience better people!

But the work continues. EWBLV's determination to improve the standard of living for the orphans at Drifting Angels Orphanage has been a successful, but it is not complete. Twenty children are still sleeping on the cement floor of a single room. The money that should be going towards the children's health and education is instead going towards the rent of the existing complex. The only way to solve these problems is to build a new orphanage on Mama Elize's farm. The design and engineers are ready. The only thing missing is the time, expertise, and financial support of people like you. If you would like to help you can visit EWB's website at <http://www.ewb-lv.org/>. One hundred percent of the donations go to build the new orphanage. Every little bit helps towards a better living environment for these children. It doesn't take much to impact the world!



Las Vegas Professional Chapter <http://www.ewb-lv.org/>
ENGINEERS WITHOUT BORDERS-USA



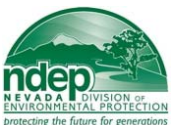
Stimulus Money Comes to Nevada for Water Infrastructure

Nevada received stimulus money for water and wastewater infrastructure through the State Revolving Fund Program. Nevada's Clean Water (Wastewater) State Revolving Fund (SRF) received \$19.2 million and Drinking Water SRF received \$19.5 million in American Recovery and Reinvestment Act (aka Stimulus) money from the federal government. Although this amount of money is small compared to the demand in Nevada which is close to a billion dollars for wastewater and half a billion dollars for drinking water, the money will help some small rural communities. The SRF programs provide low interest loans for the construction of infrastructure. The American Recovery and Reinvestment Act (ARRA) money is in addition to the traditional SRF programs but the focus differs from the traditional SRF program. The ARRA is focused on job creation by quickly delivering assistance to "ready to go" projects.

One of the requirements of the ARRA is that the states provide "additional subsidization". Nevada opted to offer the additional subsidization in the form of 100% principal forgiveness (essentially a grant) to "disadvantaged" communities. Nevada's Drinking Water SRF defines a disadvantaged community as a community where the local median household income is 80% or less of the state median household income. For ARRA, Nevada applied this definition to both drinking water and wastewater. Many small rural communities in Nevada meet the definition of a disadvantaged community and will benefit from the additional subsidy.

Nevada has used the infusion of federal money and the ability to provide additional subsidy to address as many drinking water arsenic mitigation projects as possible. It seemed appropriate to use federal dollars to fund projects necessary to comply with an "unfunded" federal mandate. Since finding a solution to the arsenic issue takes time, especially if treatment and pilot testing are required, only those communities that have been working to find a solution to the arsenic issue will benefit from the ARRA funds. For those communities that have been taking steps to address arsenic compliance, it paid off, literally.

At this time, all of the ARRA funds have been committed to projects; however, funds remain available in the traditional SRF programs.



Article provided by:

Office of Financial Assistance - Nevada Division of Environmental Protection
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Clean Water State Revolving Fund Program ARRA Projects

Alamo Sewer & Water GID	Rehab. & improvements of treatment ponds & eff. reuse	1,034,600
Canyon GID	Reuse water pipeline and equipment	1,361,000
Churchill County	Sewer extension to Oasis MHP	2,490,000
Clark Co. - Indian Springs	Wastewater Treatment Plant upgrade	5,700,000
Esmeralda Co. - Goldfield	Relining treatment ponds	427,220
Henderson	Relocate sewer out of Pitman Wash	2,600,000
McDermitt Sewer Dist.	Design & reline sewer ponds	284,647
Mineral Co. - Hawthorne	Rehab. Of wastewater treatment ponds	1,531,500
Nye Co. - South Gabbs	Sewer rehab. & replacements	710,000
West Wendover	Replacement of headworks	710,000

Drinking Water State Revolving Fund Program ARRA Projects

Alamo Sewer & Water GID	Arsenic mitigation	302,000
Beatty Water & San. Dist	Arsenic treatment	2,910,000
Carson City	Upgrade wells & water mains	3,400,000
Elko Co - Jackpot	Uranium mitigation	737,000
Hawthorne Utilities	Construction of new well	470,000
McDermitt Water System	Hydro. eval, well mod. and/or construction of new well	492,000
Mineral Co—Schurz School Dist.	Arsenic & uranium treatment	327,000
Silver Springs Mutual Water/1	Installation of central arsenic treatment system	3,662,350
Silver Springs Mutual Water/2	Water line to connect MHP to treatment system	791,000
Southern Nevada Water Auth.	Audit of 2 treatment facilities - for conservation benefits	2,000,000
Tolas Water Works	Arsenic treatment & new well	720,000
Topaz Lake Water Co.	Central arsenic treatment system	780,000
Truckee Meadows Water Auth.	Replace flume destroyed by a 2008 earthquake	2,000,000

Certification Board

CERTIFICATION CALENDAR

Exams are given on the 2nd Thursdays of March, June, September & December in Las Vegas, Reno, Ely and Elko. Below is a listing of upcoming dates. Please visit the website for more information at www.nvwea.org.

September 10, 2009	EXAMINATION
October 22, 2009	Notification of pass or fail
November 10, 2009	Application deadline for December exam
November 24, 2009	Test approval/denial notification
December 2, 2009	September certificates mailed
December 10, 2009	EXAMINATION
January 21, 2010	Notification of pass or fail
February 11, 2010	Application deadline for March exam
February 25, 2010	Test approval/denial notification
March 3, 2010	December certificates mailed
March 11, 2010	EXAMINATION
(North Exam Date - TBA)	
April 22, 2010	Notification of pass or fail
May 10, 2010	Application deadline for June exam
May 24, 2010	Test approval/denial notification
June 2, 2010	March certificates mailed

From your Certification Board!

The NWEA Certification Board is pleased to announce that computerized certification exams are now being offered! Many of you have requested computerized exams with flexible testing dates and we are very excited that this service is now available.

Pencil and paper exams will continue to be offered quarterly for the same fees. Computerized testing is available for all certification disciplines except Industrial Waste Inspector.

The examinations will be administered at testing centers in Las Vegas and Reno and over 170 other testing centers throughout the United States.

The Computerized Exam Application will need to be submitted along with the normal exam application. The Computerized Exam Application and Instructions can be found on our website www.nvwea.org. The cost for the computerized exam is \$68 in addition to the regular exam fee (mandatory wastewater exams \$60; voluntary exams \$150). The total fees to take a computerized exam will be \$128 for mandatory wastewater exams and \$218 for voluntary exams.

If you have any questions, please feel free to contact the Assistant Program Administrator, Jennifer McMartin at (775) 465-2045 or jennifernwea@yahoo.com.

Certification Board

OPERATOR CERTIFICATION MARCH - APRIL 2009

The following have passed exams of certification for Wastewater Treatment Plant Operator (WW), Wastewater Quality Analyst (QA), Industrial Wastewater Inspector (IW), Collection System Operator (CSO), or Industrial Waste Operator (IWO) Nevada Plant Maintenance (NPM):

Grade I - WW

**Orais, Dave E.
Pharr, Ryan W.
Tran, Phuoc H.**

Grade II - WW

Hoover, Elise V.

Grade II - QA

Witherspoon, John R.

Grade I - CSO

Carroll, Robert L.

Grade II - CSO

Perkins, Joe

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Alternatively, email CSC@wef.org or call 1-800-666-0206 for assistance.

*Thanks and share with a friend
who may not
be getting important information
from WEF and NWEA!*

Visit the Nevada Board of Certification Web site at www.nwea.org for the Complete Alphabetical Listing of Wastewater Treatment Plant Operators, Wastewater Quality Analysts, Industrial Waste Inspectors, Collection System Operators, and Industrial Waste Operators.

HOT LINE NUMBER (775) 465-2045

Trace Contaminants in Drinking Water: A Holistic Perspective

Benjamin D. Stanford, Southern Nevada Water Authority

Shane A. Snyder, Southern Nevada Water Authority



Sampling Orange County effluent (from left to right): Mike Wehner (OCWD), Fernando Rosario (CU Boulder), Shane Snyder (SNWA), Mark Benotti (SNWA), Ben Stanford (SNWA)

All water on Earth contains measurable levels of various anthropogenic chemicals. The number and level of detectable contaminants depends upon the factors influencing the water, the analytical methods applied, and the intensity of monitoring programs. In the past decade, a great deal of interest and concern has been generated regarding trace pharmaceuticals and personal care products (PPCPs) and endocrine disrupting compounds (EDCs) in water. While this era has seen a flurry of activity related to these emerging contaminants, the earliest published manuscripts regarding EDCs and PPCPs in North American waters date back to the 1960s and 1970s. However, the presence of anthropogenic compounds in drinking water has increasingly become a concern for water quality maintenance in drinking water supplies, generally because of public perception about the presence of such contaminants.

One major contributor of trace organic pollutants is wastewater discharge, which impacts surface water quality by adding chemical contaminants not completely removed by current wastewater treatment processes. Indirect water reuse, whereby upstream wastewaters become part of the source water for downstream drinking water treatment plants (DWTPs), is a necessity in Las Vegas and many other areas where shortages of water supplies are becoming prevalent and severe with the ever-increasing population. With such water reuse/recycling systems in place, be they intentional or unintentional, the propensity of water contamination is greatly increased. Additionally, recent studies at SNWA have linked climate change, drought, and increasing concentrations of wastewater contaminants in drinking water supplies: decreased river flows and lake volumes mean that wastewater discharges become a higher percentage of the water supply. Furthermore, with improvements in analytical sensitivity and selectivity, the terms “ubiquity” and “detection” begin to merge as chemists find traces of EDCs and/or PPCPs in a variety of aquatic environments, including seawater, coastal sediments, inland sediments, and freshwater. While detection and ubiquity merge, the scientific community must simultaneously grapple with the issue of the relationship between detection and risk. If a compound is detected in drinking water at parts per trillion concentrations (0.000000001 g/L), does that detection automatically imply a risk? As a corollary, if a compound is not detected in drinking water, is the population free of excess risk?

The public health impacts that detection of low levels of EDCs and/or PPCPs may have on water utilities and regulatory agencies has yet to be determined. Many researchers agree that the long-term risk to humans from any single compound at sub- $\mu\text{g/L}$ levels is negligible. However, these compounds are detected as complex mixtures, and it is not clear what toxicological implications chronic exposure to suites of trace contaminants may pose. Recent work by the Research and Development group at SNWA using a bioassay showed that the amount of estrogenic activity found in a wastewater extract was less than that attributed to phytoestrogens present in extracts of many common foods. For example, it was concluded that a single serving of soy-based baby formula (4 oz.) contained the same amount of estrogenic activity as 44 liters of secondary wastewater effluent. This is not meant to suggest that baby formula is dangerous for infants, nor is it meant to suggest that 44 liters of wastewater is as safe as 4 oz. of soy-based baby formula. Rather, it illustrates the complex relationship between trying to associate relative source contributions and risks associated with multiple exposure routes including, but not limited to water, air, and food.

The impact of EDCs and wastewater contaminants on aquatic species is irrefutable, however. Many studies have identified impacts on wildlife species from short- and long-term exposure to sewage effluents and/or compounds present in sewage effluents. In 1996, the first known North American report of endocrine disruption in fish below wastewater outfalls was published. Since this time, there have been several other reports also documenting endocrine type effects on fish and other aquatic species exposed to wastewater effluents. Recently, one study using pristine lakes in Canada showed that exposure to low levels of steroid



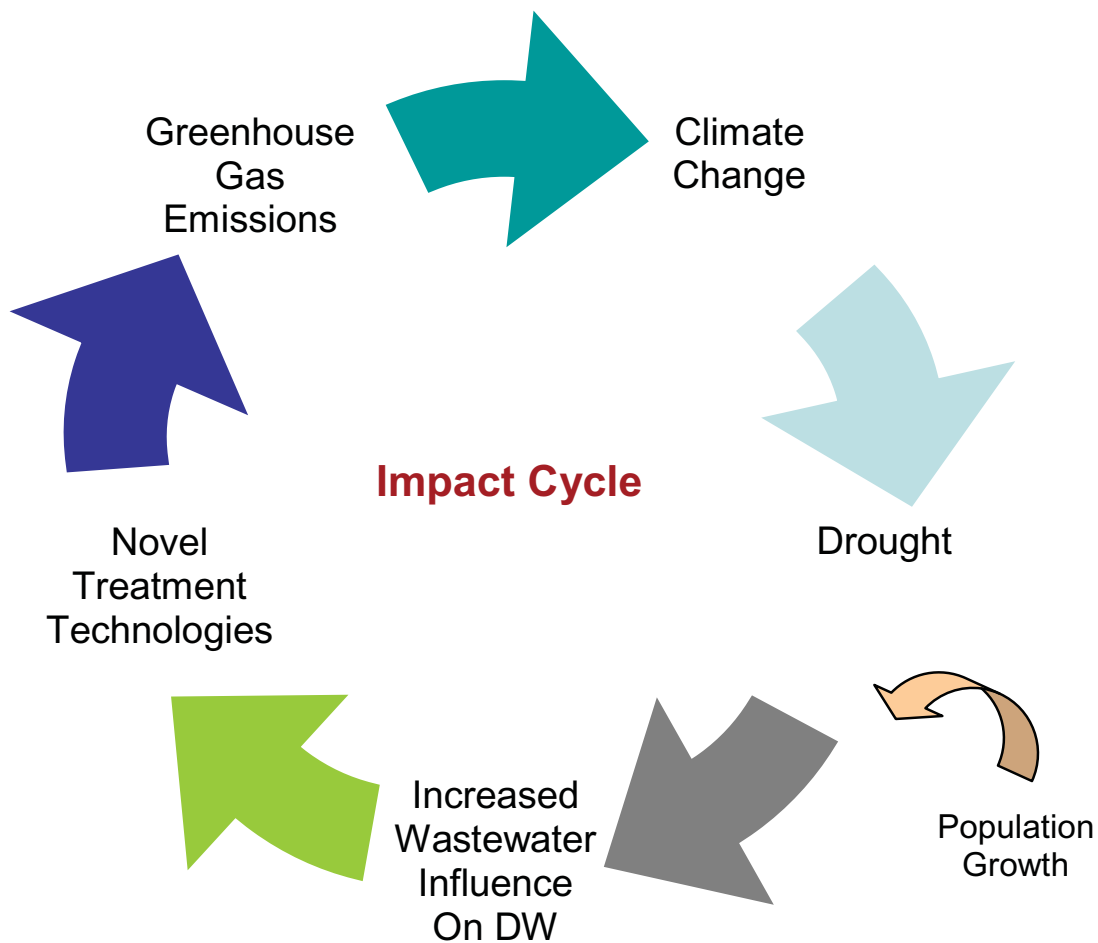


Figure 1: Drinking Water Impact Cycle

hormones (i.e., concentrations found in wastewater) could cause the demise of an entire fish population living within that lake. Whereas wildlife may be directly exposed to water or contaminated soils and sediments at or near sewage outfall, direct contact of humans with surface water is likely to be minimal, with the exception of potential infrequent dermal contact or incidental ingestion during swimming or other recreational activities.

Therefore, it would appear that drinking water represents the most direct vector for human exposure to wastewater derived contaminants. In fact, there is a growing literature on the occurrence of PPCPs and EDCs in municipal drinking water and there is no doubt that humans are exposed to a myriad of such compounds through water. However, it turns out that water is not the only exposure route: Air, food, and beverage items also contain measurable levels of EDCs and PPCPs. In fact, based on average daily intake (e.g., 2 liters of water per person per day vs. 24,000 liters of air per person per day), air and dietary routes may account for thousands of times greater exposure to EDCs, PPCPs, carcinogens, and other contaminants.

Thus, providing a drinking water that is 100% free of EDCs and PPCPs (1) is impossible as no technology can completely remove all contaminants and (2) would likely provide little benefit as the concentrations present in drinking water are far below public health risk guidelines and pale in comparison to food and airborne exposure routes. Furthermore, most technologies capable of 99% or 99.9% removal of contaminants are highly energy-intensive and are associated with increased greenhouse gas production. Given the link between greenhouse gas production, climate change, drought, wastewater flows, contamination of drinking water, and the use of improved (but energy-intensive) treatment technologies to remove said contaminants (Figure 1), we must all consider seriously the risks and benefits of improved drinking water treatment. This must be weighed concurrently with dietary and air exposure scenarios to gain a holistic picture of the public health risks. Furthermore, when improved treatment technology is warranted, it should be focused on the wastewater side to reduce the impacts on wildlife species and to provide the greatest benefit to all downstream drinking water treatment plants.



CSN Class Schedule

The following CSN classes are scheduled for the Spring 2010 semester that begins the week of January 18th:

ESH 245B	Water Treatment Plant Operation II
ESH 247B	Wastewater / Water Mathematics II
ESH 250B	Pump Operation & Maintenance

For more information please visit CSN online at www.csn.edu

Pump Operation & Maintenance Instructor Needed

“The Environmental Safety & Health division of the Applied Technologies Department at CSN is looking for a qualified instructor for the Pump Operation & Maintenance class. Interested individuals should contact LeAnna Risso at (702) 668-8487 or Bill Shepherd at (702) 668-8426.”



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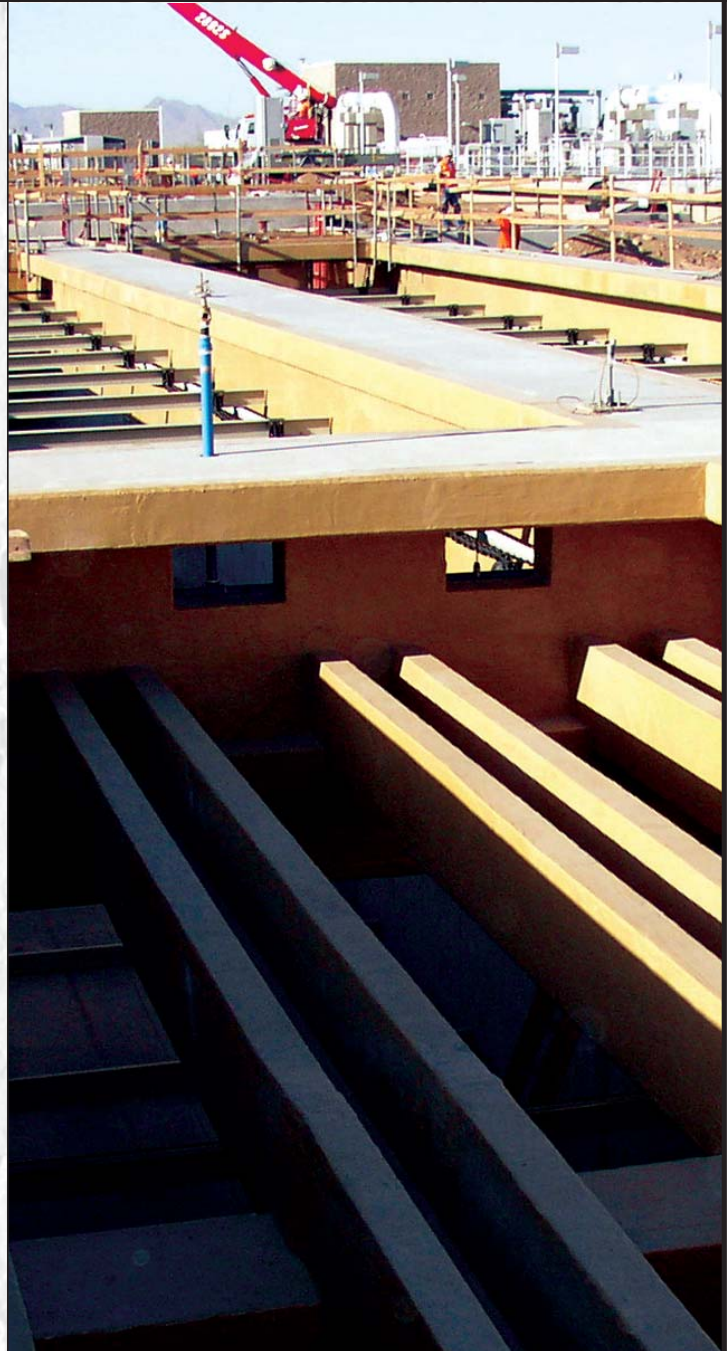
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